

**Volume**

**1**

SEE LINK

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Order Routing System – Technical Specification

**FIX Interface**

ORDER ROUTING SYSTEM

# **FIX Interface**

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## Revision history

20.6.2015	Draft 0.9
2.7.2015	First version submitted to participating exchanges for review
22.7.2015	Indicative price+volume and reference price added to the market data
14.9.2015	SecurityList modified – LastMkt removed, MarketID and MarketSegmentID moved into Instrument group
9.10.2015	Added fields OnBehalfOfCompID and DeliverToCompID to the header section
22.10.2015	Added field ExecRefID to Execution report
8.12.2015	Added field numberOfOrders to MarketDataSnapshotFullRefresh, removed fields SettType and SettDate
18.12.2015	Standard header fields SenderCompID, OnBehalfOfCompID and DeliverToCompID descriptions updated
22.12.2015	SecurityListRequest field ExDestination descriptions updated
23.12.2015	Order Management overview updated
4.1.2016	SecurityList updated: field LastMkt added, fields MakretId and MarketSegmentId moved from repeating group to top level.
7.1.2016	Technical news format updated. News: LastMkt field not required.
13.1.2016	Added OrigClOrdId field to Execution Report for Order Cancel Replace.
18.1.2016	Added chapter Order Confirmations and Expiration
4.2.2016	Updated BusinessMessageReject required fields.
24.2.2016	Added Data validation chapter
2.3.2016	Added validation: QrderQty, MinQty and MaxFloor can only be whole numbers
3.3.2016	Description of OrdStatusReqType field in OrderStatusRequest added.
11.3.2016	Description of PossResend field in Order Management added.
11.3.2016	Added ExecType Restated for correcting mistakes. See Data validation chapter for details.
22.3.2016	Removed validations on ExecutionReport fields TimeInForce and ExpireDate as Xetra can change them (for example GTC to GTD).



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# Overview

SEE Link FIX interface is based on FIX specification 4.4. This document is only describing implementation details for this particular version. Basic principles are explained in FIX specification that can be downloaded from <http://www.fixprotocol.org/specifications>.

SEE Link's FIX implementation is a subset of full trading system functionality used by participating Exchanges. The supported features are:

- Order routing for regular settlement orders
- Market data dissemination

We tried to hide unique requirements from participating exchanges and their trading systems thru and provide one common simple to use FIX interface.

## Session Overview

### FIX implementation details

#### Message Sequence Numbers

Message sequence numbers are always reset, when the FIX client connects for the first time in a day.

Message sequence numbers can also be reset by sending a Logon message with ResetSeqNumFlag (tag 141) set to 'Y'.

Any reset of sequence numbers represents start of a new logical session.

#### Business level request identification

All FIX requests have some field which is used for request identification. When response is generated, this field is copied to the response to allow the client connect response to the request. These fields have different names in different messages: ClOrdID, SecurityReqID, SecurityStatusReqID and MDReqID. As the SEE Link system processes all these fields in the uniform manner they are required to be unique inside single member even though they have different names. This means the client cannot send NewOrderSingle with ClOrdID=1 and later SecurityStatusRequest with SecurityStatusReqID =1.

In the unlikely case the member would use two FIX clients (for example one for trading and one for collecting data) they should not use the same values for request identification.

### **Sending time window**

For a message to be considered valid, it must be received within a predefined time window from the SendingTime (tag 52) specified in its header. The default is set at within 1 minute from the message SendingTime. Any message received outside of this window will be rejected.

### **Unknown messages and tags**

Messages that are not known to FIX standard implementation will be rejected using Session Reject message.

Messages that are known to FIX but not implemented are rejected using Business Message Request.

Messages with tags that are not known to FIX and are not custom fields are rejected using Session Reject message.

Tags that are known to FIX but not used in our implementation are simply ignored.

### **Custom Fields**

We were not able to completely avoid use of custom fields. These fields are:

Tag	Field Name	Comments
1301	MarketID	Market Identification Code (standard field as of FIX.5.0SP1)
1300	MarketSegmentID	Segment code (standard field as of FIX.5.0SP1)
1473	NewsCategory	SEE Link/Exchange/Technical news (standard field as of FIX.5.0SP1)
423	PriceType	Price type (percentage or absolute). This field is known in FIX 4.4 but not in SecurityList message (in this message from FIX 5.0sp1)
100	ExDestination	Exchange code in incoming messages. Standard FIX 4.4 tag in <i>NewOrderSingle</i> , <i>OrderCancelRequest</i> , <i>OrderCancelReplaceRequest</i> but we also used it in <i>SecurityListRequest</i> , <i>TradeCaptureRequest</i> and <i>MarketDataRequest</i> .
30	LastMkt	Exchange code in outgoing messages. Standard FIX 4.4 tag in



		<i>ExecutionReport</i> but we also used it in <i>SecurityList</i> , <i>TradeCaptureReport</i> , <i>MarketDataFullRequest</i> and <i>News</i> .
779	LastUpdateTime	Last time order status was updated. Field is known in FIX 4.4 but not in Execution report
5000	OrdStatusReqType	This field specifies if OrderStatus should return last valid status or complete chain of Execution Reports for Order.

All custom fields are registered in the [www.fixprotocol.org](http://www.fixprotocol.org)

### **Protocol revisions**

There might come a need to modify existing protocol. In most cases these modifications mean additional fields and messages that can be safely ignored by the client. We will never remove mandatory fields and we will do our best not to change the meaning of the existing fields. Mandatory fields that will not be used anymore will get default values and meaning of existing fields will be implemented using a new field.

In a rare situation where meaning of existing fields would change we will introduce additional custom field "Product Version" (ID=9682) into the Logon message and handle both old and new version for a reasonable time. The Logon without this field would be considered "1.0". We didn't introduce this field into the protocol as we expect this situation will never occur.

### **Value limits**

SEE Link's system is checking that no order price or quantity field can exceed  $10^{12}$ .

### **Symbol or ISIN code**

Some trading systems identify securities by trading symbols the others by ISIN codes. We are supporting both methods. When client message is received we first try to use field Symbol (55). If it is empty or contains "[N/A]" we take SecurityID (48) + SecurityIDSource (22) which must represent valid ISIN code (in SecurityID) + value "4" (in SecurityIDSource).

In outgoing messages we always populate all three fields.

### **Validations, confirmations and rejections**

SEE Link is doing basic validations on incoming messages, like requiring security to exist on the market or limit orders having specified price. Those validations are listed in comments next to the fields. In case validation rule will be violated then SEE Link will reject the message with appropriate reject message without passing it to the executing broker.

Exchange trading rules are not duplicated in SEE Link system and will not check prices, volumes, client accounts, trading session states and similar data. It is up to the executing broker or exchange to reject orders which violate the rules of the specific market.

SEE Link does not generate confirmations when order is delivered to the executing broker. It is up to executing broker to reply with appropriate execution report after order is accepted to his system.

## Messages

### Common structures

#### Standard Header

Tag	Field Name	Required	Comments
8	BeginString	Y	FIX.4.4, unencrypted
9	BodyLength	Y	
34	MsgSeqNum	Y	Integer message sequence number
35	MsgType	Y	One of supported message types
49	SenderCompID	Y	Unique identifier of client supplied by SEE Link (SEE Link ID)
52	SendingTime	Y	YYYYMMDD-HH:MM:SS (must be within <i>n</i> seconds of current time)
56	TargetCompID	Y	SEELINK
115	OnBehalfOfCompID	N	Filled by SEE Link when order is routed to the ExBroker (SEE Link ID of the OrBroker)
128	DeliverToCompID	N	Used by OrBroker when sending orders (SEE Link ID of the ExBroker)
347	MessageEncoding	N	UTF-8

#### Standard Trailer

Tag	Field Name	Required	Comments
93	SignatureLength	N	Will be added at some later stage.
89	Signature	N	Will be added at some later stage.
10	Checksum	Y	Per FIX specifications.

## Session and Infrastructure Messages

### Heartbeat

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType=0
112	TestReqID	N	Required when the heartbeat is the result of Test Request Message
	Standard Trailer	Y	

### Test Request

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType=1
112	TestReqID	Y	
	Standard Trailer	Y	

### Logon

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType=A
98	EncryptMethod	Y	Always 0 (no encryption on FIX level)
108	HeartBtInt	Y	Values less than 30 seconds will be rejected.
141	ResetSeqNumFlag	N	Indicates both sides of a FIX session should reset sequence numbers
553	Username	Y	
554	Password	Y	
	Standard Trailer	Y	

### Logoff

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType=5
58	Text	N	

354	EncodedTextLen	N	
355	EncodedText	N	
	Standard Trailer	Y	

### Session Reject

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType=3
45	RefSeqNum	Y	MsgSeqNum of rejected Msg
371	RefTagID	N	The tag number of the FIX field being referenced.
372	RefMsgType	N	The MsgType (35) of the FIX message being referenced.
373	SessionReject Reason	Y	Code to identify reason for session-level reject  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 8 = Signature problem 9 = CompID problem 10 = SendingTime accuracy problem 11 = Invalid MsgType 16 = Incorrect NumInGroup count for repeating group 99 = Other
58	Text	N	Reason for reject if reject code is 99
354	EncodedTextLen	N	
355	EncodedText	N	
	Standard Trailer	Y	

## Business Message Reject

All business level messages can be rejected either by the SEE Link system or executing broker. In both cases BusinessMessageReject message is returned back to originating broker.

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=j
45	RefSeqNum	N	MsgSeqNum of rejected message
372	RefMsgType	N	The MsgType of the FIX message being referenced.
379	BusinessRejectRefID	Y	Identifier of the rejected message (ClOrdId)
380	BusinessRejectReason	Y	Valid values: 0 = Other 1 = Unkown ID 2 = Unknown Security 3 = Unsupported Message Type 4 = Application not available 5 = Conditionally Required Field Missing 6 = Not authorized 7 = DeliverTo firm not available at this time
58	Text	N	Further description of the rejection
354	EncodedTextLen	N	
355	EncodedText	N	
	<i>Standard Trailer</i>	Y	

## Order Management

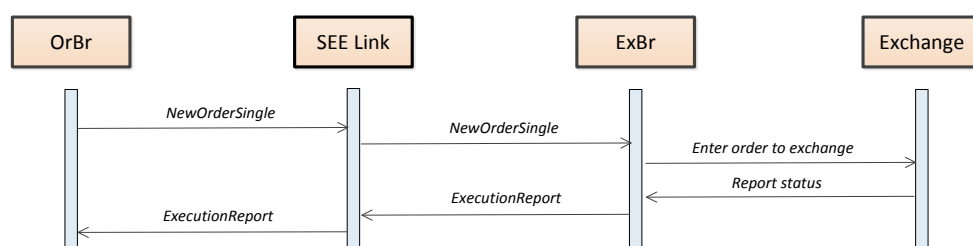
SEE Link system is primary designed to route orders from originating to executing brokers with as little internal logic as possible. After order receipt the executing broker becomes responsible to route back any execution report originating from the exchange.

Sometimes SEE Link system cannot route the order due invalid parameters, lack of permissions or other reasons. In this case it replies with BusinessMessageReject.

It is also possible that SEE Link will successfully deliver order to the executing broker but he will reject it with BusinessMessageReject. In this case the rejection will be forwarded back to the originating broker.

It is possible for originating broker to force resending previously processed order requests to executing broker by setting PossResend flag to Y. It is not possible to resend rejected requests.

### New Order Single



*NewOrderSingle (inbound from OrBr, outgoing to ExBr)*

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType= D (NewOrderSingle)
11	ClOrdID	Y	This is your new and unique ID for this request (limited to 50 characters)
100	ExDestination	Y	Code of the target exchange
55	Symbol	N	1-15 character security identifier. Conditionally required if ISIN code is not provided.
48	SecurityID	N	Security ISIN. Conditionally required if Symbol is not provided.
22	SecurityIDSource	N	Used together with SecurityID field. Valid value: 4 = ISIN
54	Side	Y	Valid values: 1 = Buy

			2 = Sell
40	OrdType	Y	Valid values: 1 = Market 2 = Limit 3 = Stop 4 = Stop limit K = Market to limit
18	ExecInst	N	Valid values: G = All or none
38	OrderQty	Y	Must be positive number
110	MinQty	N	Minimum acceptable execution quantity (when applicable). Must be a positive number $1 \leq n \leq$ OrderQty
111	MaxFloor	N	Maximum visible quantity on the floor (when applicable). Must be a positive number greater than 1% of OrderQty. If MinQty is specified then system ignores this field.
44	Price	N	Required if OrdType = Limit or StopLimit; Prohibited otherwise.
99	StopPx	N	Stop price for Stop and Stop limit orders
59	TimeInForce	N	Valid values: 0 = Day (default) 1 = Good Till Cancel (Open) 3 = Immediate or cancel 4 = Fill Or Kill 6 = Good Till Date
432	ExpireDate	N	Can be set if TimeInForce = 6; reserved Order expires at the end of trading on the specified date.
1	Account	N	Valid account identifier according to the rules of the target exchange: MSE:AccountType+AccountNumber BSE: this field is not used ZSE: Investor Account

526	SecondaryClOrdID	N	Will be returned to you in execution reports (max 50 characters)
60	TransactTime	Y	The time that you sent this request. Must be within <i>n</i> seconds of current time.
	<i>Standard Trailer</i>	Y	

*ExecutionReport (outgoing confirmation)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8 (ExecutionReport)
150	ExecType	Y	Purpose of the ExecutionReport: Valid values: <b>0 = New</b>
39	OrdStatus	Y	Valid values: <b>0 = New</b>
17	ExecID	Y	Unique identifier of execution message as assigned by the Exchange (or 0 for Order Status).
60	TransactTime	Y	Time of last order action
11	ClOrdID	Y	Copied from request
30	LastMkt	Y	Market of execution (exchange code)
37	OrderID	Y	OrderNumber assigned by the trading system
55	Symbol	N	Copied from request
48	SecurityID	N	Copied from request
22	SecurityIDSource	N	Copied from request
54	Side	Y	Copied from request
40	OrdType	Y	Copied from request
18	ExecInst	N	Copied from request
38	OrderQty	Y	Copied from request
110	MinQty	N	Copied from request
111	MaxFloor	N	Copied from request
44	Price	N	Copied from request
99	StopPx	N	Copied from request
59	TimeInForce	N	Copied from request
432	ExpireDate	N	Copied from request



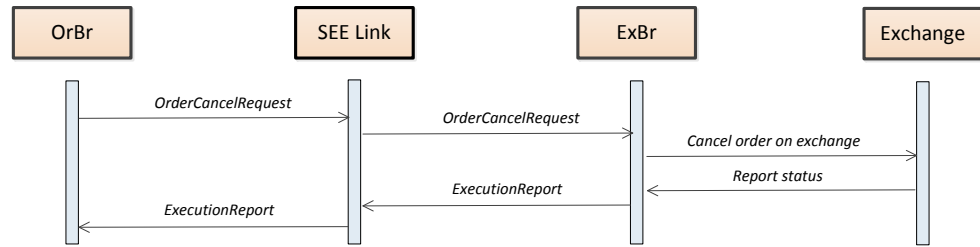
1	Account	N	Copied from request
526	SecondaryClOrdID	N	Copied from request
151	LeavesQty	Y	Quantity left on the order, as per State Matrixes. In this case equals OrderQty
14	CumQty	Y	Currently executed quantity for chain of orders. In this case equals 0.
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
	<i>Standard Trailer</i>	Y	

*ExecutionReport (outgoing rejection)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8
150	ExecType	Y	Purpose of the ExecutionReport: Valid values: <b>8 = Reject</b>
39	OrdStatus	Y	Valid values: <b>8 = Rejected</b>
17	ExecID	Y	Unique identifier of execution message as assigned by the Exchange. "REJ_NEW" + ClOrdId if rejected by SeeLink
60	TransactTime	N	Time of last order action
11	ClOrdID	Y	Copied from request
30	LastMkt	Y	Market of execution (exchange code)
37	OrderID	Y	NONE
55	Symbol	N	Copied from request
48	SecurityID	N	Copied from request
22	SecurityIDSource	N	Copied from request
54	Side	Y	Copied from request
40	OrdType	Y	Copied from request
18	ExecInst	N	Copied from request
38	OrderQty	Y	Copied from request

110	MinQty	N	Copied from request
111	MaxFloor	N	Copied from request
44	Price	N	Copied from request
99	StopPx	N	Copied from request
59	TimeInForce	N	Copied from request
432	ExpireDate	N	Copied from request
1	Account	N	Copied from request
526	SecondaryClOrdID	N	Copied from request
151	LeavesQty	Y	Quantity left on the order, as per State Matrixes. In this case equals 0.
14	CumQty	Y	Currently executed quantity for chain of orders. In this case equals 0.
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
103	OrdRejReason	Y	Valid values: 1 = Unknown symbol 2 = Exchange closed 3 = Order exceeds limit 4 = Too late to enter 5 = Unknown Order 6 = Duplicate Order (e.g. dupe ClOrdID (11)) 7 = Duplicate of a verbally communicated order 8 = Stale Order 11 = Unsupported order characteristic 13 = Incorrect quantity 15 = Unknown account(s) 99 = Other
58	Text	N	Further description of the rejection
354	EncodedTextLen	N	
355	EncodedText	N	
	<i>Standard Trailer</i>	Y	

## Order Cancel Request



*OrderCancelRequest (inbound, outgoing to ExBr)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType = F
41	OrigClOrdID	Y	Original identification of the order to be canceled. Mandatory field.
11	ClOrdID	Y	Unique identification of cancel request.
100	ExDestination	Y	Code of the target exchange
55	Symbol	N	1-15 character security identifier. Conditionally required if ISIN code is not used. Must be the same as symbol of the original order.
48	SecurityID	N	Security ISIN. Conditionally required if Symbol is not used.
22	SecurityIDSource	N	Used together with SecurityID field. Valid value: 4 = ISIN
54	Side	Y	Must be the same as the side of the original order
60	TransactTime	Y	The time that you submitted this request.
38	OrderQty	Y	Total order quantity as entered (even if some was already traded)
	<i>Standard Trailer</i>	Y	

*ExecutionReport (outgoing confirmation)*

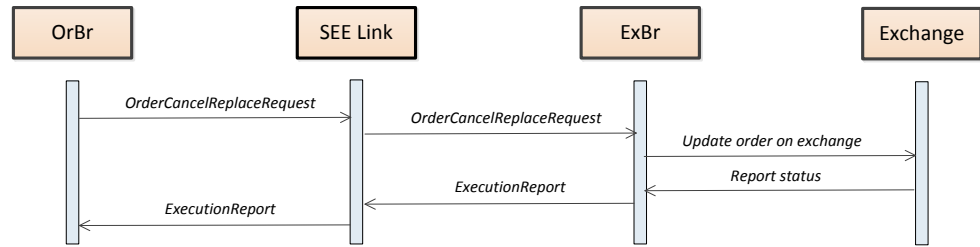
Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8
150	ExecType	Y	Purpose of the ExecutionReport:

			Valid values: <b>4 = Canceled</b>
39	OrdStatus	Y	Valid values: <b>4 = Canceled</b>
17	ExecID	Y	Unique identifier of execution message as assigned by the Exchange
60	TransactTime	Y	Time of last order action
11	ClOrdID	Y	Copied from request
30	LastMkt	Y	Market of execution (exchange code)
41	OrigClOrdID	Y	Original identification of the canceled order.
37	OrderID	Y	OrderNumber
55	Symbol	N	Copied from order
48	SecurityID	N	Copied from order
22	SecurityIDSource	N	Copied from order
54	Side	Y	Copied from order
40	OrdType	Y	Copied from order
18	ExecInst	N	Copied from order
38	OrderQty	Y	Copied from order
110	MinQty	N	Copied from order
111	MaxFloor	N	Copied from order
44	Price	N	Copied from order
99	StopPx	N	Copied from order
59	TimeInForce	N	Copied from order
432	ExpireDate	N	Copied from order
1	Account	N	Copied from order
526	SecondaryClOrdID	N	Copied from order
151	LeavesQty	Y	Quantity left on the order, as per State Matrixes. In this case equals 0
14	CumQty	Y	Currently executed quantity for chain of orders.
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
	<i>Standard Trailer</i>	Y	

*OrderCancelReject (outgoing rejection)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=9
37	OrderID	Y	If CxlRejReason="Unknown order", specify "NONE" otherwise unique identifier of most recent order as assigned by the Exchange.
11	ClOrdID	Y	Copied from request
30	LastMkt	Y	Market of execution (exchange code)
41	OrigClOrdID	Y	Original identification of the order to be canceled if it was found at all. If not found this field will be set to "NONE".
39	OrdStatus	Y	Status of the order after cancel was rejected: <b>0 = New</b> <b>1 = Partial filled</b> <b>2 = Filled</b> <b>4 = Canceled</b> <b>9 = Suspended (Halted)</b> <b>8 = Rejected (if order not found)</b>
434	CxlRejResponseT o	Y	Valid values: <b>1 = Order cancel request</b>
102	CxlRejReason	N	Valid values: 0 = Too late to cancel 1 = Unknown order 6 = Duplicate ClOrdID (11) received 99 = Other
58	Text	N	Further explanation of rejection
354	EncodedTextLen	N	
355	EncodedText	N	
	<i>Standard Trailer</i>	Y	

## Order Cancel Replace Request



*OrderCancelReplaceRequest (inbound, outgoing to ExBr)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=G
41	OrigClOrdID	Y	This is your original ID for the order to be updated. Mandatory field.
11	ClOrdID	Y	Unique identification of update request. This will also become new client order identification for updated order if successful.
100	ExDestination	Y	Code of the target exchange
55	Symbol	N	1-15 character security identifier. Conditionally required if ISIN code is not used. Must be the same as symbol of the original order.
48	SecurityID	N	Security ISIN. Conditionally required if Symbol is not used.
22	SecurityIDSource	N	Used together with SecurityID field. Valid value: 4 = ISIN
54	Side	Y	Valid values: 1 = Buy 2 = Sell
40	OrdType	Y	Valid values: 1 = Market 2 = Limit 3 = Stop 4 = Stop limit K = Market to limit
18	ExecInst	N	Valid values:

			G = All or none
38	OrderQty	Y	Must be positive number
110	MinQty	N	Minimum acceptable execution quantity (when applicable). Must be a positive number $1 \leq n \leq$ OrderQty
111	MaxFloor	N	Maximum visible quantity on the floor (when applicable). Must be a positive number greater than 1% of OrderQty
44	Price	N	Required if OrdType = Limit; Prohibited otherwise.  All precisions are not allowed, check price step table.
99	StopPx	N	Stop price for Stop and Stop limit orders
59	TimeInForce	N	Valid values: 0 = Day (default) 1 = Good Till Cancel (Open) 3 = Immediate or cancel 4 = Fill Or Kill 6 = Good Till Date
432	ExpireDate	N	Can be set if TimeInForce = 6; reserved  Order expires at the end of trading on the specified date.
1	Account	N	Valid account identifier according to the rules of the target exchange:  MSE:AccountType+AccountNumber  BSE: this field is not used  ZSE: Investor Account
526	SecondaryClOrdID	N	Will be returned to you in execution reports (max 50 characters)
60	TransactTime	Y	The time that you submitted this request. Must be within <i>n</i> seconds of current time.
	<i>Standard Trailer</i>	Y	

*ExecutionReport (outgoing confirmation)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8 (ExecutionReport)
150	ExecType	Y	Purpose of the ExecutionReport: Valid values: <b>5 = Replaced</b>
39	OrdStatus	Y	Valid values: <b>0 = New</b> <b>1 = Partial filled</b> <b>9 = Suspended (Halted)</b>
17	ExecID	Y	Unique identifier of execution message as assigned by the Exchange
60	TransactTime	Y	Time of last order action
11	ClOrdID	Y	Copied from request
30	LastMkt	Y	Market of execution (MIC code)
41	OrigClOrdID	Y	Original identification of the canceled order.
37	OrderID	Y	OrderNumber assigned by the trading system at the time of entry
55	Symbol	N	Copied from request
48	SecurityID	N	Copied from request
22	SecurityIDSource	N	Copied from request
54	Side	Y	Copied from request
40	OrdType	Y	Copied from request
18	ExecInst	N	Copied from request
38	OrderQty	Y	Copied from request
110	MinQty	N	Copied from request
111	MaxFloor	N	Copied from request
44	Price	N	Copied from request
99	StopPx	N	Copied from request
59	TimeInForce	N	Copied from request
432	ExpireDate	N	Copied from request
1	Account	N	Copied from request
526	SecondaryClOrdID	N	Copied from request



151	LeavesQty	Y	Quantity left on the order, as per State Matrixes. LeavesQty = OrderQty – CumQty.
14	CumQty	Y	Currently executed quantity for chain of orders.
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
	<i>Standard Trailer</i>	Y	

*OrderCancelReject (outgoing rejection)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=9
37	OrderID	Y	If CxlRejReason="Unknown order", specify "NONE" otherwise BTS OrderNumber
11	ClOrdID	Y	Copied from request
30	LastMkt	Y	Market of execution (exchange code)
39	OrdStatus	Y	Status of the order after cancel was rejected: <b>0 = New</b> <b>1 = Partial filled</b> <b>2 = Filled</b> <b>4 = Canceled</b> <b>9 = Suspended (Halted)</b> <b>8 = Rejected (if order not found)</b>
434	CxlRejResponseT o	Y	Valid values: <b>2 = Order cancel/replace request</b>
102	CxlRejReason	N	Valid values: 0 = Too late to cancel 1 = Unknown order 6 = Duplicate ClOrdID (11) received 99 = Other
58	Text	N	Further explanation of rejection
354	EncodedTextLen	N	
355	EncodedText	N	

	<i>Standard Trailer</i>	Y	
--	-------------------------	---	--

## Order Status

Order statuses are returned from SEE Link's system database. Executing brokers are required to update order statuses quickly after every change and also confirm outstanding orders before every trading session. We added LastUpdateTime (tag 779) custom field to Execution Report to represent time when Executing Broker last time confirmed this order status.

Order status can be requested individually or globally. Mass status request triggers many execution reports – one for each order. Mass status request returns only orders, which are currently active at the system. Orders that were already filled, removed or rejected are only returned by the individual order status request.

Developers should be aware of the situation, when there are no active orders. In this situation SEE Link will answer to OrderMassStatusRequest with ExecutionReport with OrdStatus = 8 (Rejected).

Order status request can query all orders that are active in the system now or at some point in the past.

However, neither request can return orders that were rejected. The reason is that both requests query order book database whereas rejected orders are not stored in the order book.

### *OrderStatusRequest (inbound)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=H
790	OrdStatusReqID	Y	Unique identifier
100	ExDestination	Y	Code of the target exchange
11	ClOrdID	Y	The ClOrdID of the order whose status is being requested.
37	OrderID	N	OrderNumber
55	Symbol	N	1-15 character security identifier. Conditionally required if ISIN code is not provided.
48	SecurityID	N	Security ISIN. Conditionally required if Symbol is not provided.
22	SecurityIDSource	N	Used together with SecurityID field. Valid value: 4 = ISIN
54	Side	Y	Must be the same as the side of the original order.
5000	OrdStatusReqType	N	Valid values: 0 = Standard (returns last valid

Tag	Field Name	Required	Comments
			status) 1 = TradeHistory (returns complete chain of Execution Reports for order)
	<i>Standard Trailer</i>	Y	

*OrderMassStatusRequest (inbound)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=AF
584	MassStatusReqID	Y	This is your new and unique ID for this request (limited to 15 characters)
100	ExDestination	N	Code of the target exchange. “*” or empty field returns orders for all exchanges
585	MassStatusReqType	Y	Values: 1 = status for all orders for a security (Symbol is mandatory) 7 = status for all orders
55	Symbol	N	
	<i>Standard Trailer</i>	Y	

*ExecutionReport (outgoing confirmation)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8
150	ExecType	Y	Purpose of the ExecutionReport: Valid values: <b>I = Status</b>
39	OrdStatus	Y	Valid values: <b>0 = New</b> <b>1 = Partial filled</b> <b>2 = Filled</b> <b>4 = Canceled</b> <b>9 = Suspended (Halted)</b> <b>C = Expired</b>

Tag	Field Name	Required	Comments
17	ExecID	Y	Always 0
60	TransactTime	Y	Time of last order action
584	MassStatusReqID	N	Only used in response to OrderMassStatusRequest
911	TotNumReports	N	Only used in response to OrderMassStatusRequest – first execution report returned has this field set
912	LastRptRequested	N	Only used in response to OrderMassStatusRequest – the last execution report has this field set
790	OrdStatusReqID	N	Only used in response to OrderStatusRequest
11	ClOrdID	Y	Copied from order
37	OrderID	Y	Copied from order
30	LastMkt	Y	Market of execution (MIC code)
55	Symbol	N	Copied from order
48	SecurityID	N	Copied from order
22	SecurityIDSource	N	Copied from order
54	Side	Y	Copied from order
40	OrdType	Y	Copied from order
18	ExecInst	N	Copied from order
38	OrderQty	Y	Copied from order
110	MinQty	N	Copied from order
111	MaxFloor	N	Copied from order
44	Price	N	Copied from order
99	StopPx	N	Copied from request
59	TimeInForce	N	Copied from order
432	ExpireDate	N	Copied from order
1	Account	N	Copied from order
526	SecondaryClOrdID	N	Copied from order
151	LeavesQty	Y	Quantity left on the order, as per State Matrixes.
14	CumQty	Y	Currently executed quantity for chain of orders.

Tag	Field Name	Required	Comments
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
382	NoContraBrokers	N	Should be »1« if disclosure of contra traders is allowed. (only if this is execution/trade report)
375	ContraBroker	N	Set when 382 is set and greater than 0 (only if this is execution/trade report)
337	ContraTrader	N	Set when 382 is set and greater than 0 (only if this is execution/trade report)
31	LastPx	Y	Price of shares executed in this fill (only if this is execution/trade report)
32	LastQty	Y	Number of shares executed in this fill (only if this is execution/trade report)
381	GrossTradeAmt	Y	Trade value expressed in local currency (only if this is execution/trade report)
159	AccruedInterestAmt	N	Interest value expressed in local currency (only if this is execution/trade report)
779	LastUpdateTime	Y	Time of last status update by ExBr
	<i>Standard Trailer</i>	Y	

*ExecutionReport (outgoing rejection)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8
150	ExecType	Y	Purpose of the ExecutionReport: Valid values: <b>I = Status</b>
39	OrdStatus	Y	Valid values: <b>8 = Rejected</b>
17	ExecID	Y	Always 0
584	MassStatusReqID	N	Only used in response to OrderMassStatusRequest
790	OrdStatusReqID	N	Only used in response to

			OrderStatusRequest
11	ClOrdID	Y	Only used in response to OrderStatusRequest
37	OrderID	Y	Field must be present per spec. Value is NONE.
55	Symbol	N	Field must be present per spec. Value is not defined.
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN
54	Side	Y	Field must be present per spec. Value is 7 (Undisclosed).
151	LeavesQty	Y	Field must be present per spec. Value is 0
14	CumQty	Y	Field must be present per spec. Value is 0.
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
103	OrdRejReason	Y	Valid values: 1 = Unknown symbol 2 = Exchange closed 5 = Unknown Order 8 = Stale Order 15 = Unknown account(s) 99 = Other
58	Text	N	Further description of the rejection
354	EncodedTextLen	N	
355	EncodedText	N	
	<i>Standard Trailer</i>	Y	

### **Mapping order statuses between exchanges and SEE Link**

Participating exchanges use different trading systems which support different order statuses. SEE Link order routing system is supporting standard FIX 4.4 order statuses and expects ExBrs to translate statuses to supported codes before returning execution reports.

SEE Link order status	MSE (BTS)	ZSE (OMX)	BSE (Xetra)
0 = New	New	New Replaced	New
1 = Partial filled	Partial filled	Partial filled	Partial filled
2 = Filled	Filled	Filled	Filled
4 = Canceled	Canceled	Canceled	Canceled
9 = Suspended (Halted)	Suspended	Private order Unplaced	-
C = Expired	Expired	Expired	Expired
8 = Rejected (if order not found)	Rejected	Rejected	Rejected

### **Order Confirmations and Expiration**

Executing brokers shall confirm active orders before every trading session by sending Execution Report with ExecType = I (Status). The SEE Link system will not remove orders which were not confirmed but originating broker will see old date in LastUpdateTime field and will not be sure if the status is still valid.

Executing broker shall report expired orders to SEE Link immediately when they get expired by the stock exchange by sending Execution Report with ExecType = C (Expired) and OrdStatus = C (Expired). Orders that were evidently expired (for example daily orders from previous days) and did not get status update from executing broker will be removed by SEE Link during the cleanup procedure. In this case OrderStatusRequest will return ExecutionReport with the OrdStatus = C (Expired) and Text = "Expired by SEE Link".

### **Correcting accidentally reported orders and statuses**

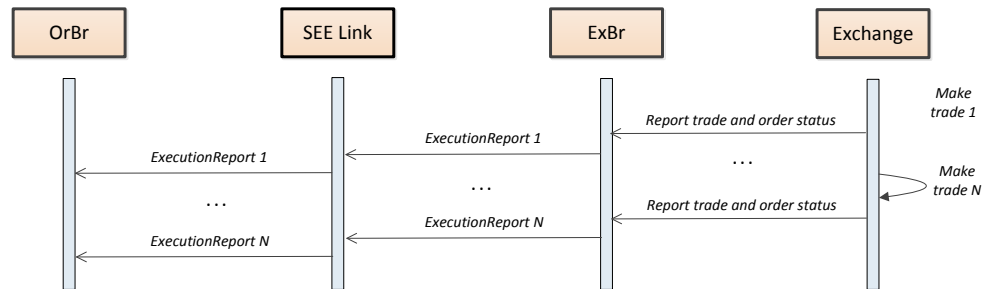
Originating broker can cancel or replace active order if he or she discovers mistake and order was not already executed.

Originating broker can send new execution report with different order status. If order is already in terminal state then he or she can send new execution report with ExecType=R (Restated) to bring it to another status.

## Trades

### Report trade to involved party

After trade is made on the destination exchange, the executing broker is expected to promptly generate appropriate execution report with the reference to the original trader (ClOrdId), the system sends two separate confirmations to the buyer and the seller.



*ExecutionReport (outgoing report)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=8
150	ExecType	Y	Purpose of the ExecutionReport: Valid values: <b>F = Trade</b> <b>G = Trade Correct</b> <b>H = Trade Cancel</b>
39	OrdStatus	Y	Valid values: <b>1 = Partial filled (remaining)</b> <b>2 = Filled</b> <b>4= Canceled (partial filled &amp; removed)</b>
17	ExecID	Y	Unique identifier of execution message as assigned by the Exchange <i>Note: BTS system is generating the ExecID as OrderNumber+"_"+Sequence and it is not unique when trade is canceled. We suggest ExBr to generate ExecID for trades as "TRD_" + Ticket + "_" + TradeStatus indicator</i>
19	ExecRefID	N	Reference to original ExecID in case of trade cancel or correct. Conditionally required.
60	TransactTime	Y	Time of last order action



11	ClOrdID	Y	Copied from order
37	OrderID	Y	Copied from order
30	LastMkt	Y	Market of execution (exchange code)
55	Symbol	N	Copied from order
48	SecurityID	N	Copied from order
22	SecurityIDSource	N	Copied from order
54	Side	Y	Copied from order
40	OrdType	Y	Copied from order
18	ExecInst	N	Copied from order
38	OrderQty	Y	Copied from order
110	MinQty	N	Copied from order
111	MaxFloor	N	Copied from order
44	Price	N	Copied from order
59	TimeInForce	N	Copied from order
99	StopPx	N	Copied from request
432	ExpireDate	N	Copied from order
1	Account	N	Copied from order
526	SecondaryClOrdID	N	Copied from order
151	LeavesQty	Y	Quantity left on the order, as per State Matrixes. In this case equals 0
14	CumQty	Y	Currently executed quantity for chain of orders.
6	AvgPx	Y	Field must be present in FIX 4.x. Always 0.
31	LastPx	Y	Price of shares executed in this fill (only if this is execution/trade report)
32	LastQty	Y	Number of shares executed in this fill (only if this is execution/trade report)
381	GrossTradeAmt	Y	Trade value expressed in local currency
159	AccruedInterestAmt	N	Interest value expressed in local currency
12	Commission	N	SEE Link commission. ExBr should not set this value.
13	CommissionType	N	Valid values:

			3 = Absolute
	<i>Standard Trailer</i>	Y	

## Trade capture report

Trade capture report is intended for building a list of trades on the client side. This message does not include ClOrdID nor is available for previous days so it is not suitable for own trade confirmations.

TradeCaptureReportRequestAck is sent only in the following cases:

- confirmation of the subscription or unsubscription
- rejection of the TradeCaptureReportRequest
- as result of the snapshot request if there are no results to return.

### *TradeCaptureReportRequest (inbound)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=AD
568	TradeRequestID	Y	Unique identifier or previous value if disabling subscription
569	TradeRequestType	Y	Valid values: 0 = AllTrades
263	SubscriptionRequestType	N	0 = Snapshot (default) 1 = Snapshot + updates 2 = Disable previous snapshot + updates
100	ExDestination	Y	Code of the target exchange
55	Symbol	N	null means all securities
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN
17	ExecID	N	Unique identifier of execution or null for all
828	TrdType	N	Valid values: 0 = RegularTrade 1 = BlockTrade 3 = Transfer (Reported)

Tag	Field Name	Required	Comments
580	NoDates	N	Valid values: 0 = all trades for the day 1 = from 2 = from – to
75	TradeDate	Y	From date (only current date)
60	TransactTime	N	From time in UTC, null means beginning of current day. If specified this DateTime field must belong to the same day as specified in TradeDate.
75	TradeDate	Y	To date (only current date)
60	TransactTime	N	To time in UTC, null means until now. If specified this DateTime field must belong to the same day as specified in TradeDate.
	<i>Standard Trailer</i>	Y	

*TradeCaptureReportRequestAck (outgoing confirmation)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=AQ
568	TradeRequestID	Y	Unique identifier or previous value if disabling subscription
569	TradeRequestType	Y	Valid values: 0 = AllTrades
263	SubscriptionRequestType	N	0 = Snapshot 1 = Snapshot + updates 2 = Disable previous snapshot + updates
749	TradeRequestResult	Y	Valid values: <b>0 = Successful</b> <b>1 = Invalid or unknown instrument</b> <b>9 = Unauthorized</b> <b>99 = Other</b>
750	TradeRequestStatus	Y	Valid values:

Tag	Field Name	Required	Comments
			0 = Accepted 1 = Completed 2 = Rejected
58	Text	N	Further information
354	EncodedTextLen	N	
355	EncodedText	N	
	<i>Standard Trailer</i>	Y	

*TradeCaptureReport (outgoing confirmation)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=AE
571	TradeReportID	Y	Unique identifier of trade capture report
568	TradeRequestID	N	Request ID if the Trade Capture Report is in response to a Trade Capture Report Request
828	TrdType	Y	Valid values: 0 = RegularTrade 1 = BlockTrade 3 = Transfer (Reported)
150	ExecType	N	Valid values: <b>F = Trade</b> <b>G = Trade Correct</b> <b>H = Trade Cancel</b>
17	ExecID	Y	Unique identifier of execution
748	TotNumTradeReports	N	Returned in the first result of snapshot
912	LastRptRequested	N	Returned in the last result of snapshot
570	PreviouslyReported	Y	Always N.
55	Symbol	N	
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN

Tag	Field Name	Required	Comments
32	LastQty	Y	Trade volume
31	LastPx	Y	Trade price
30	LastMkt	Y	Exchange code
75	TradeDate	Y	
60	TransactTime	Y	
552	NoSides	N	2
54	Side	Y	1 = Buy
37	OrderID	Y	OrderNumber. Always 0 in SEE Link feed.
381	GrossTradeAmt	N	Trade value expressed in local currency
54	Side	Y	2 = Sell
37	OrderID	Y	OrderNumber. Always 0 in SEE Link feed.
381	GrossTradeAmt	Y	Trade value expressed in local currency
	<i>Standard Trailer</i>	Y	

## Securities

### Security list

FIX interface supports simple querying of active securities and indices. Securities that are not yet listed or the ones that are delisted for more than 1 week are not returned. Indices are distinguished from securities by CFI Code.

*SecurityListRequest (inbound)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=x
320	SecurityReqID	Y	Unique Identifier
100	ExDestination	Y	Code of the target exchange
559	SecurityListRequestType	N	0 = Symbol 4 = All securities
55	Symbol	N	Security Symbol. Symbol or ISIN is required if SecurityListRequestType=0 Ignored otherwise

Tag	Field Name	Required	Comments
48	SecurityID	N	Security ISIN. Symbol or ISIN is required if SecurityListRequestType=0 Ignored otherwise
22	SecurityIDSource	N	Valid value: 4 = ISIN
	<i>Standard Trailer</i>	Y	

*SecurityList (outgoing confirmation or rejection)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=y
320	SecurityReqID	Y	Same identifier as specified in SecurityListRequest message
322	SecurityResponseID	Y	Required field, GUID.
560	SecurityRequestResult	Y	Valid values: <b>0 = ValidReq</b> <b>1 = InvalidReq</b> <b>2 = NoInstrumentsFound</b> <b>3 = NotAuthorized</b>
30	LastMkt	Y	Exchange code.
1301	MarketID	N	Market code.
1300	MarketSegmentID	N	Segment code.
393	TotNoRelatedSym	N	Used to indicate the total number of securities being returned for this request. Specified in the first fragment only.
893	LastFragment	N	Indicates whether this is the last fragment in a sequence of message fragments. Specified in the last fragment only.
146	NoRelatedSym	N	Number of securities to follow
55	Symbol	N	
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN

Tag	Field Name	Required	Comments
461	CFICode	N	Indicates the type of security using ISO 0962 standard ORIXXX (other/reference instruments/indices) indicates an index
106	Issuer	N	ASCII
348	EncodedIssuerLen	N	
349	EncodedIssuer	N	Unicode
107	SecurityDesc	N	ASCII
350	EncodedSecurityDescLen	N	
351	EncodedSecurityDesc	N	Unicode
423	PriceType	N	Valid values: 1 = Percentage 3 = Absolute value
15	Currency	N	
	<i>Standard Trailer</i>	Y	

## Market Data

Market data message is carrying essential market situation details. Normal usage is subscription to this message. In this case system sends new data every 10 seconds if there was any change.

SEE Link currently supports only aggregated order book (market by price).

Please note the order book data is limited to depth of 5 and the trade list includes last 5 trades. If you want to build a list of all concluded trades you should use Trade Capture message.

All those numbers are system parameters and can be further limited by the stock exchanges.

### *MarketDataRequest (inbound)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=V
262	MDReqID	Y	Unique identifier or previous value if disabling subscription
100	ExDestination	Y	Code of the target exchange
263	SubscriptionRequestType	Y	Valid values: 0 = Snapshot 1 = Snapshot + updates 2 = Unsubscribe
264	MarketDepth	Y	Currently limited to max 5 positions
265	MDUpdateType	N	Required if SubscriptionRequestType = Snapshot + updates (1). Valid values: 0 = Full 1 = Incremental (currently not used)
266	AggregatedBook	N	Default and only currently supported value is 'Y'.
267	NoMDEntryTypes	Y	Number of data types to follow.
269	MDEntryType	Y	Valid values: 0 = Bid 1 = Offer (Ask) 2 = Trade



Tag	Field Name	Required	Comments
			3 = Index Value 4 = Open price 5 = Close price 7 = High price 8 = Low price B = Traded volume P = Indicative opening price and quantity (=Auction clearing price in BSE) R = Reference price
146	NoRelatedSym	Y	Number of instruments to follow
55	Symbol	N	Security trading code or index code (if MDEntryType = 3). Asterisk (*) means all.
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN
	<i>Standard Trailer</i>	Y	

*MarketDataSnapshotFullRefresh (outgoing data)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=W
262	MDReqID	N	Identifier of the request or subscription
55	Symbol	N	
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN
451	NetChgPrevDay	N	Net change from previous day's closing price vs. last traded price.
30	LastMkt	Y	Market of MD entries to follow.
268	NoMDEntries	Y	Number of market data entries to

Tag	Field Name	Required	Comments
			follow
269	MDEntryType	Y	Valid values: 0 = Bid 1 = Offer (Ask) 2 = Trade (only Regular trades of Valid status; no blocks, cancels,...) 3 = Index Value 4 = Open price 5 = Close price 7 = High price 8 = Low price B = Traded volume P = Indicative opening price and quantity R = Reference price
290	MDEntryPositionNo	N	Display position for bid or offer
270	MDEntryPx	N	Price (missing value means market price)
271	MDEntrySize	N	Visible volume
37	OrderID	N	Only visible for your orders
272	MDEntryDate	N	Trade date (for trades)
273	MDEntryTime	N	Trade time (for trades)
346	NumberOfOrders	N	Number of individual orders (for orders)
	<i>Standard Trailer</i>	Y	

*MarketDataRequestReject (outgoing rejection)*

Tag	Field Name	Required	Comments
	<i>Standard Header</i>	Y	MsgType=Y
262	MDReqID	Y	= MDReqID from request
281	MDReqRejReason	N	Valid values: 0 = Unknown Symbol 1 = Duplicate ID 2 = Insufficient bandwidth

Tag	Field Name	Required	Comments
			3 = Insufficient permission
58	Text	N	Further description of the rejection
354	EncodedTextLen	N	
355	EncodedText	N	
	<i>Standard Trailer</i>	Y	

## Other

### News

Tag	Field Name	Required	Comments
	Standard Header	Y	MsgType=B
1473	NewsCategory	Y	Valid values: 0 = Company news (SEE Link) 1 = Marketplace news (Exchange) 3 = Technical news (ExBr online statuses)
61	Urgency	N	0 = Normal, 1 = Flash
148	Headline	Y	ASCII
358	EncodedHeadlineLen	N	
359	EncodedHeadline	N	Unicode
30	LastMkt	N	Exchange code
146	NoRelatedSym	N	Specifies the number of repeating symbols (instruments) specified
55	Symbol	N	
48	SecurityID	N	Security ISIN
22	SecurityIDSource	N	Valid value: 4 = ISIN
33	NoLinesOfText	Y	Specifies the number of text lines to follow
58	Text	Y	Repeating field, number of instances defined in 33
354	EncodedTextLen	N	

355	EncodedText	N	Unicode
149	URLLink	N	URL
	Standard Trailer	Y	

Online statuses of the executing brokers are reported in separate line for each associated ExBr in a format:

Exchange code; ExBr SEE Link ID; ONLINE/OFFLINE;

## Data validation

The system executes basic validation on incoming messages. System always validates the following:

- are OrBr and ExBr valid members
- do OrBr and ExBr have a valid Order routing agreement
- is instrument valid and enabled

On validation failure the system will respond with BusinessMessageReject or OrderCancelReject as appropriate.

## NewOrderSingle

Allowed field values and combinations:

- OrderQty > 0
- MinQty == null or 1 <= MinQty <= OrderQty
- MaxFloor == null or MaxFloor <= OrderQty
- OrderQty, MinQty and MaxFloor can only be whole numbers
- if (TimeInForce == Good Till Date) ExpireDate != null and ExpireDate >= Today
- if ExecInst is AllOrNone, MinQty must be null
- Allowed Price and StopPx based on ordType:

Order type	Price	StopPx
Market	null	null
Limit	> 0	null
Stop	null	> 0
StopLimit	> 0	> 0
MarketToLimit	null	null

## OrderCancelReplaceRequest

Same logic as with NewOrderSingle applies. Additional validation:

- orderCancelReplace.OrderQty must be at least existingOrder.CumQty

## Execution report

Compare the following fields between order request (OR) and execution report (ER):

- Symbol/ISIN (must be equal)
- Side (must be equal)
- OrdType must be equal or one the following transitions:
  - Stop → Market
  - StopLimit→Limit
  - MarketToLimit→Limit
- ExecInst (must be equal)
- OrderQty (must be equal)
- ExecInst (both null or equal)
- MinQty:
  - if OR.MinQty is null → ER.MinQty must be null
  - in starting states (New, Stopped) both must equal;
  - if OR.MinQty not null && OrdStatus == PartiallyFilled => null or min (OR.Qty, ER.LeavesQty)
  - Not important with other statuses
- MaxFloor
  - if OR.MaxFloor is null → ER.MaxFloor must be null
  - if OR.MaxFloor not null and OrdStatus == New or Stopped → must be equal
  - if OR.MaxFloor not null and OrdStatus == PartiallyFilled → null or min (OR. MaxFloor, ER.LeavesQty)
  - Not important with other statuses
- Price (if both OR and ER have Price, it must be equal, see [NewOrderSingle](#))
- StopPx (If both request and ExRep have StopPx, it must be equal, see [NewOrderSingle](#))
- Account (must be equal)
- SecondaryCLOrdID (must be equal)
- TransactTime (<= Now + 1 minute)
- LeavesQty (between 0 and OrderQty; in terminal states (Canceled, Expired, Filed, Removed) must be 0)

- CumQty (between 0 and OrderQty; in starting states (New, Stopped) must be 0)
- LastPx ( $> 0$ ; in starting states (New, Stopped) must be null)
- LastQty (between 0 and OrderQty; in starting states (New, Stopped) must be null)
- GrossTradeAmt ( $> 0$ ; in starting states (New, Stopped) must be null)
- AccruedInterestAmt (null or  $\geq 0$ ; in starting states (New, Stopped) must be null)

Allowed new OrderStatus and ExecType combination in incoming ExecutionReport:

ordStatus\ ExecType	OrderStatus	New	Trade	TradeCancel	TradeCorrect	Canceled	Rejected	Suspended	Expired	Restated
New	+	+								+
Stopped	+	+	+	+	+					+
PartiallyFilled	+		+	+	+					+
Filled	+		+	+	+					+
Canceled	+		+	+	+	+				+
Rejected	+		+	+	+		+			+
Suspended	+	+	+	+	+			+		+
Expired	+		+	+	+				+	+

Allowed OrderStatus transitions:

old \new OrdStatus	New	Stopped	PartiallyFilled	Filled	Canceled	Rejected	Suspended	Expired
New	+	+	+	+	+	+	+	+
Stopped	+	+	+	+	+	+	+	+
PartiallyFilled		+	+	+	+	+	+	+
Filled	restate <sup>1</sup>	restate	backload <sup>2</sup> , restate	+	restate	restate	restate	restate
Canceled	restate	restate	backload, restate	backload, restate	+	restate	restate	restate
Rejected	restate	restate	backload, restate	backload, restate	restate	+	restate	restate
Suspended	+	+	+	+	+	+	+	+
Expired	restate	restate	backload, restate	backload, restate	restate	restate	restate	+

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<sup>1</sup> Execution report with ExecType=Restated allows to bring order from terminal state to any other state. Restate can only be done within the same day when order was put into terminal state. It is intended for correcting mistakes.

<sup>2</sup> we accept reporting trades for order which is already in terminal state but the state will not change. Backloading of trades will not change CumQty, LastPx, LastQty, GrossTradeAmt or AccruedInterestAmt in the terminal execution report.