

FIX ESP Staged Orders Specification

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1 Introduction

1.1 Purpose

The purpose of this document is to present in detail the Financial Information eXchange (FIX) protocol subset used by the Currenex for Staged Orders Upload service.

The offering supports processing of staged orders on Currenex platform in real time via FIX.

This document describes the offerings and provides a detailed description of the supported FIX message set.

1.2 Architecture

The trading model allows Staged Order Managers (SOM) to submit orders and receive order updates, request for order status, process trades executed on the order and cancel it.

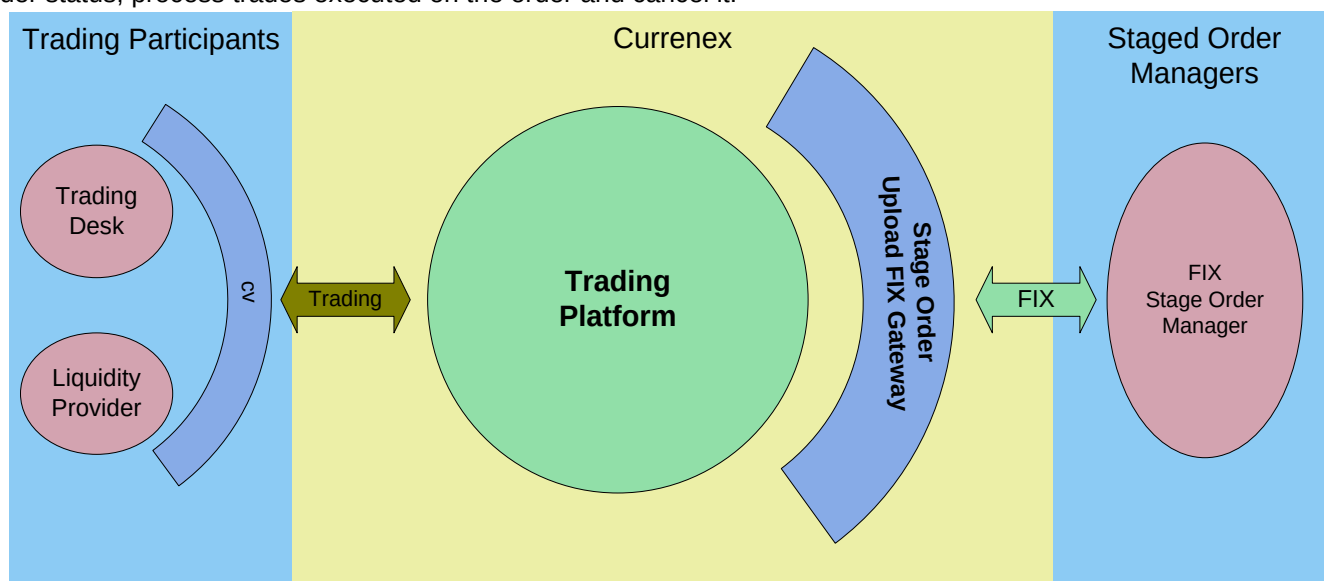


Figure 1: Currenex FIX Staged Orders Architecture

2 Product Offering

2.1 Supported Currency Pairs

Currenex supports direct and cross currency pairs. Refer to “Currenex Defined Tenors and Supported ESP Currency and Precious Metal Pairs” document for complete details. Only ESP pairs are supported for staged orders.

3 Connectivity

FIX Staged Orders users can connect to the FIX Gateway via the Public Internet, financial extranets or a private network.

- **Public Internet**

Clients can connect to the FIX Gateway over the public Internet. A Secure Socket Layer (SSL) channel must be used to ensure privacy, security and data integrity. The related server certificates are signed by established signing authorities and are available on line for verification. Currenex maintains large connections via diverse local access carriers to several major Internet backbone providers to ensure high performance and high availability. Internet access provides the benefit of ubiquitous presence, general-purpose connectivity and instant provisioning.

- **Financial Extranets**

Extranets provide Currenex customers a cost effective and reliable connectivity mechanism over a semi-private network. Throughput, routing, latency, security and failover is closely monitored and tested regularly. Extranets are able to install on-net services quickly due to pre-provisioned connections, and connectivity without the encryption of SSL is permitted. Currenex support the following extranet providers: BT Radianz, SFTI and Yipes.

- **Private Networks**

For extremely rare cases where private connectivity is necessary, Currenex supports connectivity provisioned by the customer. Clients are required to order two private lines from two different client locations to two Currenex points of presence. Ethernet Private Line service (EPLM) is the preferred connectivity type. Approval from Currenex is required for all private network connections, and the provisioning interval is greater than 90 days in most cases. Please contact your Currenex representative for further details.

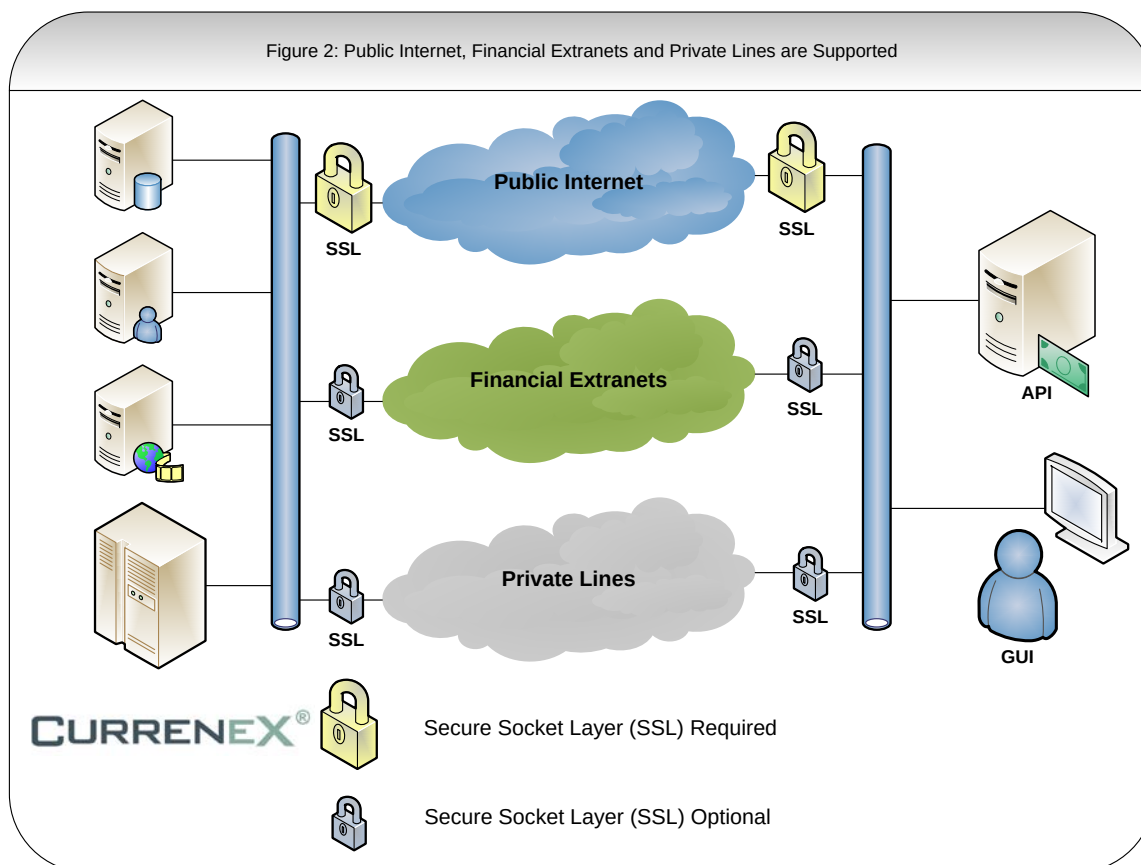


Figure 2: Public Internet, Financial Extranet and Private Lines are Supported

3.1 Secure Sockets Layer (SSL) Tunneling

Secure Sockets Layer (SSL) is required when the public internet is used to access the FIX Gateway. Its use is optional for users connecting across private networks. Any SSL implementation that supports SSL V3 with mutual certificate based authentication can be used.

If SSL support is not available in a subscriber's FIX implementation, Currenex recommends Stunnel, an open-source implementation used widely as an SSL proxy tool. Refer to <http://www.stunnel.org> for more information.

Currenex issues digital certificates for its integration and production environments. Initial connectivity and testing can be performed without SSL, but prior to going live, SSL connectivity must be tested.

4 Sequence Number Reset

The FIX Gateway resets sequence numbers at the end of the week on Friday at 17:00:05. After this time, the Currenex FIX Gateway service expects the initial message from each client reconnecting to have a sequence number equal to one (1). Currenex will reply to this with an outbound message with a sequence number also equal to one (1).

Prior to the FIX Gateway service being shutdown, all connected FIX trade clients will be sent tag 340, TradesStatus, = 5, to indicate the sequence number reset process is about to occur. Once received, users will be unable to send new orders or replace outstanding orders, but can cancel outstanding orders. Currenex will send updates to outstanding orders; e.g., fills, cancels, etc, that occur.

Currenex will then send a Logout message to disconnect all active client sessions. Upon receiving the Logout message, a client should disconnect. Upon reconnecting to the Currenex FIX Gateway, the inbound and outbound sequence numbers should be reset to one (1).

5 Supported Messages

The Currenex FIX Staged Orders Upload implementation supports FIX version 4.4 messaging.

The following convention is used in this document to indicate message direction:

- In – a message from the FIX Client to Currenex.
- Out – a message from Currenex to FIX Client.
- In/Out – a message that can be sent to or from a FIX Client or Currenex.

Available fields, requirements, values and their associated meanings are documented in [Message Details](#).

5.1 Session Messages

Session messages establish, maintain and terminate a FIX client to Currenex connection.

- Logon – (In/Out) message sent by a FIX Client to initiate a FIX session to Currenex. Logon response is sent by Currenex. The Logon message establishes the communication session, authenticates the connecting client, and initializes the message sequence number.
- Heartbeat – (In/Out) message sent by Currenex during periods of application inactivity to ensure connection validity. Client should respond to heartbeat messages upon receipt.
- Resend Request – (In/Out) message that can be sent by either Currenex or a client to request certain messages be resent. Often used when gaps are detected in the sequence numbering, when a message is lost, or during the initialization process.
- Test Request – (In/Out) used to verify session connectivity and to synchronize sequence numbers. Either Currenex or the connecting party can send a test request message. The recipient of a test request message should respond to it with a heartbeat message.
- Logout – (In/Out) message signaling the normal termination of the trading session. Sessions terminated without a Logout message will be considered an abnormal condition. The Currenex FIX gateway treats a client as logged out whenever the communication session is dropped.

5.2 Application Messages

Once a proper session is established, MPs use application messages to subscribe to and receive completed trade information.

See the below summary. Refer to the [Application Messages](#) section for more details.

- Business Message Reject – (Out) application message sent in response to any application level message that cannot be replied to with a normal matching response message. Also sent when a request message is received during non-Currenex trading hours. For a schedule of non-trading hours, please contact your Currenex service representative.
- New Order (single) – (In) message used to upload orders. This order could represent single or multi leg (swap) structure of order.
- Execution Report – (Out) message used by Currenex to send Order state notifications in response to submit, cancel, also as a reject, reply to status request as well as trade events. This message is used for both single leg and multi leg (swap) Orders.

CAVEAT: Execution Reports are not generated for events that occur while disconnected from the FIX gateway nor will they be sent once the FIX connection is reestablished. To ensure accounting for all executions, Currenex recommends that clients use its FIX STP service, a separate guaranteed delivery service.

- Order Mass Status Request – (In) message used by SOM to request for list of all active Staged Orders. Currenex will respond to it with list of ExecutionReport (Order) messages.
- Order Cancel Request – (In) message used by SOM to request to cancel active Staged Order. In response Currenex will send ExecutionReport with Order Status canceled or OrderCancelReject message.
- Order Cancel Reject – (Out) message sent by Currenex to SOM in the case order cancel request cannot be processed.

6 Message Workflow

6.1 General Workflow

Any message received by the Currenex FIX engine that is outside the scope of this document will be rejected with a Business Message Reject message.

The following codes are used to indicate trading level errors and can appear in the BusinessRejectReason field:

- 0. Other
- 1. Unknown ID
- 2. Unknown security
- 3. Unsupported message type
- 4. Application not available
- 5. Conditionally required field missing

6.2 Order Upload

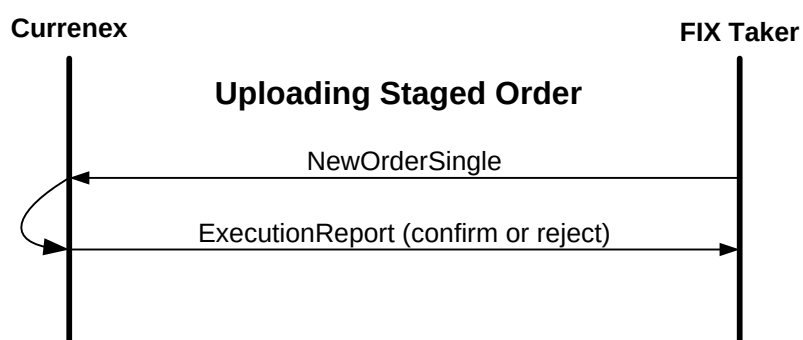


Figure 3: Upload Staged Order

6.3 Canceling Staged Order

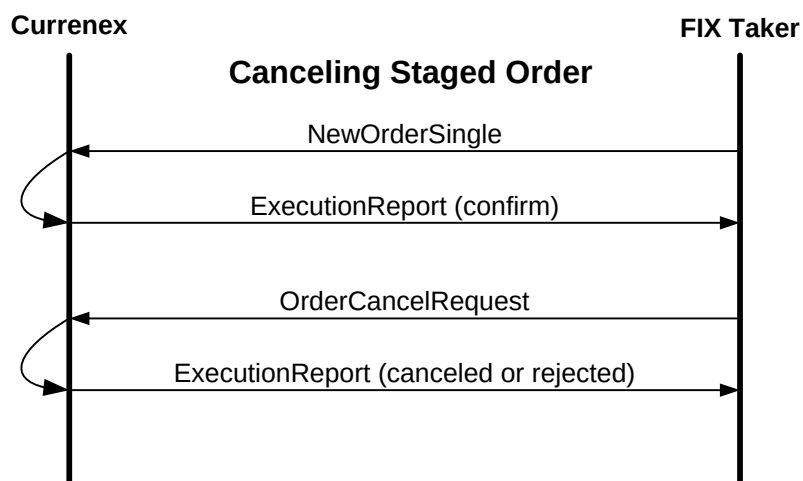


Figure 4: Cancel Active Staged Order

6.4 Expiration of Staged Order

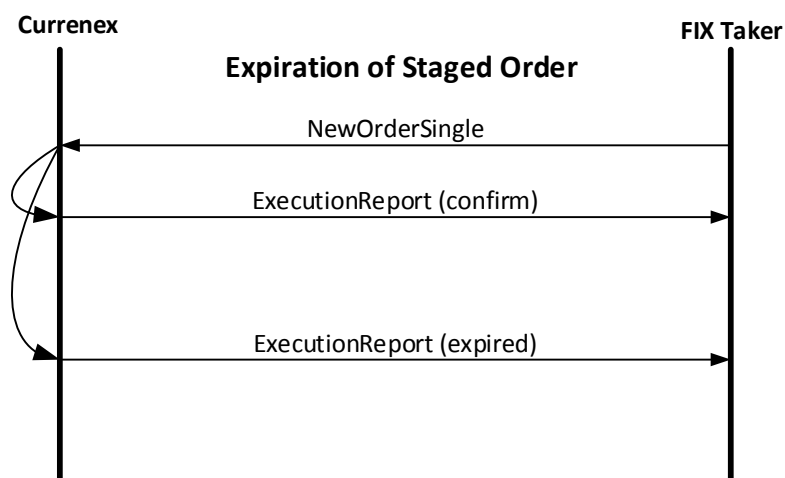


Figure 5: Expiration of Staged Order

6.5 Request List of All Active Staged Orders

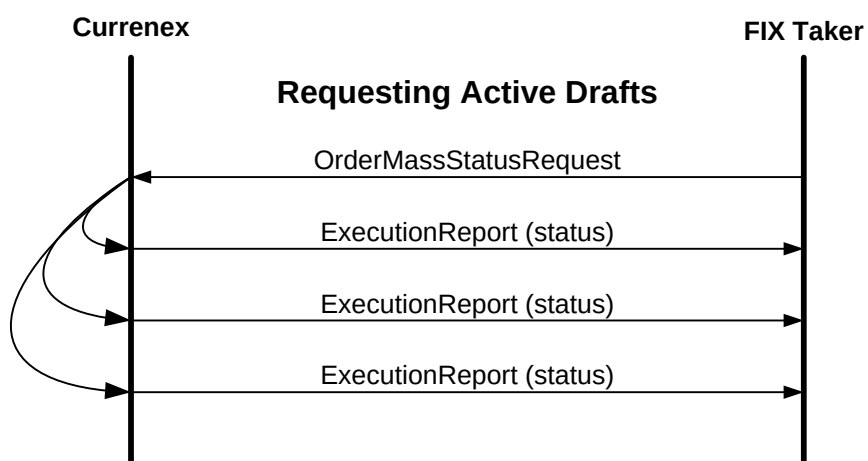


Figure 6: Request All Active Staged Orders

6.6 Trade Event Notifications

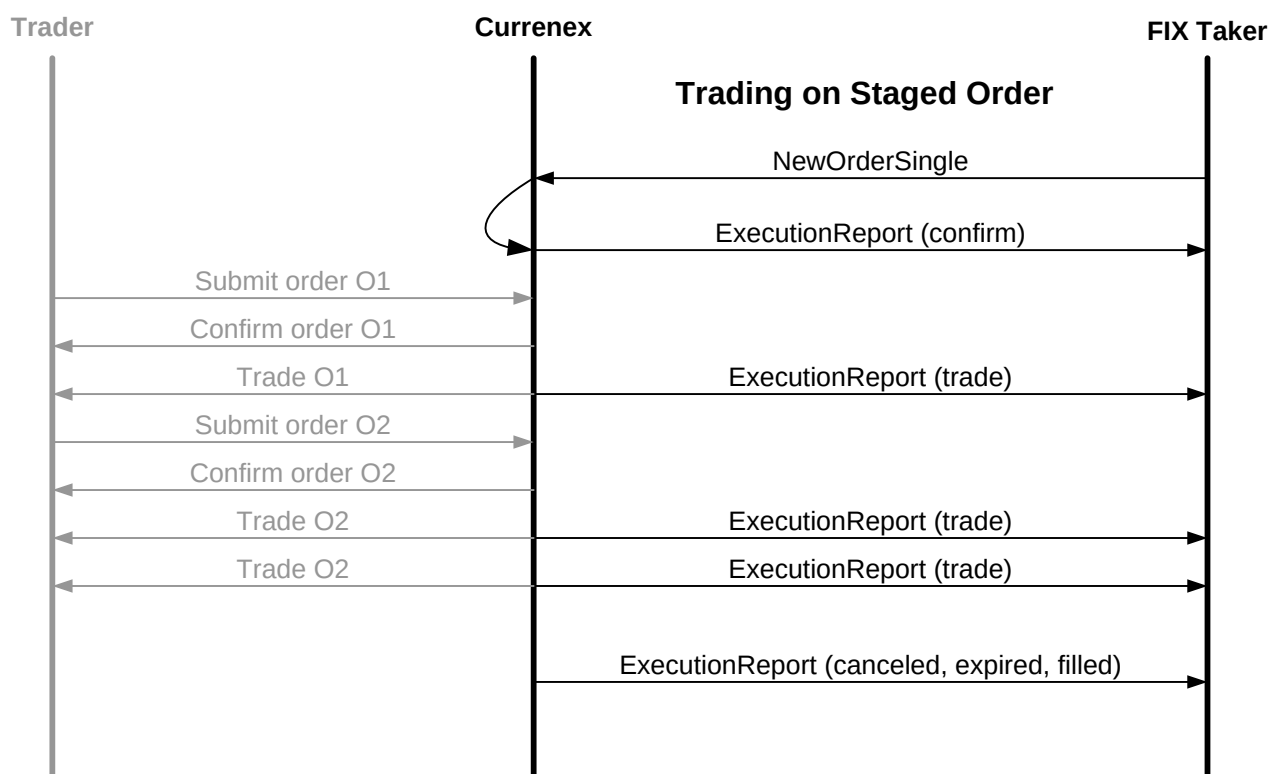


Figure 7: Processing Trade Event Notifications

7 Message Details

Currenex FIX Staged Order Upload service supports FIX version 4.4 required fields and a portion of the non-required fields. Some Currenex customized fields are also used.

This section provides field details of all the supported FIX messages. For each message, all Currenex supported required and non-required fields are listed.

The values under the “Required” column indicate one of the following:

- ‘Y’ – field is mandatory and must be sent or received as a part of the message.
- ‘N’ – Non-required field that should be omitted unless directed otherwise by Currenex.

7.1 Session Messages

7.1.1 Standard Header

Tag	Field Name	Required	Comments
8	BeginString	Y	Handled by FIX engine.
9	BodyLength	Y	Should be handled by fix engine.
35	MsgType	Y	Refer to Message Details for MsgType value.
49	SenderCompID	Y	Provided by Currenex – should match the user’s trading account id.
56	TargetCompID	Y	CNX
34	MsgSeqNum	Y	Handled by FIX engine.
52	SendingTime	Y	Handled by FIX engine.

7.1.2 Standard Trailer

Tag	Field Name	Required	Comments
10	Checksum	Y	A value calculated by the FIX engine from the message data and transferred with the data. If the data received does not match the CheckSum value, the data was corrupted in transit.

7.1.3 Heartbeat

Tag	Field Name	Required	Comments
<i>Standard Header</i>		Y	MsgType tag 35 = 0
112	TestReqID	N	Required if heartbeat is due to a Test Request message.
<i>Standard Trailer</i>		Y	

7.1.4 Logon

Tag	Field Name	Required	Comments
<i>Standard Header</i>		Y	MsgType tag 35 = A
98	EncryptMethod	Y	0 – Not encrypted is the only accepted value.
108	HeartBtInt	Y	Heartbeat interval in seconds.
141	ResetSeqNumFlag	N	Y – Resets both the incoming and outgoing sequence numbers to 1.
554	Password	Y	Id specific password.
<i>Standard Trailer</i>		Y	

7.1.5 Logout

Tag	Field Name	Required	Comments
<i>Standard Header</i>		Y	MsgType tag 35 = 5
58	Text	N	Descriptive text message.

7.1.6 Resend Request

Tag	Field Name	Required	Comments
<i>Standard Header</i>		Y	MsgType tag 35 = 2
7	BeginSeqNo	Y	First sequence number in the range to be resent.
16	EndSeqNo	Y	Last sequence number in the range to be resent. For single message resend requests, set BeginSeqNo = EndSeqNo. If request is for all messages subsequent to a particular message, EndSeqNo = 0.
<i>Standard Trailer</i>		Y	

7.1.7 Test Request

Tag	Field Name	Required	Comments
<i>Standard Header</i>		Y	MsgType tag 35 = 1
112	TestReqID	Y	Unique ID of test request.
<i>Standard Trailer</i>		Y	

7.2 Application Messages

7.2.1 Trading Session Status

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType tag 35 = h
336	TradingSessionID	Y	Identifier for this trading session.
340	TradSesStatus	Y	State of the trading session: 1 = Password reset is required 5 = Pre-Close
58	Text	N	Descriptive text message.
<i>Standard Trailer</i>		Y	

7.2.2 Business Message Reject

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = j
372	RefMsgType	Y	The MsgType of the FIX message being rejected.
380	BusinessRejectReason	Y	Reject reason code: 0 = Other 1 = Unknown ID 2 = Unknown Security 3 = Unsupported Message Type 4 = Application not available 5 = Conditional Required Field Missing
<i>Standard Trailer</i>		Y	

7.2.3 OrderSingle (Spot and Forward)

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = D
11	ClOrdID	Y	Client institution assigned unique identifier for the order. Taker trade tag.
Component <Parties>		N	Repeating group below should contain unique combinations of PartyId (448), PartyIDSource (447), and PartyRole (452). Optionally used to indicate or limit target parties with whom an order can be matched.

Tag	Field Name		Req'd	Comments
453	No PartyIDs		N	Number of bank names to follow
→	448	PartyID	N	Repeat this field to specify multiple targets. Valid values must be obtained from Currenex.
→	447	PartyIDSource	N	Identifies the source of the PartyID (448) value. Required if PartyID is specified. Supported value: D = Proprietary Code
→	452	PartyRole	N	Identifies the type or role of the PartyID (448) specified. 1 = Executing Firm
End Component <Parties>				
1	Account		N	The account (SubFund id) name as agreed upon by Currenex and the client or else defaulted by the system.
21	HandlInst		Y	1 = Automated execution
Component <Instrument>			Y	
55	Symbol		Y	Instrument currency pair.
65	SymbolSfx		N	Tenor for spot and forward e.g. SP = spot (default if not present) 1M = one month forward
460	Product		Y	Supported values: 4=Currency
End of Component <Instrument>				
54	Side		Y	Side of order. Supported values: 1 = Buy 2 = Sell
38	OrderQty		Y	The size or amount of the order in specified Currency (15).
40	OrdType		Y	S – Staged Order
15	Currency		Y	Specified currency.

Tag	Field Name	Req'd	Comments
126	ExpireTime	N	YYYYMMDD-HH:MM:SS format. Defaults to end of trading day if not present.
8020	AmountModifiableIndicator	N	Y – Amount can be modified after upload N – Fixed (default)
8021	CancelByUploaderOnlyFlag	N	Y – Only uploader can cancel N – No restriction (default)
<i>Standard Trailer</i>		Y	

7.2.4 OrderMassStatusRequest

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = AF
584	MassStatusReqID	Y	Unique ID of mass status request.
585	MassStatusReqType	Y	Supported values: 7 = Request all active Orders
40	OrdType	Y	S – Staged Order
<i>Standard Trailer</i>		Y	

7.2.5 ExecutionReport (Cancel or Reject)

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = 8
37	OrderID	Y	Order ID
11	ClOrdID	Y	Client institution assigned unique identifier for the order. Taker trade tag.
41	OrigClOrdID	Y	Original Client institution assigned unique identifier for the order. Original Taker trade tag.
17	ExecID	Y	Order ID
150	ExecType	Y	Supported values: 4 = Canceled 8 = Rejected C = Expired
39	OrdStatus	Y	Supported values: 4 = Canceled 8 = Rejected C = Expired
Component <Instrument>		Y	
55	Symbol	Y	N/A
460	Product	Y	Supported values: 4=Currency
End of Component <Instrument>			
54	Side	Y	Side of order. Supported values: 1 = Buy 2 = Sell
151	LeavesQty	Y	Place holder, always set to 0.
14	CumQty	Y	Place holder, always set to 0.
6	AvgPx	Y	Place holder, always set to 0.
58	Text	N	Text
<i>Standard Trailer</i>		Y	

7.2.6 ExecutionReport (Spot and Forward)

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = 8
37	OrderID	Y	Order ID
11	ClOrdID	Y	Client institution assigned unique identifier for the order. Taker trade tag.
41	OrigClOrdID	Y	Original client institution assigned unique identifier for the order. Original taker trade tag.
584	MassStatusReqID	N	Unique ID of mass status request, sent in response to Status request 150 = I.
17	ExecID	Y	Trade ID for trades, set to Order ID for order status report or confirmation.
150	ExecType	Y	Supported values: 0 = New F = Trade I = Status
39	OrdStatus	Y	Supported values: 0 = New 1 = Partial 2 = Filled
63	SettlType	Y	Spot value date for spot transactions.
<i>Component <Instrument></i>		Y	
55	Symbol	Y	Term of Instrument. See Appendix for supported values.
460	Product	Y	Supported values: 4=Currency
<i>End of Component <Instrument></i>			
54	Side	Y	Side of order. Supported values: 1 = Buy 2 = Sell
38	OrdQty	Y	Order quantity in specified Currency (15).
40	OrdType	Y	S – Staged Order
32	LastQty	N	Trade quantity.
31	LastPx	N	Trade price.
151	LeavesQty	Y	Available for execution quantity = specified - total filled.

Tag	Field Name	Req'd	Comments
14	CumQty	Y	Filled quantity. (this deal)
6	AvgPx	Y	Place holder, always set to 0.
58	Text	N	Text
<i>Standard Trailer</i>		Y	

7.2.7 OrderCancelRequest

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = F
41	OrigClOrdID	Y	The client assigned ID of the staged order to be canceled.
37	OrderID	Y	The Currenex assigned ID of the staged order to be canceled.
11	ClOrdID	Y	The client assigned ID for this cancel request. Must be unique a value.
Component <Instrument>		Y	
54	Side	Y	Order Side: 1 = Buy 2 = Sell
55	Symbol	Y	The Currency Pair of the Order.
460	Product	Y	4 = Currency
End of Component <Instrument>			
40	OrdType	Y	S – Staged Order
<i>Standard Trailer</i>		Y	

7.2.8 OrderCancelReject

Tag	Field Name	Req'd	Comments
<i>Standard Header</i>		Y	MsgType = 9
37	OrderID	Y	Order ID
11	ClOrdID	Y	Should contain the same value as in tag 41 OrigClOrdID.
41	OrigClOrdID	Y	Client institution assigned unique identifier for the order. Taker trade tag.
39	OrdStatus	Y	Always set to 8 = Rejected

Tag	Field Name	Req'd	Comments
434	CxlRejResponseTo	Y	Supported values: 1 = OrdCxlReq
102	CxlRejReason	Y	Reason the order cancellation request was rejected: 0=Order has already been filled 1=Order cannot be found 2=Broker Option 3=Status cannot be determined as order is currently in process. Execution Report returned, once processing completes will contain status.
58	Text	N	Description
Standard Trailer		Y	

8 Appendix

8.1 Universal Coordinated Time (UTC) Format

All time and date formats must be in Coordinated Universal Time (UTC), more commonly known as Greenwich Mean Time (GMT). The formats of various dates as defined by the World Wide Web Consortium (W3C) are listed below. Further explanation of UTC Timestamps can be found at: <http://fixwiki.fixprotocol.org/fixwiki/UTCTimestampDataType>.

Year:

YYYY (2003)

Year and month:

YYYYMM (200307)

Complete date:

YYYYMMDD (20030716)

Complete date plus hours and minutes:

YYYYMMDD-hh:mm (20030716-19:20)

Complete date plus hours, minutes and seconds:

YYYYMMDD-hh:mm:ss (20030716-19:20:30)

Complete date plus hours, minutes, seconds and milliseconds

YYYYMMDD-hh:mm:ss.mmm (20030716-19:20:30.183)

Where

YYYY = four digit year

MM = two digit month (01=January, etc.)

DD = two digit day (01 through 31)

hh = two digit hour (00 through 23) (am/pm NOT allowed)

mm = two digit minute (00 through 59)

ss = two digit second (00 through 59)

mmm = three digit millisecond (000 – 999)