

# eBroker FIX Specification

Version 1.7

Base on FIX Protocol 4.2

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## 1. Introduction

The Financial Information Exchange (FIX) protocol enables access to the eBroker Systems Ltd., using a message standard developed for real-time electronic exchange of securities' transactions.

FIX enables access to the trading services and securities' information within eBroker. This document describes a conceptual overview of the FIX 4.2 protocol as well as providing technical guidance on adopting FIX to connect to eBroker.

## 2. FIX Administrative Messages

### Standard Header

Each administrative or application message is preceded by a standard header. The header identifies the message type, length, destination, sequence number, origination point and time.

Tag	Field Name	Req'd	Comments
8	BeginString	Y	Must be FIX.4.2  Identify the beginning of a new message and communicates the protocol version this tag is always the first in a message and unencrypted
9	BodyLength	Y	Indicates the message length(in characters) which is verified by counting the number of characters in the message following this tag up to ,and including ,the delimiter immediately preceding tag 10(checksum)  Must be the second field in a message  And unencrypted
35	MsgType	Y	Must specify a message type supported by FIX.  Valid Values:  0 = Heartbeat  1 = Test Request

			2 = Resend Request  3 = Reject  4 = Sequence Reset  5 = Logout  8 = Execution Report  9 = Order Cancel Reject  A = Logon  D = New Order – Single  F = Order Cancel Request  G = Order Cancel/Replace  Request  j = Business Message Reject
49	SenderCompID	Y	Assigned value used to identify firm sending message
56	TargetCompID	Y	Assigned value used to identify receiving firm.
34	MsgSeqNum	Y	Integer message sequence number
43	PossDupFlag	N	Indicates possible retransmission of a message with this sequence number Valid values include:  Y : possible duplicate  N: Original transmission
97	PossResend	N	Required when message may be duplicate of another message under a different sequence number

52	SendingTime	Y	Time of message transmission
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### Standard Trailer

Each message, administrative or application, is terminated by a standard trailer. The trailer is used to segregate messages and contains the three digit character representation of the Checksum value.

Tag	Field Name	Req'd	Comments
10	Checksum	Y	A three-digit character representation used to segregate message which is always the last field in message and always unencrypted

### Heartbeat

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

When either end of a FIX connection has not sent any data for [HeartBtInt] seconds, it will transmit a Heartbeat message. When either end of the connection has not received any data for (HeartBtInt + “some reasonable transmission time”) seconds, it will transmit a Test Request message. If there is still no Heartbeat message received after (HeartBtInt + “some reasonable transmission time”) seconds then the connection should be considered lost and corrective action be initiated. If HeartBtInt is set to zero then no regular heartbeat messages will be generated. Note that a test request message can still be sent independent of the value of the HeartBtInt, which will force a Heartbeat message.

Heartbeats issued as the result of Test Request must contain the TestReqID transmitted in the Test Request message. This is useful to verify that the Heartbeat is the result of the Test Request and not as the result of a regular timeout.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = 0
112	TestReqID	N	Required if in response to a test request
	Message Trailer	Y	

## Logon

The logon message authenticates a user establishing a connection to a remote system. The logon message must be the first message sent by the application requesting to initiate a FIX session.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = A
98	EncryptMethod	Y	Method of encryption that must set to 0
108	HeartBtInt	Y	Set the heartbeat interval (in seconds)
141	ResetSeqNumFlag	N	Indicate both sides of a FIX session should reset sequence numbers  Valid values:  Y: yes reset sequence number  N: no
	Message Trailer	Y	

## Test Request

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

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = 1
112	TestReqID	Y	Identifier included in Test Request message to be returned in resulting heartbeat
	Message Trailer	Y	

## Resend Request

The resend request is sent by the receiving application to initiate the retransmission of messages. This function is utilized if a sequence number gap is detected, if the receiving application lost a message, or as a function of the initialization process.

Tag	Field Name	Req'd	Comments
	Message header	Y	MsgType = 2
7	BeginSeqNo	Y	Set to the value of tag34 (MsgSeqNum) from the first message
16	EndSeqNo	Y	Set to the value of tag34 (MsgSeqNum) from the last message. If set to 0 ,the recipient must resend all messages
	Message Trailer	Y	

## Sequence Reset

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

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = 4
36	NewSeqNo	Y	New sequence number
	Message Trailer	Y	

## Session Level Reject

The reject message should be issued when a message is received but cannot be properly processed due to a session-level rule violation. An example of when a reject may be appropriate would be the receipt of a message with invalid basic data (e.g. MsgType=&) which successfully passes de-encryption, CheckSum and BodyLength checks. As a rule, messages should be forwarded to the trading application for business level rejections whenever possible.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = 3

45	RefSeqNo	Y	
371	RefTagID	Y	
372	RefMsgType	Y	
373	SessionRejectReason	Y	
58	Text	Y	Reason for rejection
	Message Trailer	Y	

Scenarios for session-level Reject:

<b>SessionRejectReason</b>
0 = Invalid tag number
1 = Required tag missing
2 = Tag not defined for this message type
3 = Undefined Tag
4 = Tag specified without a value
5 = Value is incorrect (out of range) for this tag
6 = Incorrect data format for value
7 = Decryption problem
8 = Signature problem
9 = CompID problem
10 = SendingTime accuracy problem
11 = Invalid MsgType

## Logout

The logout message initiates or confirms the termination of a FIX session. Disconnection without the exchange of logout messages should be interpreted as an abnormal condition.

<b>Tag</b>	<b>Field Name</b>	<b>Req'd</b>	<b>Comments</b>
	Message Header	Y	MsgType = 5
	Message Trailer	Y	



### 3. FIX Application Messages

#### New Order – Single

The new order message type is used by institutions wishing to electronically submit securities and forex orders to a broker for execution.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = D
11	ClOrdID	Y	Unique identifier of order as assigned by institution
1	Account	N	
21	HandlInst	Y	
22	IDSource	N	Valid values: <ul style="list-style-type: none"> <li>• 4 – ISIN Code</li> </ul>
100	ExDestination	N	
55	Symbol	Y	
207	SecurityExchange	N	Can be used to identify the security
54	Side	Y	
60	TransactTime	Y	Time of order request was initialed by trader or trading system
38	OrderQty	Y	
40	OrdType	Y	For Auction Order, this field must be "1", and see "TimeInForce".  Valid values: <ul style="list-style-type: none"> <li>• 1 – Market</li> <li>• 2 = Limit</li> <li>• 4 = Stop Limit</li> </ul>
59	TimeInForce	N	Absence of this field indicates Day order. And for Auction Order, this field

			<p>must be "2".</p> <p>Valid values:</p> <ul style="list-style-type: none"> <li>• 0 – Day</li> <li>• 1 – Good Till Cancel (GTC)</li> <li>• 2 – At the Opening (OPG)</li> <li>• 4- Fill or Kill (FOK)</li> </ul>
44	Price	N	Required for limit OrdType
99	StopPx	N	Required for OrdType= "Stop" or OrdType = "StopLimit"
47	Rule80A	N	
48	SecurityID	N	
58	Text	N	
167	SecurityType	N	<p>Required for Futures or Options order.</p> <ul style="list-style-type: none"> <li>• FUT – For Futures</li> <li>• OPT – For Options</li> </ul>
126	ExpireTime	N	Required for GTD order. In UTC format
204	CustomerOrFirm	N	
440	ClearingAccount	N	
200	MaturityMonthYear	N	Required if MaturityDay is specified, in format "yyyyMM".
205	MaturityDay	N	<p>Can be used in conjunction with MaturityMonthYear to specify a particular maturity date.</p> <p>Valid value: 1~31</p>
201	PutOrCall	N	<p>For Options.</p> <ul style="list-style-type: none"> <li>• 0 – For Put</li> <li>• 1 – For Call</li> </ul>

202	StrikePrice	N	For Options
77	OpenClose	N	For Options. <ul style="list-style-type: none"> <li>• O – For Open</li> <li>• C – For Close</li> </ul>
	Message Trailer	Y	

### New Order – Multi-Leg

So far not supported yet.

### Order Replace Request

The order replace request is used to change the parameters of an existing order.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = G
37	OrderID	N	Unique identifier of order as assigned by broker
41	OrigClOrdID	Y	ClOrdID of the previous order (not the initial order of the day) when canceling or replacing an order.
11	ClOrdID	Y	Unique identifier of replacement order as assigned by institution
1	Account	N	
21	HandlInst	Y	
100	ExDestination	N	
55	Symbol	Y	Must match the original order
48	SecurityID	N	Must match the original order
22	IDSource	N	Must match the original order

207	SecurityExchange	N	Can be used to identify the security
106	Issuer	N	
54	Side	Y	Must match the original order,
60	TransactTime	Y	Time this order initial/released by the trader or trading system
38	OrderQty	N	
40	OrdType	Y	Valid values: <ul style="list-style-type: none"> <li>• 1 – Market</li> <li>• 2 – Limit</li> <li>• 4 – Stop Limit</li> </ul>
44	Price	N	Required for limit OrdType
99	StopPx	N	Required for OrdType = "Stop" or OrdType = "StopLimit"
47	Rule80A	N	
58	Text	N	
167	SecurityType	N	Must match the original order
59	TimeInForce	N	Valid values: <ul style="list-style-type: none"> <li>• 0 – Day Order</li> <li>• 1 – Good Till Cancel (GTC)</li> <li>• 2 – At the Opening (OPG)</li> <li>• 4 – Fill or Kill (FOK)</li> </ul>
440	ClearingAccount	N	
200	MaturityMonthYear	N	Must match the original order
201	PutOrCall	N	Must match the original order
202	StrikePrice	N	Must match the original order
205	MaturityDay	N	Must match the original order

77	OpenClose	N	Must match the original order
	Message Trailer	Y	

### Order Cancel Request

The order cancel request message requests the cancelation of all of the remaining quantity of an existing order. Note that the Order Cancel/Replace Request should be used to partially cancel (reduce) an order.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = F
41	OrigClOrdID	Y	ClOrdID of the previous order(not the initial order of day) when canceling or replacing an order
37	OrderID	N	Unique identifier of most recent order as assigned by broker
11	ClOrdID	Y	Unique ID of cancel request as assigned by the institution
1	Account	N	
55	Symbol	Y	
48	SecurityID	N	
22	IDSource	N	
167	SecurityType	N	Must match the original order
207	SecurityExchange	N	Can be used to identify the security
54	Side	Y	Must match the original order
60	TransactTime	Y	Time this order initial/released by the trader or trading system
38	OrderQty	N	Order Quantity
58	Text	N	

200	MaturityMonthYear	N	Must match the original order
201	PutOrCall	N	Must match the original order
202	StrikePrice	N	Must match the original order
205	MaturityDay	N	Must match the original order
77	OpenClose	N	Must match the original order
	Message Trailer	Y	

### Order Cancel Reject

The order cancel reject message is issued by the broker upon receipt of a cancel request or cancel/replace request message which cannot be honored. Requests to change price or decrease quantity are executed only when an outstanding quantity exists.

When rejecting a Cancel/Replace Request, the Cancel Reject message should provide the ClOrdID and OrigClOrdID values which were specified on the Cancel/Replace Request message for identification.

The order cancel reject message format is as follows:

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = 9
37	OrderID	Y	
200	SecurityExchange	N	
11	ClOrdID	Y	Unique order ID assigned by institution to the cancel request or to the replacement order
41	OrigClOrdID	Y	ClOrdID which could not be cancelled/replaced. ClOrdID of the previous order (NOT the initial order of the day) when cancelling or replacing an order
39	OrdStatus	Y	OrdStatus value after this cancel reject is applied
109	ClientID	N	Used for firm identification in third-

			party transactions
1	Account	N	
434	CxlRejResponseTo	Y	
102	CxlRejReason	N	
58	Text	N	
	Message Trailer	Y	

## Execution Report

The execution report message is used to:

1. Confirm the receipt of an order
2. Confirm changes to an existing order (i.e. accept cancel and replace requests)
3. Relay order status information
4. Relay fill information on working orders
5. Reject orders
6. Report post-trade fees calculations associated with a trade

NOTE: Execution reports do not replace the end-of-day confirm. Execution reports are to be regarded only as replacements for the existing fill messages currently communicated via telephone.

Each execution report contains three fields which are used to communicate both the current state of the order as understood by the broker and the purpose of the message: OrdStatus, ExecType and ExecTransType.

Tag	Field Name	Req'd	Comments
	Message Header	Y	MsgType = 8
1	Account	N	
6	Average price	Y	Average price of fills
11	ClOrdID	Y	Unique identifier for Order as assigned by institution
14	CumQty	Y	Total number of fills.
17	ExecID	Y	Unique identifier of execution message.

20	ExecTransType	Y	new  cancel  correct
31	LastPx	N	Price of last fill
32	LastShares	N	Quantity of last fill
37	OrderID	Y	eBroker's internal order number
38	OrderQty	Y	Number of shares on the order
39	OrdStatus	Y	Describes the current status of order
40	OrdType	Y	Valid values: <ul style="list-style-type: none"> <li>• 1 – Market</li> <li>• 2 – Limit</li> <li>• 4 – Stop Limit</li> </ul>
41	OrigClOrdID	N	ClOrdID of the previous order
44	Price	N	Required for limit order
54	Side	Y	Side of order
55	Symbol	Y	Ticker symbol
48	SecurityID	N	
58	Text	N	Free format text string
59	TimeInForce	N	Valid values: <ul style="list-style-type: none"> <li>• 0 – Day Order</li> <li>• 1 – Good Till Cancel (GTC)</li> <li>• 2 – At the Opening (OPG)</li> <li>• 4 – Fill or Kill (FOK)</li> </ul>
60	TransactTime	Y	The time, in UTC, at which the execution being reported.



76	ExecBroker	N	Used for firm identification in third-party transactions
99	Stop price	N	Required for stop limit order
126	Expire time	N	
150	ExecType	Y	Describes the specific execution report, same possible values as tag39
151	LeaveQty	Y	LeaveQty = Order Qty – filled Qty
	Message Trailer	Y	