

FASTMATCH



Accelerating Forex Trading to the Next Level

- Superior Quality Order Flow
- Fast Technology
- Innovative Functionality
- Transparency

FIX PROTOCOL SPECIFICATION DOCUMENT

AutoEx ORDER ENTRY

MARKET DATA

Revision History		
Version	Last Updated	Updates
1.0	October 3, 2011	
2.6.1	November 8, 2012	“Possible values for tag 103 <OrdRejReason> are: 99 = Other”
3.0	July 19, 2013	Support for message types x, y, H, N, W Support for quantity tiers in market subscription Support for GoodForTime and ExpireMilliseconds in New Order Single message Support for Mid-Price market data Cancel / Replace Order
3.1	Aug 19, 2013	Support for pegged order offsets, tags 9001, 9002
3.2	October 15, 2013	Particularized description of Cancel / Replace Order logic
3.2.1	October 25, 2013	Particularized description of MDEntryID
3.2.2	November 6, 2013	Reworded description of tag 264 <MarketDepth>
3.3	December 3, 2013	Particularized description of TradingSessionStatus message on Logon Added description of Resend Requests <2> session message New quote qualifier value 695 = F Tag <870-872> Group description in Security List message
3.4.3	March 6, 2014 April 4, 2014	Support for FM/FIX product Support for new order type OrdType 40=5 MarketOnClose in NewOrderSingle and OrderCancelReplaceRequest messages Support for optional tag 1079 MaturityTime for MarketOnClose (FM/FIX) orders and market data Support for new ExecType 150=D Restated in ExecutionReport message to price FM/FIX orders at auction Renaming of FM/FIX product
3.4.4	May 1, 2014	Changed description of tag 277 to : I = Traded with Last Look
3.4.6	June 26, 2014	Stated unavailability of MarketOnClose (SafeMatch) market data in the current release
3.4.7	January 5, 2015	Added requirement for tag <QuoteID> 117 in NewOrderSingle message for IOC/FOK orders
3.4.8	February 5, 2015	Support for SafeMatch point-in-time auction product. Support for new order type OrdType 40=A OnClose Retiring of FM/FX product.
3.4.9	December 2, 2015	Fixed typos on page 43 tag 1070 to tag 1079

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INTRODUCTION

1.1 PURPOSE

This document is provided as a guide for FASTMATCH clients, as to how the FIX Protocol may be used to establish connectivity with FASTMATCH for the purposes of Foreign Exchange trading. It is intended to provide a guideline for the purpose of order-driven trading of FX on the FASTMATCH platform using the FIX 4.2 and FIX 4.4 protocols. Market data is only available in FIX 4.2 format. All counterparties will need to certify their trading system with FASTMATCH in the User Acceptance Testing ("UAT") environment before being called production ready.

Financial Information eXchange ("FIX") Protocol is a bi-directional messaging series developed for the purpose of transferring financial information in a timely matter. This document is intended as a supplement to the published FIX Protocol Specification, which may be found at <http://www.fixprotocol.org>.

1.2 CONTENT

Included in this document are the following:

- ❖ General definitions and specifications for clients using FIX to transmit orders
- ❖ General definitions and specifications for clients using FIX to receive prices
- ❖ FIX message formats to be used and details of their expected parameters.

2 OVERVIEW

2.1 SCOPE

The FIX Interface provides and supports two distinct connections:

- ❖ Streaming/Prices. A Separate FIX session to request and receive market data
- ❖ Trading. A Separate FIX session to place orders and receive execution reports.

3 CONNECTIVITY

3.1 FASTMATCH MATCHING ENGINE LOCATIONS

FASTMATCH matching engine is located in Equinix NY4, LD4 and TY3 Data Centers:

- ❖ NY4, 755 Secaucus Road, Secaucus, NJ 07094
- ❖ LD4, 2 Buckingham Avenue, Slough, Berkshire, SL1 4NB
- ❖ TY3, 1-9-20 Edagawa Koto-Ku Tokyo 135-0051

3.2 CONNECTIVITY OPTIONS

- ❖ Clients have a choice of establishing cross-connect and internet connectivity to FASTMATCH NY4, LD4 and TY3 locations.
- ❖ Local cross-connect to FASTMATCH ECN cages in NY4, LD4 and TY3 data centers could be used for both Production and UAT access.
- ❖ Metro connections from other data centers are accepted.
- ❖ Order Entry and Market Data FIX traffic will be TCP based with unique target (IP:port) for each FIX session.
- ❖ No multicast traffic will travel via client connectivity.
- ❖ To start UAT certification process, client can establish the Internet connectivity to FASTMATCH.

3.3 CROSS-CONNECTIVITY

- ❖ All client cross-connect connectivity is 1Gbps Multimode or Single-mode fiber.
- ❖ FASTMATCH will issue a client a LOA to connect to FASTMATCH ECN with up to two fiber cross-connects.
- ❖ To avoid delays, we ask a client to confirm the correct firm or third-party agent name to be used in LOA.
- ❖ If two cross-connects are ordered, then they will be connected the different access switches for redundancy.
- ❖ BGP is preferred choice even on a single cross-connect connection for support purposes. And static routing is accepted if client hardware cannot support BGP.
- ❖ FASTMATCH will advertise registered IP address space from a registered BGP ASN.
- ❖ Cross-connect will be addressed using RFC 1918 address space (preferred). Registered IP space could be used to avoid the IP address conflict.
- ❖ FASTMATCH will accept client's registered IP Address and BGP ASN. If required, FASTMATCH will assign client's server farm IP addresses and BGP ASN.

3.4 INTERNET CONNECTIVITY

Internet connectivity is available at NY4, LD4 and TY3 locations. There are two internet providers at every location. They may be utilized as main and failover connections. The main connection can be selected based on roundtrip statistics.

3.5 SYSTEM/SERVICE AVAILABILITY

3.5.1 STREAM SESSION:

Market for streaming opens on Sunday at 5:30 PM NY time and closes on Friday at 5:00 PM NY time. The FIX streaming service is off- line from 17:00:00 EST/EDT until 17:30:00 EST/EDT, Daily Monday through Thursday. During this time FASTMATCH resets the inbound and outbound FIX sequence numbers on all FIX trade sessions.

FIX messages on market data stream sessions are not persisted. To successfully connect, a stream session must always send Logon messages with initial sequence numbers of one (1). FASTMATCH's reply Logon message will also have an initial sequence number equal to one (1).

3.5.2 TRADING SESSION AND STP SESSION:

3.5.2.1 SESSION AVAILABILITY:

Market hours for trading are the same as for streaming: the market opens on Sunday at 5:30 PM NY time and closes on Friday at 5:00 PM NY time. The FIX trade service is off-line from 17:00:00 EST/EDT until 17:30:00 EST/EDT, Daily Monday through Thursday. During this time FASTMATCH resets the inbound and outbound FIX sequence numbers on all FIX trade sessions.

To successfully connect after 17:30:00 EST/EDT, trading sessions must send Logon messages with initial sequence numbers of one (1). FASTMATCH's reply Logon message will also have an initial sequence number of one (1).

FASTMATCH will send a Logout message to disconnect all active client sessions at 5:00 PM EST/EDT. Upon receiving the Logout message (35=5), a client should disconnect via a Logout message. Upon reconnecting to the FASTMATCH FIX Gateway, the inbound and outbound sequence numbers must be reset to one (1).

During the session FASTMATCH supports one auction of SafeMatch. Please see session [SafeMatch point-in-time auction product](#) section for details.

3.6 CONNECTING INTRADAY

For intraday logons, clients should maintain persistence and logon using the next sequence number. This will allow clients to retrieve Execution Reports that occurred during a period of disconnection.

If required, a client can set ResetSeqNumFlag tag 141=Y and send Logon messages with an initial sequence number set to one (1). The FASTMATCH Logon reply message will also have an initial sequence number equal to one (1).

3.7 FIX PROTOCOL VERSIONS

The FASTMATCH FIX Interface is based upon FIX 4.2 and 4.4 for Trade and Stream sessions.

3.8 SUPPORTED MESSAGE SET

The supported message set is as follows:

3.8.1 BUSINESS MESSAGES

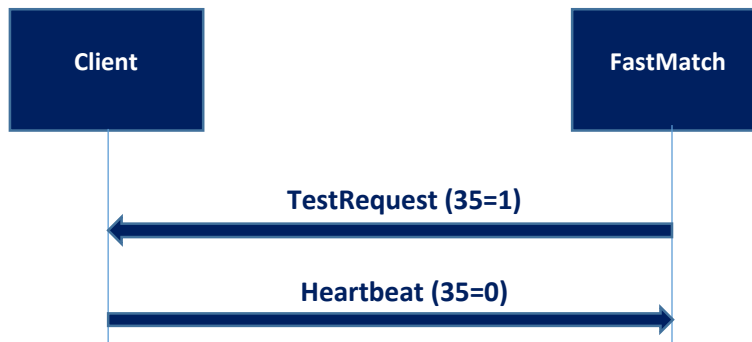
Direction	Message Name	FIX Code	Purpose
In	Security List Request	x	The Security List Request message is used to return a list of securities from the counterparty that match criteria provided on the request
Out	Security List	y	The Security List message is used to return a list of securities that matches the criteria specified in a Security List Request.
In	Market Data Request	V	Subscription and un-subscription to/from FX Spot price streams
Out	Market Data Request Reject	Y	To reject a price subscription / un-subscription
Out	Market Data Incremental Refresh	X	To provide streaming FX Spot Incremental price information
Out	Market Data Full Refresh/Snapshot	W	To provide streaming FX Spot Snapshot price information
In	New Order – Single	D	To submit orders to FASTMATCH
Out	Execution Report	8	To provide notification of: order acceptance, rejected orders, order fills & partial fills & order

			cancellations.
In	Order Cancel / Replace	G	Change the attributes of an order that has been submitted
In	Order Cancel Request	F	To cancel an outstanding order or All Open Orders
Out	Order Cancel Reject	9	Response when cancel request cannot be executed
In	Order Status Request	H	The Order Status Request message is used by the client to generate an order status message back from FASTMATCH.
Out	List Status	N	The List Status message is issued as the response to a List Status Request. It indicates the current state of the orders within the list as they exist at Fastmach.

3.8.2 SESSION LEVEL MESSAGES

Direction	Message Name	FIX Code	Purpose
In	Logon	A	Establish connection, trigger message sequence number reset.
In, Out	Heartbeat	0	Monitor connection status
In, Out	TestRequest	1	Inquire connection status
In/Out	Resend Request	2	The resend request is sent by the receiving application to initiate the retransmission of messages
In, Out	Reject	3	Reject a single invalid message (session reject)
In, Out	Logout	5	Disconnect

HeartBeat Sequence Diagram



4 FIX IMPLEMENTATION

4.1 FIX MESSAGE ENCRYPTION

Encryption of FIX messages themselves is not supported.

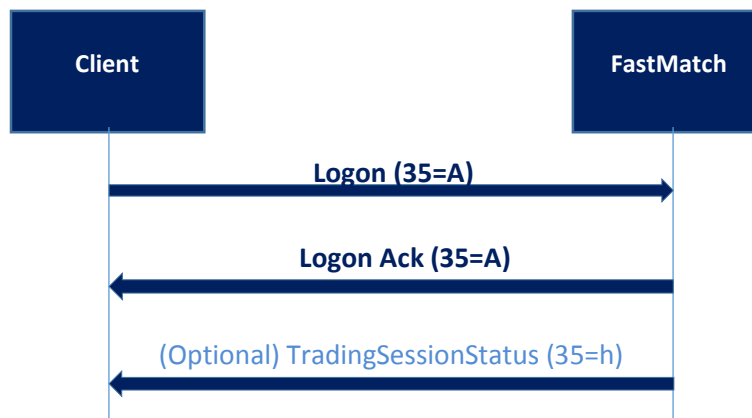
4.2 ESTABLISH CONNECTION / DISCONNECTION

4.2.1 CONNECT

Connection to the system is initiated by the client issuing a FIX Logon message.

If the connection can be accepted, then FASTMATCH will send a response Logon message (35=A) as an acknowledgement.

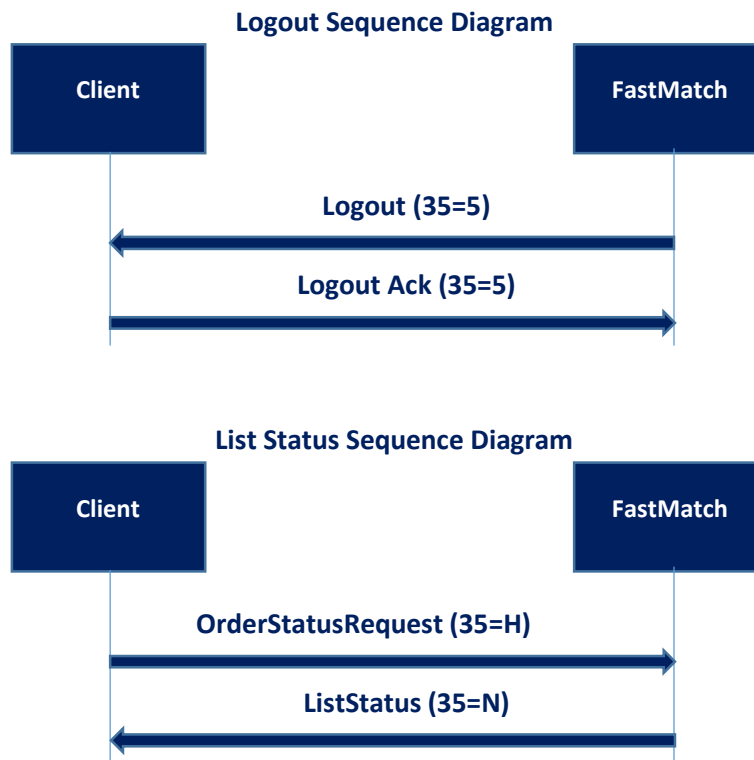
Logon Sequence Diagram



4.2.2 DISCONNECT

By default Fastmatch does not send TradingSessionStatus message on Logon. However in some cases clients can be configure to receive it.

Closing of a connection to the system is initiated by sending a Logout message (35=5) to the opposite party. This should then be acknowledged by the other party with a counter Logout message. Either the client or FASTMATCH may initiate disconnect. **All open orders will be canceled on disconnect.** Please see [Cancel On Disconnect](#) section of this document.



4.3 SUBSCRIBE TO PRICE STREAM

Subscription to an instrument's price stream is achieved by the client issuing a Market Data Request message (35=V or 35=W) for any specific currency pair, with the "SubscriptionRequestType" field (Tag 263) set to 1 (Subscribe).

Currently Full Refresh/Snapshot subscription requires a particular setup. Please contact Fastmatch technical team for details.

FASTMATCH supports either a single currency pair in each market data request or ALL pairs available in FASTMATCH. A client can issue a separate Market Data Requests in order to subscribe to multiple currency pairs. Market Data Requests containing more than one currency pair will be rejected by FASTMATCH.

Supported Stream Types:

- ❖ Standard (Top of the Book + Depth levels subscribed to)
- ❖ Aggregated

The number of liquidity bands to which the client wishes to subscribe must be specified in the Market Data Request message, using the "MarketDepth" field (Tag 264). FASTMATCH supports multiple values. If 264=0, then FASTMATCH will publish the full book (i.e. all price levels available). If 264=1, then FASTMATCH will publish the top of book only. If e.g. 264=5, then FASTMATCH will publish five price levels.

Clients can subscribe to quantity tiers by using Tag 38 "OrderQty".

If the subscription cannot be accepted for any reason, then FASTMATCH will reply with a Market Data Request Reject message (35=Y), which will provide the reason for the subscription failure. If the subscription is successful, then FASTMATCH will begin sending prices using Market Data Incremental Refresh messages (35=X). These will continue to be sent to clients until they send a Market Data "Unsubscribe" Request (35=V or 35=W) with Tag 263=2 (for "Unsubscribe"), or until the FIX connection is closed.

If the stream connection is closed for any reason, the subscriptions need to be re-requested by clients, in order to continue receiving price updates after reconnecting to the system.

4.4 PRICE STREAM NOTIFICATIONS

Price updates which are sent using Market Data Incremental Refresh Messages contain the price information for a single instrument.

Every message contains one or more entries. Each entry has an identifier (MDEntryID). Each entry has an action type: New or Delete. A 'new' entry replaces an outstanding entry with the same identifier. A 'delete' entry specifies that an existing entry with the same identifier must be deleted from the book

In rare cases it is possible to receive a Delete message for an inexistent market data entry.

Some quotes will have a minimum order quantity associated with them. The MDEntrySize (tag 271) will contain the full quote size and the MinQty (tag 110) will show the minimum quantity of an order to be executed. So for example, if a quote has 271=1000000 and 110=200000, any orders on this quote must be for 200,000 or greater.

Clients who cannot process minimum quantity values in their market data can speak to their FASTMATCH account rep and ask for quotes containing MinQty to be suppressed.

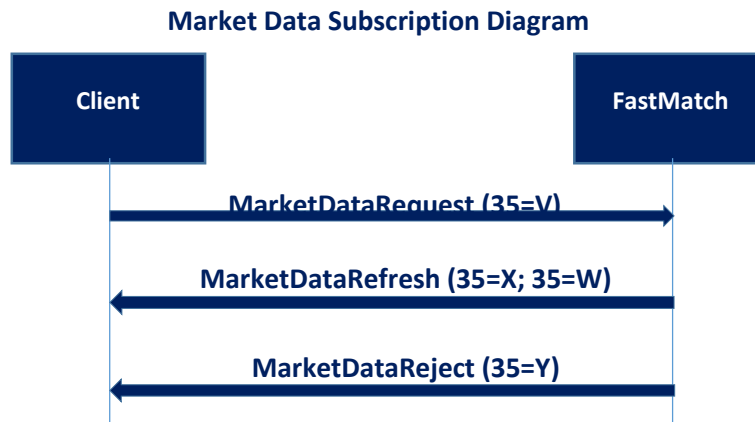
Use the AggregatedBook tag (266) to determine if similar prices should be consolidated to one entry so the entry size is the total amounts. Clients requesting Top of Book data only (tag 264=0) will need to select AggregatedBook (tag 266=Y).

In the current release of SafeMatch point-in-time auction Price Stream Notifications are not available.

Note: Clients wishing to receive MinQty data in their market data streams will need to subscribe to non-aggregated prices (tag 266=N). In aggregated mode MinQuantity field will be omitted.

4.5 UNSUBSCRIBE TO PRICE STREAM

To unsubscribe from a price stream, the client should send a further Market Data Request message for the instrument, with the “SubscriptionRequestType” field (Tag 263) set to 2



(unsubscribe). The message should contain the request id (MDReqID) of the original subscription.

If the message is successfully processed, then no further market data messages will be sent to the client for the specified instrument, until the client re-subscribes to that instrument.

If such a message is sent when the client is not currently subscribed, then the message will be rejected by issuing a Market Data Request Reject message.

4.5.1 PRICE CONVENTIONS

4.5.1.1 DECIMAL PLACES

The number of decimal places given in published prices and honored upon prices on submitted orders will be configured by FASTMATCH. Market data precision will follow standard OTC spot market conventions. FASTMATCH supports one-tenth of a pip for market data and one-hundredth of a pip for trading. (i.e. 5 decimals for market data and 6 decimal for trading for EUR/USD and 3 and 4 decimals correspondingly for USD/JPY). If an order is placed with precision exceeding standard, it will be rounded down to the standard precision.

4.6 ORDER

To place an order the client should submit a New Order – Single message.

4.6.1 ORDER SIDE

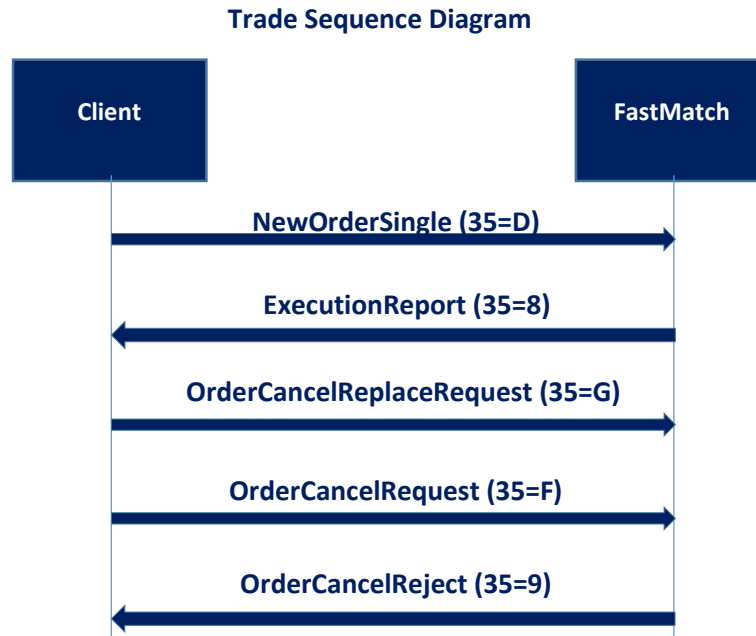
The side (buy/sell) of the order as specified by the “Side<54>” field is interpreted as being:

- ❖ From the client's (rather than FASTMATCH's) perspective
- ❖ Relating to the currency in which the order quantity is specified (as defined by the Currency<15> field.)

Example:

Symbol<55>=USD/JPY, Side<54>=1(buy), OrdQty<38>=113000000, Currency<15>=JPY

Would be interpreted as an order for the client to buy 113M JPY for USD, while:
 Symbol<55>=USD/JPY, Side<54>=1(buy), OrdQty<38>=1000000 or Symbol<55>=USD/JPY,
 Side<54>=1(buy), OrdQty<38>=1000000, Currency<15>=USD would be interpreted as orders for
 the client to buy 1M USD for JPY.



4.7 SUPPORTED ORDER TYPES

The following order types (tag 40) are supported:

- ❖ 1 = Market
- ❖ 2 = Limit
- ❖ A = OnClose - SafeMatch
- ❖ P = Pegged

The 'time in force' (tag 59) is used to set the expiration of the order. The following values are supported:

- ❖ 3 = IOC, Immediate Or Cancel
- ❖ 4 = FOK, Fill Or Kill
- ❖ 0 = Day (order expires at end of trading session, i.e. 5:00 PM NY time)
- ❖ Z = GoodForTime (Custom Tag 9030 "ExpireMilliseconds" must be included.) The ExpireMilliseconds is time in Milliseconds the order will expire.

The field 'minimum quantity' MinQty (tag 110) is used to specify the minimum quantity for which the order can be filled by FASTMATCH. A minimum quantity value, which is smaller than the OrderQty (Tag 38) will allow partial fills. If these values are equal, then no partial fills are allowed. When minimum quantity is specified, the system will only match when a single order on the other side meets the minimum quantity criteria. FASTMATCH will not aggregate multiple small orders to meet minimum quantity criteria.

SafeMatch point-in-time auction product currently supports day orders. The orders for SafeMatch will be accepted at any time up to 30 seconds before the FIX.

The following combinations of 'order type', 'time in force' and 'minimum quantity' are supported by FASTMATCH:

Order Type OrdType = 40	Expiry TimeInForec = 59	MinimumQty for Fill = 110 (Valid Values)	MinimumQty (Default Value if MinQty is not specified)
Market (40=1)	FOK = 4	MinQty = OrderQty	MinQty = OrderQty (tag 38 value)
Market (40=1)	IOC = 3	MinQty =<OrderQty	MinQty = 0
Limit (40=2)	FOK = 4	MinQty = OrderQty	MinQty = OrderQty
Limit (40=2)	IOC = 3	MinQty =<OrderQty	MinQty = 0
Limit (40=2)	Day = 0	MinQty =<OrderQty	MinQty = 0
Pegged (40=P)	FOK = 4	MinQty = OrderQty	MinQty = OrderQty
Pegged (40=P)	IOC = 3	MinQty =<OrderQty	MinQty = 0
Pegged (40=P)	Day = 0	MinQty =<OrderQty	MinQty = 0
OnClose (40=A)	Day = 0	MinQty =<OrderQty	MinQty = 0

4.7.1 MARKET ORDER

An order type to buy or sell at the current market price. This order is immediately filled at the prevailing market price.

4.7.2 LIMIT ORDER

At order to buy or sell at a specific price or better.

4.7.3 PEGGED ORDER

At order to buy or sell that will float with the market. Passive Peg will float on the passive side of the market. Aggressive Peg will float on the aggressive side of the market. Midpoint Peg will float at the midpoint of the market.

Pegged order will never float to a more aggressive price than a limit price specified on the order.

4.7.4 MARKETONCLOSE ORDER

An order type to match against other SafeMatch Intraday Spot Rates orders. Please see section [SafeMatch point-in-time auction product support](#) of this document for details.

4.7.5 PLATFORM MINIMUM ORDER SIZE

FASTMATCH has system wide minimum order sizes per currency pair. New orders below the minimum will be rejected. If due to partial fills, an existing order falls below the platform minimum the remaining order quantity will be cancelled. Currently the minimum order sizes for all currency pairs are set to zero. The minimum may change in the future.

4.8 ORDER EXECUTION NOTIFICATIONS

FASTMATCH will send a series of Execution Report messages to the client to provide notification regarding order execution.

Execution Report messages are used to indicate:

- ❖ Order accepted
- ❖ Order partially filled
- ❖ Order filled
- ❖ Order cancelled
- ❖ Order rejected

The meaning of the execution report will be indicated by a combination of the “ExecType” and “OrdStatus” fields, as follows in the table below. Please note, that for SafeMatch orders Filled or Partially Filled orders have ExecType = D – Restated.

Meaning	ExecType (150)	OrdStatus(39)
Order Accepted	0= New	0 = New
Order Partially Filled	1 = Execution, F (Fix 4.4)	1 = Partially Filled
Order Filled	2 = Execution, F (Fix 4.4)	2 = Filled
Order Cancelled	4 = Cancelled	4 = Cancelled
Order Rejected	8 = Rejected	8 = Rejected
Order Filled (MarketOnClose)	D = Restated	2 = Filled
Order Partially Filled (MarketOnClose)	D = Restated	1 = Partially Filled
Order Cancelled (MarketOnClose)	D = Restated	4 = Cancelled

5 ORDER EXECUTION SCENARIOS

The following tables provide examples of the content of the execution reports that would be expected, for a range of different order execution scenarios, in response to an example order for quantity = 5000000.

(The “Notes” column is simply to explain the examples. It is not a message field.)

5.1 ORDER FILLED IN SINGLE EXECUTION

Exec Type	Ord Status	Ord Qty	Cum Qty	Leaves Qty	Last Qty	Notes
New	New	5000000	0	5000000	0	Accepted
Execution	Filled	5000000	5000000	0	5000000	Filled in single execution

5.2 ORDER FILLED IN MULTIPLE EXECUTION

Exec Type	Ord Status	Ord Qty	Cum Qty	Leaves Qty	Last Qty	Notes
New	New	5000000	0	5000000	0	Accepted...
Executed	Partially Filled	5000000	1000000	4000000	1000000	.. then filled in 3 executions (1000000, 2000000, 2000000)
Execution	Partially Filled	5000000	3000000	2000000	2000000	
Execution	Filled	5000000	5000000	0	2000000	

5.3 PARTIAL FILL OF IOC

Exec Type	Ord Status	Ord Qty	Cum Qty	Leaves Qty	Last Qty	Notes
New	New	5000000	0	5000000	0	Accepted...
Execution	Partially Filled	5000000	2000000	3000000	2000000	... partial fill (2000000)
Execution	Cancelled	5000000	2000000	0	0	... remainder is cancelled

5.4 ORDER REJECTED

Exec Type	Ord Status	Ord Qty	Cum Qty	Leaves Qty	Last Qty	Notes
Rejected	Rejected	5000000	0	0	0	Order Rejected

5.5 NO EXECUTION

Exec Type	Ord Status	Ord Qty	Cum Qty	Leaves Qty	Last Qty	Notes
New	New	5000000	0	5000000	0	Accepted
Execution	Cancelled	5000000	0	0	0	No Match

6 SESSION MESSAGE DEFINITIONS

6.1 LOGON (MSGTYPE = A)

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	A
98	EncryptMethod	Y	Allowed value: 0 (None)	0
108	HeartBtInt	Y	The heartbeat interval. This will be set by agreement between the client and FASTMATCH.	30
141	ResetSeqNumFlag	N	Indicates both sides of the FIX session should reset sequence numbers. Should only be specified when this message is sent to instruct a sequence number reset.	Y
554	Password	N	This may be set for messages sent by the client, to initiate a connection. This field can be populated with the password that has been assigned by FASTMATCH for clients connecting over the internet. Not needed for messages used only to reset sequence numbers for an existing connection.	FASTMATCH Provided Password

6.2 RESEND REQUEST

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	2

7	BeginSeqNo	Y	To request a single message: BeginSeqNo = EndSeqNo	53
16	EndSeqNo	Y	To request a range of messages: BeginSeqNo = first message of range, EndSeqNo = last message of range To request all messages subsequent to a particular message: BeginSeqNo = first message of range, EndSeqNo = 0	57

7 FIX BUSINESS MESSAGE DEFINITIONS

7.1 SECURITY LIST REQUEST

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	x
320	SecurityReqID	Y	Unique ID which will be used to refer back to your request	SR_123
559	SecurityListRequestType	Y	Identifies the type/criteria of Security List Request Valid values: 0 = Symbol	0
55	Symbol	Y	Valid values: NA	NA
460	Product	Y	Indicates the type of product the security is associated with. Valid values: 4 = CURRENCY	4

7.2 SECURITY LIST

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	y
320	SecurityReqID	Y	Security request ID to refer	SR_123

			back to your request	
322	SecurityResponseID	Y	ID which be used to refer back to your request	SR_123_123
560	SecurityRequestResult	Y	Valid values: 0 = Valid request 1 = Invalid or unsupported request	0
146	NoRelatedSym	Y	Specifies the number of repeating symbols specified.	2
55	Symbol	Y	Currency pair in form CURR1/CURR2	EUR/USD
65	SymbolSfx	Y	Valid values: SP	SP
64	SettlDate	Y	Specific date of trade settlement (SettlementDate) in YYYYMMDD format.	20130509
870	NoInstrAttrib	Y	Number of repeating InstrAttribType <871> entries.	3
871	InstrAttribType	Y	Code to represent the type of instrument attribute	99
872	InstrAttribValue	Y	Attribute value appropriate to the InstrAttribType <871> (87) field.	5

7.3 MARKET DATA REQUEST (MSGTYPE = V)

This message is used by the client to request rates (subscribe) for a given symbol. FASTMATCH will send a Market Data Snapshot followed by Incremental updates if it is a valid request. Otherwise FASTMATCH will send out a Market Data Request Reject.

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	V
262	MDReqID	Y	Unique ID which will be used to refer back to your request	clientMD_123

263	SubscriptionRequestType	Y	1 = Subscribe 2 = Unsubscribe	1
264	MarketDepth	Y	Used to specify the number of levels to be requested. Accepted values: 0 = the full book of prices. 1 = Top of Book N = number of levels (up to 5)	1
265	MDUpdateType	N	For subscription request: Type of Market Data to send: 0 = Full Refresh (Snapshot) 1 = Incremental Refresh	1
266	AggregatedBook	Y	Specifies whether or not book entries should be aggregated Possible values are 'Y' or 'N'	Y
38	OrderQty	N	Quantity tier size for which a client would like to receive updates. No fractional quantities are allowed, must be above 100K and up to 10 size tiers allowed.	1000000
267	NoMDEntryTypes	Y	Number of MDEntryType values	3
269	MDEntryType	Y	There should be as many of these as the value of NoMDEntryTypes. Valid values are: 0 = Bid 1 = Offer 2 = Trade	0

			H = Mid Price A* = MarketOnClose - SafeMatch. 269=5 will be rejected, if 265=0 * upcoming release	
146	NoRelatedSym	Y	Number of values for each field below (repeating group count).	1
55	Symbol	Y	Currency pair in form CURR1/CURR2 or ALL = All currencies traded	EUR/USD
1079	MaturityTime	C	Auction time in the format HH:00 expressed in London time This tag is presented if MDEntryType 269=5 - MarketOnClose and MDUpdateType 265=2 – Incremental Refresh	00:00 , 01:00,02:00

7.4 MARKET DATA REJECT (MSGTYPE = Y)

This message is used by FASTMATCH to send a reject response for the Market Data Request identified by MDReqID.

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	Y
262	MDReqID	Y	MDReqID of your Market Data Request	clientMD_123
281	MDReqRejReason	N		0
58	Text	N	Text description of the reason why the request was rejected.	Unknown Symbol

7.5 MARKET DATA INCREMENTAL REFRESH (MSGTYPE = X)

FASTMATCH market data can be deliver either as incremental refresh or Snapshots. If you subscribe for Incremental Refresh, upon logon you will see market data to build your book, followed by incremental updates. Every entry will have a unique ID (MDEntryID – tag 278) that will be referenced for the purpose of updating or deleting it. When an MDEntryID value is repeated, the new value replaces the old value in the order book.

QuoteQualifier – Tag 695 will display expected maximum latency of response threshold when an order is sent against a stream. When a subscriber subscribed to Top of Book quote only, the field

will display the maximum latency threshold of the aggregated stream quotes at the top of the book. This also applies to all aggregated quotes in the market depth.

The book will be always in CCY1/CCY2 format. If the order is received by the ECN with Currency(tag 15)=CCY2, then the ECN will display in the market data MDEntrySize(tag 271) as OrderQuantity on the order (tag 38) / Order Price (tag 44), also MDEntrySide (tag 269) will be converted to the opposite side indicated on the order in tag 54, and Currency (tag 15) will be converted to CCY1.

Example: If the ECN receives the following order:

Symbol<55>=USD/JPY, Side<54>=1(buy), OrdQty<38>=76000000, Price<44>=76.00, Currency<15>=JPY

The order would be interpreted as an order for the client to sell 1M of USD for JPY at 76, and the market data will be reflected as follows: MDEntrySize(tag 271)=1000000; MDEntryType(tag 269)=1 (offer); Currency(tag 15)=USD

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	X
262	MDReqID	Y	A unique ID of your Market Data Request	clientMD_123
268	NoMDEntries	Y	Number of entries	4
279	MDUpdateAction	Y	Action type of this entry. Possible values: 0 = New 2 = Delete	0
55	Symbol	Y	Currency pair in form CCY1/CCY2	EUR/USD
269	MDEntryType	Y	The type of this entry. Possible values: 0 = Bid 1 = Ask 2 = Last H = Mid Price A* = MarketOnClose - SafeMatch * upcoming release	1
277	TradeCondition	N	This will be populated only on trades (Tag 269=2) where a Quote is on one side of the trade. The tag will not be populated when the	I

			trade is between orders Values: I = Traded with Last Look	
9700	MatchTime	N	This will be populated only on trades (Tag 269=2) where Quote is on one side of the trade. UTC time at which the match happened.	20110403-18:06:23.551
278	MDEntryID	Y	Identifier of the entry. MDEntryID is unique per symbol. . When an MDEntryID value is repeated, the new value replaces the old value in the order book.	E123
270	MDEntryPX	N	Price of the entry	1.1234
271	MDEntrySize	N	Size for which that price is quoted.	1000000
110	MinQty	N	Minimum quantity of an order to be executed.	200000
15	Currency	N	Currency that sizes are expressed in.	EUR
735	NoQuoteQualifiers	N	Number of quote qualifiers in fix tag 695, repeating group	1
1079	MaturityTime	C	Auction time in the format HH:00 expressed in London time This tag is be present if MDEntryType <269>=5 MarketOnClose	00:00 , 01:00,02:00
695	QuoteQualifier	N	The expected maximum latency of response 1= 0 to 1 milliseconds 2 = 0 to 30 milliseconds 3 = 0 to 100 milliseconds (default) 4 = 0 to 500 milliseconds 5 = from 0 to 3000 milliseconds 6 = Can Not Trade, No Credit 7 = Your Own Quote/Order	1

			8 = Add Liquidity Only Order 9 = Quote from FASTMATCH matching engine on the other continent F = “flashed” IOC or FOK order There can be multiple quote qualifier values	
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7.6 MARKET DATA FULL REFRESH/ SNAPSHOT (MSGTYPE = W)

If you subscribe for Full Refresh/Snapshot, messages of the type W will be sent in response. Snapshot market data will not contain trade information.

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	W
262	MDReqID	Y	A unique ID of your Market Data Request	clientMD_123
55	Symbol	Y	Currency pair in form CCY1/CCY2	EUR/USD
268	NoMDEntries	Y	Number of entries	4
269	MDEntryType	Y	The type of this entry. Possible values: 0 = Bid 1 = Ask H = Mid Price	1
277	TradeCondition	N	This will be populated only on trades (Tag 269=2) where Quote is on one side of the trade. The tag will not be populated when the trade is between orders Values: I = Traded with Last Look	I
9700	MatchTime	N	This will be populated only on trades (Tag 269=2) where Quote is on one side of the trade. UTC time at which the match happened.	20110403-18:06:23.551

278	MDEntryID	Y	Identifier of the entry.	E123
270	MDEntryPX	N	Price of the entry	1.1234
271	MDEntrySize	N	Size for which that price is quoted.	1000000
110	MinQty	N	Minimum quantity of an order to be executed.	200000
15	Currency	N	Currency that sizes are expressed in.	EUR
735	NoQuoteQualifiers	N	Number of quote qualifiers in fix tag 695, repeating group	1
1079	MaturityTime	C	Auction time in the format HH:00 expressed in London time This tag is be present if MDEntryType <269>=5 MarketOnClose	00:00 , 01:00,02:00
695	QuoteQualifier	N	The expected maximum latency of response 1 = 0 to 1 milliseconds 2 = 0 to 30 milliseconds 3 = 0 to 100 milliseconds (default) 4 = 0 to 500 milliseconds 5 = from 0 to 3000 milliseconds 6 = Can Not Trade, No Credit 7 = Your Own Quote/Order 8 = Add Liquidity Only Order 9 = Quote from FASTMATCH matching engine on the other continent F = "flashed" IOC or FOK order There can be multiple quote qualifier values	1

7.7 NEW ORDER SINGLE (MSGTYPE = D)

This message will be used to place limit and market orders on the FASTMATCH FIX system. Limit orders remain in the system until they can be filled at the requested price or better, or they are cancelled using an OrderCancelRequest.

Pegged orders (Tag 40=P) will float in relation to the best aggregated BID/OFFER of ECNs and Banks.

A FIX client will be able to specify MaxDelay (tag 9020) threshold. MaxDelay will determine the maximum allowable delay in response time from FASTMATCH. The longer the delay is allowed, the higher fill rate a customer would experience.

Clients that are billed commission at the end of the month, on the execution report, will receive a commission that they will be charged for the trade in US Dollars (tag 9500).

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	D
55	Symbol	Y	Currency pair in format CCY1/CCY2	EUR/USD
167	SecurityType	N	Valid values: FOR	FOR
11	ClOrdID	Y	Unique identifier for the order as assigned by client. Uniqueness must be guaranteed within a single trading day.	clientOrder_123
109	ClientID	N	Third-party transaction identifier; SenderCompID of the third party account that you intend to trade on behalf of.	
54	Side	Y	1 = Buy, 2 = Sell. The Side field always refers to Currency.	1
38	OrderQty	Y	Number of units to transact. The units are defined by the Currency field.	10000000

40	OrdType	Y	Valid values: 1 = Market 2 = Limit A = OnClose P = Pegged	1
117	QuoteID	C	We strongly encourage our clients to populate the tag for all IOC and FOK orders.	
59	TimeInForce	Y	Valid values: 0 = Day 3 = IOC 4 = FOK Z = GoodForTime (9030 must be included) Not all values are valid with any of the order types. See the table in section: Order Types	4
44	Price	C	For Limit Orders and Pegged orders. Extra decimals will be truncated. The price is always expressed as CCY2 divided by CCY1	1.12345
9000	PegInstruction	C	Only for Pegged orders "MIDPOINT" = Mid point peg (Default). "PASSIVE" = Float orders on the passive side. "AGGRESSIVE" = Float orders on the aggressive side.	MIDPOINT
9001	PegOffsetPip	C	Order price offset expressed in pips or a fraction of the pip below	0.2 If 9000=PASSIVE

			or above the pegged market rate. The tag is used in combination with tag 9000 when 40=P	and the 54=1 the order will float 0.2 pips above the best bid price If 9000=AGGRESSIVE and the 54=1 the order will float 0.2 pips below the best offer price
9002	PegOffsetPercent	C	Order price offset expressed as percent of the spread below or above the pegged market rate. The tag is used in combination with tag 9000 when 40=P	20 If e.g. 9000=PASSIVE and the 54=1 the order will float 20% of the spread size pips above the best bid price If e.g. 9000=AGGRESSIVE and the 54=1 the order will float 20% of the spread size below the best offer price
15	Currency	N	Either CCY1 or CCY2. The units for OrderQty and Side. Default is base currency or CCY1. Currently, only base currency is allowed for MarketOnClose orders	EUR
60	TransactTime	Y	Time at which order was created.	20020404-14:51:24.698
1	Account	N	Client defined sub account. Must be mapped in advance with FASTMATCH	ACCOUNT1
110	MinQty	C	Minimum quantity of an order to be executed.. Not all values are allowed for all the different order types. See the table in	1000000

			the Order Type section.	
58	Text	N	Text Field	A text
210	MaxShow	N	Portion of the order to display, the balance is hidden. If the field is not populated, the whole order will be displayed.	1000000
1079	MaturityTime	C	Auction time in the format HH:00 expressed in LONDON TIME Required for OrdType 40=A	00:00 , 01:00,02:00
9010	LiquidityProviderFlag	N	“Y” = order can only provide liquidity (cross with orders that only arrived after it) “N” = default	N
9020	MaxDelay	N	Maximum allowable response delay threshold: 1 = 0 to 1 milliseconds 2 = 0 to 30 milliseconds 3 = 0 to 100 milliseconds 4 = 0 to 500 milliseconds 5 = from 0 to 3000 milliseconds (default)	3
9030	ExpireMilliseconds	C	Time in Milliseconds the order will expire. Required when 59=Z	200
9400	NoOrders	N	Y = This order will not interact with other orders, only quotes. N = default.	N

7.8 EXECUTION REPORT (MSGTYPE = 8)

The execution report message is used to:

- ❖ Confirm the receipt of an order
- ❖ Relay fill information on working orders
- ❖ Reject orders

In an execution report the OrdStatus and ExecType are used to convey the current state of the order. When order is rejected tag 58 (Text) will contain the reason. Possible values for tag 103 <OrdRejReason> are:

- ❖ 1 = Unknown symbol
- ❖ 2 = Exchange closed
- ❖ 4 = Too late to enter
- ❖ 5 = Unknown Order
- ❖ 6 = Duplicate Order
- ❖ 99 = Other

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	8
11	ClOrdID	Y	The ClOrdID of your order, except for Pending Cancels, where it will be the ClOrdID of the cancel request.	clientOrder_123
37	OrderID	Y	Order ID assigned by FASTMATCH	FASTMATCHO_123
41	OrigClOrdID	C	Original ClOrdID as was assigned by client. Field will be used with the reply to the following messages: OrderCancelRequest	clientOrder_123
17	ExecID	Y	Unique identifier of execution message as assigned by broker. Uniqueness must be guaranteed within a single trading day or the life of a multi-day order, but duplicates may occur for rejects.	1
20	ExecTransType	Y	0 = New 1 = Cancel 2 = Correct 3 = Status	0

375	ContraBroker	N	Identifies contra broker. Standard NASD market-maker mnemonic is preferred	CITI
40	OrdType	Y	OrdType	D
150	ExecType	Y	Describes the specific event. Valid values: 0 = New 1 = Partially Filled 2 = Filled (FIX 4.2) 4 = Cancelled 8 = Rejected C = Expired D = Restated – currently used for re-pricing of SafeMatch orders F = Trade (FIX 4.4.)	F
39	OrdStatus	Y	Describes the current state of the order: 0 = New 1 = Partial Filled 2 = Filled 3 = Done for Day 4 = Cancelled 8 = Rejected C = Expired	2
55	Symbol	Y	Currency pair in format CCY1/CCY2	EUR/USD
54	Side	Y	Side of order values 1 = Buy 2 = Sell	1
38	OrderQty	Y	OrderQty represents the amount expressed in units of currency specified by the	10000

			Currency field. Note OrderQty must be capable of representing large values with at least 2 decimal places.	
44	Price	N	Price at which the order was requested (if requested).	1.12345
151	LeavesQty	Y	Amount of units open for further execution. If the OrdStatus is Expired, or Rejected (in which case the order is no longer active) then LeavesQty could be 0, otherwise LeavesQty = OrderQty - CumQty.(Prior to FIX 4.2 this field was of type int)	0
14	CumQty	Y	Total number of units filled.(Prior to FIX 4.2 this field was of type int)	0
32	LastQty	N	Number of units filled in this fill	0
15	Currency	Y	Identifies currency used for the quantities	USD
31	LastPx	C	Price of this fill. Required on a fill or partial fill message The price will be absent for order type 49=5 (MarketOnClose) for execution reports before fixing time. The price will be restated at closing	1.123456
6	AvgPx	Y	Average Fill Price. The price will be truncated to 6 decimal places.	1.123456
64	SettlDate	C	Value Date (YYYYMMDD). Required on a fill or partial fill message	20110405
60	TransactTime	N	UTC Time at which this was executed	20110403-18:06:23.551
75	TradeDate	N	Date of the trade in	20110403

			YYYYMMDD format	
110	MinQty	N	The minimum quantity to fill as was requested on the order. Will be used when sending partial fills, fills and order reject reports.	600000
58	Text	N	Explanations of Cancels	
1	Account	N	Client defined sub account. Must be mapped in advance with FASTMATCH	ACCOUNT1
1079	MaturityTime	C	Auction time in the format HH:00	00:00 , 01:00,02:00
9200	LiquidityIndicator	N	A = Added vs AutoEx B = Added vs Stream R = Removed vs AutoEx S = Removed vs Stream X = Routed Out	B
9300	ContraID	N	Numeric value of customer id on the other side of execution	123
103	OrdRejReason	N	Only valid for ExecType is Rejected) (8)	Invalid Symbol
132	BidPx	N	Bid in the market at the time of execution	1.12345
133	OfferPx	N	Offer in the market at the price of execution	1.12346
9600	LastMktPx	N	Last price in the market truncated to 5 decimals	1.12346
9500	Commission	N	Commission in USD that ECN will collect for a fill or partial fill (only for clients that receive a bill)	1.23

7.9 ORDER CANCEL REQUEST (MSGTYPE = F)

A message to cancel an outstanding order.

If the canceled order is partially filled only the remaining amount will be cancelled. In order to cancel all the outstanding orders set the OrigClOrdID to "OPEN_ORDER". An immediate and final response will be sent. Either Execution Report (8) with ExectType (150)=Canceled or Order Cancel Reject (F) .

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	F
41	OrigClOrdID	Y	The ClOrdID of the order to be cancelled To cancel all the open orders set to "OPEN_ORDER"	clientOrder_123
11	ClOrdID	Y	A unique ID for this cancel request for a full trading week (Sunday through Friday 5:00PM EST) .	Cancel_123
109	ClientID	C	Third-party transaction identifier; SenderCompID of the third party account that you intend to trade on behalf of. The tag is required if it was utilized in NewOrderSingle 35=D for the canceled order.	
37	OrderID	N	The unique ID for the order to be cancelled (as assigned by sell side).	
1	Account	N	Client defined sub account. Must be mapped in advance with FASTMATCH	ACCOUNT1
55	Symbol	Y	The currency pair	EUR/USD
54	Side	Y	Side of order to be cancelled: 1 = Buy 2 = Sell	1
58	Text	N	Descriptive text message	
60	TransactTime	Y	Time this cancel order was initiated	20090827-08:20:30

38	OrderQty	Y	Quantity to be cancelled	1000000
1079	MaturityTime	C	Auction time in the format HH:00 The tag is required, if 59=Z	00:00 , 01:00,02:00

7.10 ORDER CANCEL/REPLACE REQUEST (MSGTYPE = G)

The order cancel/replace request is used to change the parameters of an existing order. **If cancel/replace request is rejected for any reason, the original order will be canceled.** Requests which cannot be processed will be rejected using the Order Cancel Reject <9> message following Execution Report <8> for the original order.

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	G
55	Symbol	Y	Currency pair in format CCY1/CCY2 The value must be the same as in the original order	EUR/USD
167	SecurityType	N	Valid values: FOR	FOR
41	OrigClOrdID	Y	Unique identifier assigned by the FX trading client for the previous non-rejected order.	clientOrder_123
11	ClOrdID	Y	Unique identifier for the order as assigned by client. Uniqueness must be guaranteed within a single trading day.	clientOrder_456
109	ClientID	N	Third-party transaction identifier; SenderCompID of the third party account that you intend to trade on behalf of. The value must be the	

			same as in the original order	
54	Side	Y	<p>1 = Buy, 2 = Sell. The Side field always refers to Currency.</p> <p>The value must be the same as in the original order</p>	1
38	OrderQty	Y	<p>Number of units to transact. The units are defined by the Currency field</p>	10000000
40	OrdType	Y	<p>Valid values:</p> <p>1 = Market</p> <p>2 = Limit</p> <p>A = OnClose</p> <p>P = Pegged</p> <p>The value must be the same as in the original order</p>	1
117	QuotID	N		
59	TimeInForce	Y	<p>Valid values:</p> <p>0 = Day</p> <p>3 = IOC</p> <p>4 = FOK</p> <p>Z = GoodForTime (9030 must be included)</p> <p>Not all values are valid with any of the order types. See the table in section: Order Types</p> <p>The value must be the same as in the original order</p>	4
44	Price	C	<p>For Limit Orders and Pegged orders. Extra decimals will be truncated. The price is</p>	1.12345

			always expressed as CCY2 divided by CCY1	
9000	Peg Instruction	C	<p>Only for Pegged orders</p> <p>"MIDPOINT" = Mid Point peg (Default).</p> <p>"PASSIVE" = Float orders on the passive side.</p> <p>"AGGRESSIVE" = Float orders on the aggressive side.</p> <p>The value must be the same as in the original order</p>	MIDPOINT
15	Currency	N	<p>Either CCY1 or CCY2. The units for OrderQty and Side. Default is base currency or CCY1.</p> <p>The value must be the same as in the original order</p>	EUR
60	TransactTime	Y	Time at which order was created.	20020404- 14:51:24.698
1	Account	N	Client defined sub account. Must be mapped in advance with FASTMATCH	ACCOUNT1
110	MinQty	C	<p>Minimum quantity of an order to be executed..</p> <p>Not all values are allowed for all the different order types. See the table in the Order Type section.</p>	1000000
58	Text	N	Text Field	A text
210	MaxShow	N	Portion of the order to display, the balance is hidden. If the field is not populated, the whole order will be displayed.	1000000
1079	MaturityTime	N	Auction time in the format HH:00	00:00 , 01:00,02:00

			The tag is required, if 59=Z	
9010	LiquidityProviderFlag	N	"Y" = order can only provide liquidity (cross with orders that only arrived after it) "N" = default	N
9020	MaxDelay	N	Maximum allowable response delay threshold: 1 = 0 to 1 milliseconds 2 = 0 to 30 milliseconds 3 = 0 to 100 milliseconds (default) 4 = 0 to 500 milliseconds 5 = from 0 to 3000 milliseconds	3
9030	ExpireMilliseconds	C	Time in Milliseconds the order will expire. Required when 59=Z	200

7.11 PENDING CANCEL

FASTMATCH does not send Pending Cancel messages.

7.12 ORDER CANCEL REJECT (MSGTYPE = 9)

Message is issued by FASTMATCH as a response to CancelRequest or OrderCancelReplaceRequest which could not be completed.

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	9
41	OrigClOrdID	Y	The ClOrdID of the order that could not be cancelled	clientOrder_123
11	ClOrdID	Y	The unique ID of the cancel request as was received from client	Cancel_123

37	OrderID	Y	The FASTMATCH ID for the order that could not be cancelled	FASTMATCH_Order_123
39	OrdStatus	Y	Value is Rejected (8)	8
60	TransactTime	Y	Time this cancel reject was initiated	20090827-08:20:30
434	CxlRejResponseTo	Y	The type of the request the reject is a response to. Valid values: 1 = Order Cancel Request (F)	1
102	CxlRejReason	N	Code to identify reason for the rejection. Valid values: 0 = Too late to cancel 1 = Unknown order 6 = Duplicate ClOrdID (11) received 99 = Other	0
58	Text	N	Description of reject reason	Order was already filled

7.13 ORDER STATUS REQUEST (MSGTYPE = H)

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	H
37	OrderID	Y	Order ID assigned by FASTMATCH	FASTMATCHO_123
11	ClOrdID	Y	The ClOrdID of your order. To request status of open orders set ClOrdID="OPEN_ORDER"	clientOrder_123
109	ClientID	N	Third-party transaction identifier; SenderCompID of the third party account that you intend to trade on behalf of.	CL15
55	Symbol	Y	Currency pair in format CCY1/CCY2	EUR/USD

54	Side	Y	Side of order values 1 = Buy 2 = Sell	1
40	OrdType	Y	OrdType	D

7.14 LIST STATUS (MSGTYPE = N)

Tag	Fieldname	Req'd	Comments	Example
35	MsgType	Y	Defines message Type	N
66	ListID	Y	Unique identifier for list as defined by FASTMATCH	A123
429	ListStatusType	Y	List Status Type 2 - Response	2
82	NoRpts	Y	Total number of reports within series. Currently = 1	1
431	ListOrderStatus	Y	Code to represent the status of a list order. Currently = 1	1
83	RptSeq	Y	Sequence number of message within report series. Currently = 1	1
58	Text	N	Free format text string	Free format text string
68	TotNoOrders	Y	The total number of orders outstanding	12
60	TransactTime	Y	Time at which order was created.	20020404-14:51:24.698
73	NoOrders	Y	Number of repeated fields to follow. It is equal to TotNoOrders	12
11	ClOrdID	Y	The ClOrdID of your order. To request status of open orders set ClOrdID="OPEN_ORDER"	clientOrder_123
14	CumQty	Y	Total number of units filled	0
39	OrdStatus	Y	Identifies current status of order. Currently	1

			0 = New and 1 = Partially filled	
151	LeavesQty	Y	Amount of units open for further execution. If the OrdStatus is Expired, or Rejected (in which case the order is no longer active) then LeavesQty could be 0, otherwise LeavesQty = OrderQty - CumQty. (Prior to FIX 4.2 this field was of type int)	0
84	CxlQty	Y	Total number of units canceled for this order.	50000
59	TimeInForce	Y	Valid values: 0 = Day 3 = IOC 4 = FOK Z = GoodForTime Not all values are valid with any of the order types. See the table in section: Order Types	4
6	AvgPx	Y	Calculated average price of all fills on this order.	1.3234
58	Text	N	Free format text string	
37	OrderID	Y	Order ID assigned by FASTMATCH	FASTMATCHO_123
55	Symbol	Y	Currency pair in format CCY1/CCY2	EUR/USD
54	Side	Y	Side of order values 1 = Buy 2 = Sell	1
40	OrdType	Y	OrdType	D

8 CANCEL ON DISCONNECT (COD)

Cancel On Disconnect (COD) monitors the ECN system for involuntary lost connections between users and the ECN platform. If a lost connection is detected, COD cancels all resting Orders for the disconnected FIX session for the registered ECN user. It is the user's responsibility to reenter all orders that have been cancelled by COD.

8.1 CONDITIONS UNDER WHICH COD IS INVOKED

FASTMATCH detects a loss of session connectivity by monitoring its application messaging with the client system. When there is a lack of messages received for a period exceeding the client-specified heartbeat interval, FASTMATCH will send a Test Request message to the client to check for connectivity.

The following process will be executed:

- ❖ If a Test Request is sent, a Heartbeat message should be sent in response, although any message received will satisfy the Test Request.
- ❖ If FASTMATCH does not receive a Heartbeat message (or any message) in response to the Test Request message by the end of the next Heartbeat interval, the connection is assumed to be stale and the socket is closed. FASTMATCH will send a Logoff message prior to disconnecting the session.

9 SAFEMATCH POINT-IN-TIME AUCTION PRODUCT

Fastmatch has developed the SafeMatch point-in-time auction product. This product seeks to allow two organizations to match off their opposing trades to hedge exposure. FastMatch will offer one SafeMatch auction per day at 15.55 BST, in EUR/USD and USD/MXN currency pairs. Clients can add or remove SafeMatch orders up to the auction close at 15.55 PM. At 15.55 BST and a 200 microseconds, Fastmatch will inform all auction participants of the portion of their order that was matched. FastMatch will allow clients to elect two methods for order imbalance handling;

- ❖ cancel unmatched portion back to sending client or
- ❖ have unmatched portion sent to liquidity provider for risk handling.

From 15.57.30 to 16.02.30 BST FastMatch will calculate the auction rate by creating a simple average of all quotes from top market making counterparties on FastMatch over the calculation window (midpoint auction rate). Matched portions of orders will get the Safematch midpoint auction rate. Unmatched portions of orders routed to liquidity providers will get the midpoint auction rate +/- a pre-negotiated commission. Unmatched portions of orders that are canceled back will get no rate. If the unmatched portion of the orders exceeds liquidity providers' pre-disclosed maximum liquidity threshold (defined on FastMatch website), the amount of imbalance over maximum will be cancelled back to order submitting clients based on time/size priority

This section provides a guide for FASTMATCH clients to the product.

Client can subscribe to SafeMatch Auction market data. SafeMatch Auction market data will be available from 15.57.30 BST to 16.02.30 BST. Market data will include the midpoint values as they change, the latest average rate, and the final average rate once it is calculated. FASTMATCH will not publish SafeMatch fix indication for subscription with 55=ALL. In this case a

separate subscription request should be sent. SafeMatch Auction market data will be published only as Incremental Refresh updates.

To trade SafeMatch the Client should send a NewOrderSingle (35=D) message to Fastmatch for each order. The NewOrderSingle message must have OrdType tag 40 set to A (40=A). An auction time should be specified in the tag 1079 MaturityTime expressed in London Time using HH:00 format (e.g. 1079=15:00.) The message also contains the side and quantity of the order among others.

Orders for SafeMatch auction will be accepted and can be removed up to 15.55 BST the FIX. After 15.55 BST it is not possible to modify orders

At 15.55 BST Fastmatch will send ExecutionReport message (35=8), indicating whether the order was filled or partially filled. The message will have LastQty tag 32 representing the amount filled in this fill. The price LastPx tag 31 will be absent. Should the client originating an order elect to have imbalances canceled, at 15.55 BST FastMatch will send an OrderCancel message. If the client elects for a liquidity provider to fill unmatched portion of their order, FastMatch will send XYZ message type

The Client can send OrderCancelRequest message to cancel the order at any time up to 15.55 BST. Fastmatch will send either ExecutionReport message, if order is successfully canceled or OrderCancelReject (35=9) if not (e.g. order has been already fully filled).

OrderCancelReplaceRequest (35=G) message can be used to change the order quantity. If cancel/replace request is rejected for any reason, the original order will be canceled.

At the specified fixing time the Fastmatch will assign the SafeMatch Auction average midpoint rate to the matched quantity of the order and will send restatement messages for each provisional fill with ExecType tag 150=D Restated (with reason "re-pricing") and price LastPx tag 31 and AvgPx tag 6 are set to SafeMatch Closing Spot Rate.

Trade Sequence Diagram

