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Vestima
Investment Fund Services
FIX User Guide

January 2022

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Foreword

Vestima, the investment fund order routing, execution, and management service from Clearstream Banking, streamlines, simplifies and standardises all aspects of investment funds trading.

Optionally linked with Clearstream Banking's clearing, settlement, and custody services, Vestima can provide participants with secure straight-through processing from order input through to settlement instructions issuance and final settlement, if required. For order issuers (OIs), this means direct, immediate access to a wide network of order handling agents (OHAs), eliminating any need to track down unfamiliar funds and contact the relevant agents. OHAs, meanwhile, benefit from a real-time connection to a significant customer base and get STP trades from a single technical counterparty.

Vestima order processing is simple and easy to use. The OI creates an order on screen using a standard template; Vestima transmits the order to the appropriate OHA for completion; and a confirmation is returned immediately to the OI. The order is now ready for settlement.

Vestima can accept orders through the Vestima web browser interface, via SWIFT and via FIX and all OIs can use either option at any time. This choice of format provides flexibility for all participants and brings the maximum range of funds within easy reach of a broad customer base.

Clearstream Banking offers order routing services for customers via Vestima and VestimaPRIME. Vestima provides a highly automated service aimed towards mutual funds, whereas VestimaPRIME targets complex and alternative investment funds.

Introduction

To promote efficient electronic order processing and trade execution Clearstream offers an order routing service for investment funds using the FIX connectivity protocol which is fully compliant with the regulatory and legal environment imposed on Clearstream by Brexit and EU CSDR regulations. Orders and order cancellation requests received from clients will be processed by the Vestima and VestimaPRIME platforms. Order statuses and confirmations will be sent back to clients in FIX messages.

This document has been produced as a guide to help understand how Clearstream has implemented FIX messages and to facilitate the work required to establish trading connectivity.

The document is intended to supplement the FIX Standard Specifications published on the Internet under https://www.fixtrading.org/online-specification/

Related documents

The documentation for the FIX Connectivity set-up will be provided as part of the onboarding.

The Xact User manual is available via the link below (please see the attachments at the bottom of the page):
https://www.clearstream.com/clearstream-en/products-and-services/connectivity-1-/xact-web-portal-documentation-1306378

For further information or if you have specific questions, please contact the Clearstream Connectivity Help Desk as follows: connect@clearstream.com

Contact details

For further information or if you have specific questions regarding the Vestima system and/or communications with Clearstream Banking, you can contact Customer Service in Luxembourg as follows:

Telephone:	+352-243-32833	Investment Funds Services – Execution Support
	+352-243-38110	Connectivity Support for access/configuration issues
Email:	csvestima@clearstream.com	Investment Funds Services - Client Services
	connect@clearstream.com	Connectivity Support
Website:	www.clearstream.com	Clearstream website
	www.clearstream.com/ifs	Clearstream Banking Investment Funds Services

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1.0 Getting started

The Financial Information eXchange (FIX) protocol is an electronic communication protocol initiated in 1992 for international real-time exchange of information related to securities transactions. FIX was developed by the FIX High Performance Working Group to meet the needs of high-performance trading.

FIX has become the standard electronic protocol for pre-trade communications and trade execution. Although it is mainly used for equity transactions in the front office area, bond-, derivatives-, and FX-transactions are also possible.

Clearstream Clients are now able to subscribe to the FIX Connectivity for their order routing orders (subscription and redemption) in Vestima and Vestima Prime.

2.0 Connectivity

2.1 Client Identification (CompID)

Client identification in FIX is done by CompIDs for use in the FIX Message Header. A code will be assigned by Clearstream for this purpose.

Note: Both the CompIDs and Ports are required to configure the FIX environments.

2.2 TCP/IP Connection Security

The FIX infrastructure is hosted in the Luxembourg datacenter and the FIX connectivity security between clients and Clearstream has been built to comply with both market standards and DBG security requirements.

The FIX connection is built as a 2-way TLS FIX connection which allows the authentication of both server and client based on certificates, and at the same time encrypts the connection.

Besides the 2-way TLS protocol, Clearstream has implemented an access-control verification relying on the client's certificate DN (Distinguished Name). Each FIX client solution will use the client certificate available from Xact, when establishing the FIX Session with Clearstream FIX infrastructure. Xact will be used for the credential management, including the password rotation.

The version of the TLS protocol to be supported is at a minimum the TLS 1.2 [1], with a predefined suite of authorized ciphers. Each FIX client solution will have to make use of the client certificate available on Clearstream' s XACT Portal, when establishing the FIX Session with Clearstream' s FIX infrastructure.

[1] RFC 5246 - https://tools.ietf.org/html/rfc5246

2.3 Use of private keys of Xact technical users

Each client will have to configure Clearstream's public key and the Client's private key. For each Client session, there will be a dedicated technical user on Xact. The client will be provided with user credentials and will use Xact to create the technical users needed for the FIX communications. Once a technical user is created, clients will use Xact to generate the client certificate.

- The certificate will be a ".p12" file protected by password.
- The credentials are provided during the certificate generation process: Friendly Name, Generation Date, P12 Filename, P12 Password.

Clients will use the certificate generated in Xact to initiate the TLS communication.

The Distinguished Name (DN) in the client's certificate will have the format: "cn=←XACT user ID→, ou=Portal,ou=Clearstream Banking,o=trust root".

2.4 Client Connection Set-up

To establish TCP/IP communication with the FIX Servers in Clearstream, clients will need to use the IP addresses that will be provided to the clients as part of the set-up.

Clients will also need to have installed (a) client certificate(s) when establishing the FIX Session with Clearstream FIX infrastructure. Clearstream can send you client certificates for its TEST environments by email. Certificates for the PRODUCTION environment are available on the Clearstream Xact Web Portal.

3.0 Operating Hours

The FIX infrastructure at Clearstream is based upon normal operating hours of 8:00 AM to 22:00 PM CET Monday to Friday The client-side interface should be programmed to "logon" to the FIX interface at Clearstream on or after 8:00 AM CET and "logout" again on or before 22:00 PM CET. The client should establish and terminate FIX connection within the operating hours. If there is a problem intraday or the client-side is still logged in after the closing time, Clearstream will send a "logout" message to the client which should be properly processed and responded to on the client-side interface.

At the beginning of operating hours, a new session will be triggered, i.e. clients should reset their sequence numbers every day.

4.0 Message Flows

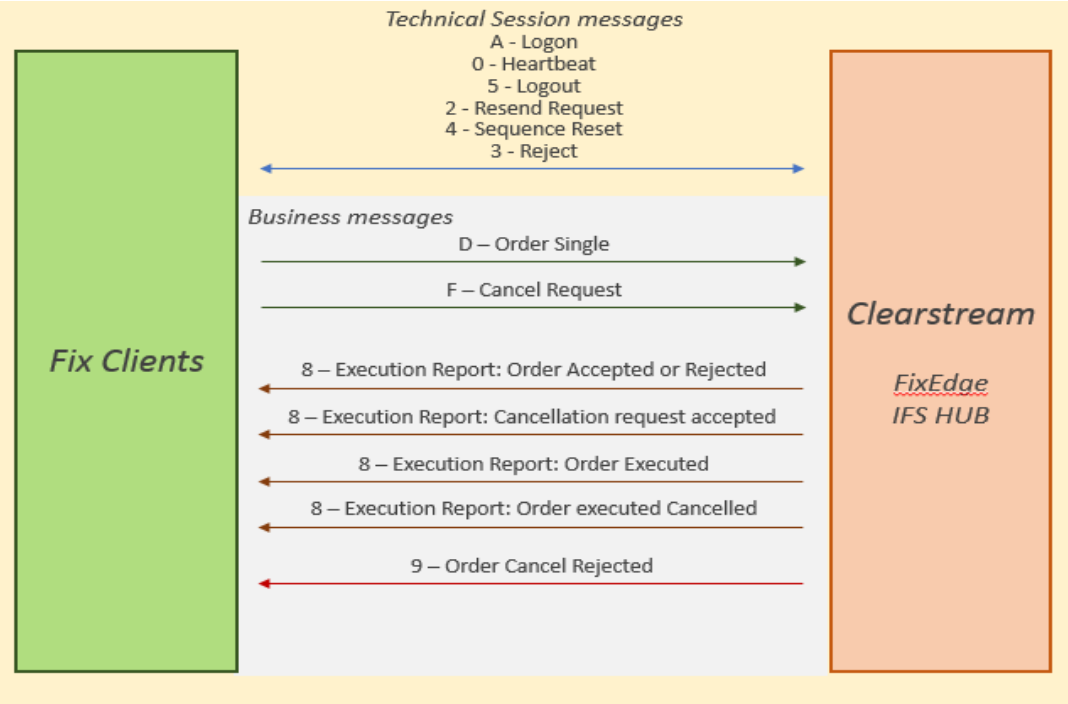
The FIX protocol is a collection of standardized messages exchanged between two parties. In this case between Clearstream and the client. It is a "text based" protocol, a collection of tags and values and includes business, infrastructure, and logistics information.

4.1 Message types

The exchange of messages between Clearstream and the Client will be based on the FIX v4.2 protocol. There are two categories of messages:

1. Session Management messages (see section 6.0) that can be sent by both parties:

- Message type A: Logon
- Message type 0: Heartbeat
- Message type 2: Resend Request
- Message type 4: Sequence Reset
- Message type 3: Reject
- Message type 5: Logout



The Vestima via FIX protocol covers the above workflows.

2. Business Messages and workflow below:

- Message type D: Order - Single
- Message type F: Order Cancel Request
- Message type 8: Execution report (see section 4.2 for more details)
  - Accepted
  - Rejected
  - (Cancel Request) Accept
  - Executed
  - Execution Cancelled
- Message type 9: Order Cancel Reject

The following FIX message types are supported by Clearstream:

Business Process		FIX Message Name	FIX Message Type	Description
Subscription/ Redemption	D	NewOrderSingle	Order Single	Client sends a new order message
Report	8	ExecutionReport-Accept	Order Confirmation Accept	Clearstream sends an order accept message ExecutionReport – Accept
Report	8	ExecutionReport-Reject	Order Confirmation Reject	Clearstream sends an order accept message ExecutionReport – Reject
Report	8	ExecutionReport - Executed	Trade Confirmation Request Executed	Clearstream sends an order execution / trade confirmation message ExecutionReport - Executed

Report	8	ExecutionReport - Execution Cancelled	Trade Confirmation Request Execution Cancelled	Clearstream sends an order execution / trade confirmation message ExecutionReport - Execution Cancelled
Subscription/ Redemption	F	OrderCancelRequest	Order Cancellation Request	Client sends a request to cancel an order
Report	8	ExecutionReport - CancelRequest)Accept	Order Cancellation Request Accept	Clearstream sends an order cancel request accepted message
	9	Order Cancellation - Request Reject	Order Cancellation Request Reject	Clearstream sends an order cancel request rejected message

4.2 The Execution Reports (8)

The execution reports advise the Client what the status of their order is at certain points during the transaction lifecycle.

For new Order (D) received:	Order accepted - 39 OrdStatus = 0 (new).
	Order rejected - 39 OrdStatus = 8 (rejected).
For Order Cancel request (F) received:	Cancellation request accepted (and order cancelled) - 39 OrdStatus = 4 (cancelled).
	If Cancel request is rejected, message type 9 is sent.
For Order execution (Execution report fill):	Order Executed - 39 OrdStatus = 2 (filled).
For Order execution cancelled (Execution report cancelled fill):	Order executed cancelled - 20 ExecTransType = 1 (cancel), 39 OrdStatus = 0 (new).

4.3 FIX version 4.2

The Clearstream FIX Server is designed to process FIX messages having the version number set to "4.2": Tag 8=FIX.4.2.

INBOUND message types

The FIX Server accepts the following INBOUND message types (tag 35):

- Message type D: Order – Single
  35=D
- Message type F: Order Cancel Request
  35=F

OUTBOUND message types

The FIX Server sends the following OUTBOUND message types (tag 35):

- Message type 8: Execution report
  35=8
- Message type 9: Order Cancel Reject
  35=9

Flow	Message type	FIX message	FIX Message Description	Description
INBOUND	D	NewOrderSingle	Order Single	Client sends a new order message
	F	OrderCancelRequest	Order Cancel Request	Client sends a request to cancel an order
OUTBOUND	8	ExecutionReport-Accept	Order Confirmation Accepted	Clearstream sends an order accept message ExecutionReport – Accept
	8	ExecutionReport-Reject	Order Confirmation Rejected	Clearstream sends an order accept message ExecutionReport - Reject
	8	ExecutionReport - (CancelRequest)Accept	Order Cancellation - Request Accept	Clearstream sends an order cancel request accepted message
	8	ExecutionReport - Executed	Trade Confirmation Request Executed	Clearstream sends an order execution / trade confirmation message ExecutionReport - Executed
	8	ExecutionReport - Execution Cancelled	Trade Confirmation Request Execution Cancelled	Clearstream sends an order execution / trade confirmation message ExecutionReport - Execution Cancelled
	9	Cancel Request Reject	Order Cancellation - Request Reject	Clearstream sends an order cancel request rejected message

5.0 Message Specifications and format

A FIX message is divided into three parts as follows:

- The **header** contains generic information such as fix version, length of message, type of message, sender id, target id, sending time etc. (see section 5.1 Message headers)
- The **body** contains business specific information: order quantities, symbol names, reference ids of orders to be cancelled etc. (see section 7.0)
- The **trailer** generally only contains a checksum value (see section 5.2 Message trailers)

For more clarity, Header and Trailer parts of FIX messages will be defined separately from the body of messages. Below is the structure of the message table(s):

- "Tag": Field number of the tag in FIX v4.2
- "Tag Name": Name of the tag in FIX v4.2
- "M/O": Requirement for the field, M=mandatory; O=Optional, M/O = Conditional
- "Content": Describes the content of the field
- "Remarks": Provides further explanation

5.1 Message headers

The header defines various parts of the interface connection, routing and the message content including the message type, length, authentication of involved parties, sequence number, origin and time of interface connection. In Clearstream, the following mandatory and optional tags are used in the message header:

Tag	Tag Name	M-O	Content	Remarks
8	BeginString	M	FIX version 'FIX.4.2'	The exchange of FIX messages between Clients and Clearstream will be only in FIX version 4.2.
9	BodyLength	M	Message length, in bytes, forward to the CheckSum field (10).	
34	MsgSeqNum	M	Sequence number of message	
35	MsgType	M	The message type (INBOUND). D = Order Single F = Order Cancel Request Clients will send to Clearstream the business messages of types D and F. Message type (OUTBOUND). 8 = Execution Report 9 = Order Cancel Reject Clearstream will send to the Clients business messages of types 8 and 9.	For inbound FIX messages, the type must be D or F, otherwise, the message must be rejected. For Outbound FIX message, If Order cancellation rejection: '9', else '8'. Session management 0 = Heartbeat 1 = Test Request 2 = Resend Request 3 = Reject 4 = Sequence Reset 5 = Logout
43	PossDupFlag	O	Indicates a possible retransmission of message with this sequence number. Y = Possible duplicate N = Original transmission	The message is ignored if value is "Y". 'N'
49	**SenderCompID**	**M**	**Client identification**	**Will contain the SenderCompID . E,g. ADCD**
50	SenderSubID	O	Assigned value used to identify specific message originator	
52	Sending Time	M	The sending time of the message.	Sending time of the message YYYYMMDD–HH:MM:SS:sss
56	TargetCompID	M	Receiver of the message	Outbound : Value from tag 49 from the "original message" The FIX server will send outgoing messages to the right session based on the TargetCompID.
57	TargetSubID	O	Assigned value used to identify specific message receiver	
97	PossResend	O	Indicates that message may contain information that has been sent under another sequence number.	Y=Possible resend N=Original transmission

Tag	Tag Name	M-O	Content	Remarks
115	**OnBehalfOfCompID**	**M/O***	**The entity on whose behalf the message was sent.** **It identifies the message originator (Clearstream for inbound, end-Client for outbound).**	*** Ex-CFCL clients using tag 115 must provide the Client ID in tag 115 OnBehalfOfCompId (from the header).** **E.g. 115=ABCD** **NOTE : All other Clients will use tag 109 and must provide the Vestima Participant ID + tag 1 for Portfolio ID**
122	OrigSendingTime	O	Original sending time (for Resend Request). UTC Timestamp	Sending time of the original message required for message resent as a result of a ResendRequest Format : YYYYMMDD–HH:MM:SS:sss
128	DeliverToCompID	O	The entity to whom the message should be forwarded (Clearstream for inbound, end-client for outbound).	This is the entity to whom the message should be forwarded. Outbound: Mapped from the original message, tag 115.

5.2 Message trailers

The message trailer is used to terminate the message. Each message, administrative or business, is terminated by a standard trailer.

As per normal FIX protocol standards.

5.3 Client identification (Tags 109 and 1)

For clients using the FIX Connectivity, both the Vestima Participant and Portfolio ID must always be provided in tags 109 and tag 1 respectively. The FIX message will then be routed to Vestima or Vestima Prime as the case may be. The format is as follows:

- The Vestima Participant ID in field tag 109.
  E.g. tag 109= ABCD.OI.XVES

- The Portfolio ID must be provided in field tag 1.
  E.g. tag 1= ABCD-62330

5.4 Clients migrated from Clearstream Fund Desk (ex- CFCL) identification (Tag 115)

For ex-CFCL Clients, the existing message format remains valid with no mandatory change.
In this case, the CFD 4-characters Client code (CFDClientCode) must be provided, validated by the IFS HUB, then used to derive the Vestima Participant and Portfolio ID.

Client identification will be provided as follows:

- For INBOUND messages, the Client ID must be provided in FIX tag 115 OnBehalfOfCompId (from the header).
  E.g. 115=ABCD

- For OUTBOUND messages, the Client identification will be provided in tag 128 and 57 (Underlying client). Values in tags 128 and 57 will be copied from the tag 115 (OnBehalfOfCompId) of the original inbound message (the Client id).

  E.g. 128=ABCD, 57=ABCD

The FIX Connectivity solution allows ex-CFCL Clients to use their existing format (and then IFS HUB derives the Participant/Portfolio ID from reference data),
Ex-CFCL Clients also have the option to use the new tags available to all FIX Clients (and provide the Participant/Portfolio ID directly in the Fix messages in tags 109 + 1) as described in Section 5.3 above and described further in the main section of this FIX User Guide

Below logic is in place, available only to ex-CFCL Clients:

- An ex-CFCL Client can provide the Vestima Participant ID in field 109.
  E.g. 109= ABCD.OI. XVES
- If the field 109 is provided with a Vestima Participant ID, it will be used as Participant ID and field 1 must be used as Portfolio Id.
  E.g. 109=ABCD.OI. XVES, 1= ABCD-34250.
- If the Vestima Participant ID is not provided in tag 109, derive the Participant/Portfolio from tag 115.

5.5 FIX message examples

Order (tag 35=D)

8=FIX.4.2 9=202 35=D 34=309 49=ABCD 52=20190208-10:01:52 56=SORS 115=ABCD 128=SSLA 1=0988.0104 11=SHKBPL826695 15=USD 21=2 22=4 38=40 40=1 48=LU0704154458 54=1 55=NON 59=1 60=20190208-10:01:52 76=SSLA 109=ABCD 120=USD 10=078

Execution report (35=8), order rejected (39=8)

8=FIX.4.2 9=0366 35=8 49=SORS 56=ABCD 115=SORS 128=ABCD 34=1497 50=SORS 57=ABCD 43=N 52=20190214-16:03:44 109=ABCD 58=The redemption order leaves your custody position short. Current Position 116.000 units 60=20190214-16:03:35 6=0 151=0 14=0 31=0 32=0 59=1 40=1 38=544.00000 54=2 22=4 48=LU0318941159 55=LU0318941159 1=0 39=8 150=8 20=0 17=4724399R 11=/O/190214/HP/771786 37=4724399 10=221

6.0 Session Management messages

Clearstream follows the standard FIX 4.2 session protocol. A few session management message examples are listed in this section below. This should however not be read as a complete description of session message protocol. For a complete list please refer to the official FIX protocol documentation published by the FIX protocol Limited.

Logon (Message type A)

The Logon message aims to establish the connection for the session between the client and Clearstream. It must be the first message sent by the application requesting to initiate a FIX session.

Heartbeat (Message type 0)

The Heartbeat monitors the status of the communication link. The heartbeat interval is defined in the message header of the Logon message sent by the initiator (client side) and should be set to a value of 24 (seconds).

Reject (Message type 3)

The Reject message should be issued when a message is received but cannot be properly processed due to a technical rule violation. As a rule, if there is no technical constraint, messages shall be forwarded to Vestima for business validation rules.

Logout (Message type 5)

The Logout message aims at initiating or confirming the termination of the session between the client and Clearstream. The disconnection without the exchange of Logout messages should be interpreted as an abnormal condition.

Sequence Numbers

Both parties should maintain sequence numbers for both outgoing and incoming messages during a session (usually defined as a business day). Both sets of sequence numbers should start at 1 for each new business day. All messages sent by either party should contain a sequence number and should increment the next sent sequence number by 1. This includes Resend Request messages.

Resend Requests

Clearstream supports the standard FIX session behaviour in this respect, and you are referred to the FIX protocol specifications for further information.

7.0 Business messages

Vestima is designed to process primary market, subscription and redemption orders for Investment Funds.
The Clearstream settlement platform processes securities identified by ISIN or Common Code.

7.1 New Order Single (Message type D)

The Order-Single message is used by Clients to submit fund orders to Clearstream for execution. Orders will be submitted with special handling instructions according to mandatory and optional fulfilled tags. Clients shall create the Order-Single following the rules below.

The following tags are supported in FIX 4.2:

Tag	Tag Name	M-O	Content	Remarks
	Standard message header	M	Tag35MsgType = D	
1	**Account**	**M/O***	**Account mnemonic as agreed between broker and institution.**	***Tag 1 is Mandatory for clients using tag 109. For ex-CFCL Clients using tag 115, tag 1 remains optional.*** **Tag 1 must contain the Portfolio ID for Clients using Tag 109 + 1** **E.g. tag 1= ABCD-62330**
11	ClOrdID	M	Unique identifier of the order (Sender's Reference).	Order reference. If this is greater than 16 characters a rejection is sent. **Note: For ex-CFCL Clients no limit is applied on the number of characters in the Order reference.**
12	[Commission]	O	The commission amount.	Tag ignored for processing.

Tag	Tag Name	M-O	Content	Remarks
13	[CommType]	O	The commission type. 1 = per unit 2 = percentage 3 = absolute 4 = percentage waived - cash discount 5 = percentage waived - enhanced units 6 = points per bond or contract	Tag ignored for processing.
15	[Currency]	O	The order currency.	
18	[ExecInst]	O	Instructions for order handling on exchange trading floor. 1 = Not held 2 = Work 3 = Go along 4 = Over the day 5 = Held ...	Tag ignored for processing.
21	[HandlInst]	O	Instructions for order handling on Broker trading floor.	Tag ignored for processing.
22	IDSource	M	Alternative Security id.	If not 4 (ISIN) or G (Common Code): the message must be rejected (only ISIN and CMC are accepted).
23	[IOIid]	O	Unique identifier of Indication of Interest message (6).	Tag ignored for processing.
38	OrderQty	O	Number of shares ordered (the order quantity).	Tag 152 or 38 must be present, not both. If not, the message must be rejected. The tag 38 OrderQty is used to specify the number of units of the order.
40	OrdType	M	The order type.	if not 1 (Market), the message must be rejected (invalid order type)
44	[Price]	O	Deal price up to 4 decimals.	Tag ignored for processing.
47	[Rule80a]	O	'OrderCapacity' or Rule80A, very US market-specific term. A = Agency single order B = Short exempt transaction (refer to A type) C = Program Order, non-index arb, for Member firm/org D = Program Order, index arb, for Member firm/org ...	Tag ignored for processing.
48	SecurityID	M	The security ID (ISIN or CMC)	E.g. LU1004132996
50	[SenderSubID]	O	Identify specific message originator.	Tag ignored for processing.
54	Side	M	Buy (1) or Sell (2)	54 Side is used to determine the type of order. Valid values are: 1 (Buy) – interpreted as subscription 2 (Sell) – interpreted as redemption If an invalid value is used a rejection is sent.

Tag	Tag Name	M-O	Content	Remarks
55	Symbol	O	Common, "human understood" representation of the security.	Tag ignored for processing.
58	Text	O	Free-format text up to 50-char.	
59	TimeInForce	O	Specifies how long the order remains in effect.	Only the value 1 can be accepted. If not 1 (GTC) the message must be rejected: Time In Force must be GTC for an OTC fund.
60	[TransactTime]	M	Time of execution/order creation expressed in UTC.	
63	[SettlmntType]	O	The order settlement period. (default is Regular). 0 = Regular 1 = Cash 2 = Next Day 3 = T+2 4 = T+3 5 = T+4 6 = Future 7 = When Issued 8 = Sellers Option 9 = T+ 5	Tag ignored for processing.
64	[FutSettDate]	O	Date of trade settlement.	Tag ignored for processing.
65	[SymbolSfx]	O	Additional information about the security.	Tag ignored for processing.
76	[ExecBroker]	O	Identifies executing / give-up broker.	Tag ignored for processing.
77	[OpenClose]	O	Indicates whether the resulting position after a trade should be an opening position or closing position. O=Open C=Close	Tag ignored for processing.
78	[NoAllocs]	O	Number of repeating AllocAccount ←79→/AllocPrice ←366→ entries.	Tag ignored for processing.
79	[AllocAccount]	O	Sub-account mnemonic.	Tag ignored for processing.
80	[AllocShares]	O	Number of shares to be allocated to specific sub-account.	Tag ignored for processing.
81	[ProcessCode]	O	Processing code for sub-account.	Tag ignored for processing.
99	[StopPX]	O	Price per share.	Tag ignored for processing.
100	[ExDestination]	O	Execution destination as defined by institution when order is entered.	Tag ignored for processing.
106	[Issuer]	O	Company name of security issuer.	Tag ignored for processing.
107	[SecurityDesc]	O	Security description.	Tag ignored for processing.
109	**ClientID**	**M/O***	**Mandatory field for Clients who must provide the Vestima Participant ID in this field.**	***Tag 109 is mandatory for all clients.** **<u>(NOTE: For ex-CFCL Clients using tag 115, tag 109 remains optional.)</u>** **Clients must provide the Vestima Participant ID in field tag 109.** **E.g. tag 109= ABCD.OI. XVES**

Tag	Tag Name	M-O	Content	Remarks
110	[MinQty]	O	Minimum quantity of an order to be executed.	Tag ignored for processing.
111	[MaxFloor]	O	Maximum number of shares within an order to be shown on the exchange floor at any given time.	Tag ignored for processing.
114	[LocateReqd]	O	Indicates whether the broker is to locate the stock in conjunction with a short sell order ('Y' or 'N').	Tag ignored for processing.
117	[QuoteID]	O	Unique identifier for quote.	Tag ignored for processing.
120	SettlCurrency	O	The settlement currency.	
121	[ForesReq]	O	Indicates request for forex accommodation trade to be executed along with security transaction ('Y' or 'N').	Tag ignored for processing.
122	[OrigSendingTime]	O	Original time of message transmission, always expressed in UTC.	Tag ignored for processing.
126	[ExpireTime	O	Time/Date of order expiration, expressed in UTC.	Tag ignored for processing.
128	[DeliverToCompID]	O	Assigned value used to identify the firm targeted to receive the message if the message is delivered by a third party.	Tag ignored for processing.
140	[PrevClosePx]	O	Previous closing price of security.	Tag ignored for processing.
152	CashOrderQty	O	The order quantity *Can be used instead of Tag 38 for subscriptions by cash if fund allows.*	Tag 152 or 38 must be present, not both. If not, the message must be rejected.
167	[SecurityType]	O	Indicates type of security. BA = Bankers' Acceptance CD = Certificate Of Deposit CORP = Corporate Bond...	Tag ignored for processing.
168	[EffectiveTime]	O	Time the details within the message should take effect, expressed in UTC.	Tag ignored for processing.
192	[OrderQty2]	O	OrderQty (38) of the future part of a F/X swap order.	Tag ignored for processing.
193	[FutSettDate2]	O	FutSettDate (64) of the future part of a F/X swap order.	Tag ignored for processing.
200	[MaturityMonthYear]	O		Tag ignored for processing.
201	[PutOrCall]	O		Tag ignored for processing.
202	[StrikePrice]	O		Tag ignored for processing.
203	[CoveredOrUncovered]	O		Tag ignored for processing.
204	[CustomerOrFirm]	O		Tag ignored for processing.
205	[MaturityDay]	O		Tag ignored for processing.
206	[OptAttribute]	O		Tag ignored for processing.
207	SecurityExchange	O		Tag ignored for processing.
210	[MaxShow]	O		Tag ignored for processing.

Tag	Tag Name	M-O	Content	Remarks
211	[PegDifference]	O		Tag ignored for processing.
223	[CouponRate]	O		Tag ignored for processing.
				Tag ignored for processing.
231	[ContractMultiplier]	O		Tag ignored for processing.
336	[TradingSessionID]	O		Tag ignored for processing.
348	[EncodedIssuerLen]	O		Tag ignored for processing.
349	[EncodedIssuer]	O		Tag ignored for processing.
350	[EncodedSecurityDescLen]	O		Tag ignored for processing.
351	[EncodedSecurityDesc]	O		Tag ignored for processing.
354	[EncodedTextLen]	O		Tag ignored for processing.
355	[EncodedText]	O		Tag ignored for processing.
386	[NoTradingSessions]	O		Tag ignored for processing.
388	[DiscretionInst]	O		Tag ignored for processing.
389	[DiscretionOffset]	O		Tag ignored for processing.
432	[ExpireDate]	O		Tag ignored for processing.
439	[ClearingFirm]	O		Tag ignored for processing.
440	[ClearingAccount]	O		Tag ignored for processing.
	Standard message trailer	M		

7.2 Order Cancel Request (Message type F)

This Order Cancel Request (F) message is used for cancellation of an order that has been placed with a NewOrderSingle message previously. The request will only be accepted if the order can successfully be withdrawn from the market-side.

If mandatory properties are missing, a rejection is sent. A check is performed to see that there are no outstanding amend/cancel requests on the order. If there are, a rejection is sent.

The following tags are supported in FIX 4.2:

Tag	Tag Name	M-O	Content	Remarks
	Standard message header	M	Tag35MsgType = F	
1	Account	M	Account mnemonic as agreed between broker and institution.	
11	ClOrdID	M	Unique identifier for Order Cancellation Request.	Order reference. If this is greater than 16 characters, a rejection is sent. **Note: For ex-CFCL Clients no limit is applied on the number of characters in the Order reference.**

Tag	Tag Name	M-O	Content	Remarks
22	IDSource	M	Alternative Security id.	If not 4 (ISIN) or G (Common Code): the message must be rejected (only ISIN and CMC are accepted).
37	[OrderID]	O	Unique identifier for Order as assigned by broker.	Tag ignored for processing.
38	OrderQty	O	Number of shares ordered (the order quantity).	Integer only.
41	OrigClOrdID	M	The ClOrdID of the previous order when cancelling or replacing an order.	The original order is located using the 41 OrigClOrdID. If none is found, a rejection is sent. A check is performed to see that there are no outstanding amend/cancel requests on the order. If there are, a rejection is sent.
48	SecurityID	M	The security ID (ISIN or CMC) depending on instrument type . See tag 22.	E.g LU1004132996
50	[SenderSubID]	O	Identify specific message originator.	Tag ignored for processing.
54	Side	M	Buy (1) or Sell (2).	
55	Symbol	O	Common, "human understood" representation of the security.	Tag ignored for processing.
58	Text	M	Free-format text up to 50-char.	
60	[TransactTime]	O	Time of execution/order creation expressed in UTC.	Tag ignored for processing.
65	[SymbolSfx]	O	Additional information about the security.	Tag ignored for processing.
66	[ListID]	O	Unique identifier for list as assigned by institution, used to associate multiple individual orders.	Tag ignored for processing.
76	[ExecBroker]	O	Identifies executing / give-up broker.	Tag ignored for processing.
106	[Issuer]	O	Company name of security issuer.	Tag ignored for processing.
107	[SecurityDesc]	O	Security description.	Tag ignored for processing.
109	**ClientID**	**M**	**Mandatory field only for Clients who must provide the Vestima Participant ID in this field.**	*** Tag 109 is mandatory for all Clients.** **<u>(NOTE: For ex-CFCL Clients using tag 115, tag 109 remains optional.)</u>** **Clients must provide the Vestima Participant ID in field tag 109.** **E.g. tag 109= ABCD.OI.XVES**
128	[DeliverToCompID]	O	Assigned value used to identify the firm targeted to receive the message if the message is delivered by a third party.	Tag ignored for processing.
152	CashOrderQty	O	The order quantity.	Tag ignored for processing.

Tag	Tag Name	M-O	Content	Remarks
167	[SecurityType]	O	Indicates type of security. BA = Bankers' Acceptance CD = Certificate Of Deposit CORP = Corporate Bond...	Tag ignored for processing.
200	[MaturityMonthYear]	O		Tag ignored for processing.
201	[PutOrCall]	O		Tag ignored for processing.
202	[StrikePrice]	O		Tag ignored for processing.
205	[MaturityDay]	O		Tag ignored for processing.
206	[OptAttribute]	O		Tag ignored for processing.
207	[SecurityExchange]	O		Tag ignored for processing.
223	[CouponRate]	O		Tag ignored for processing.
231	[ContractMultiplier]	O		Tag ignored for processing.
348	[EncodedIssuerLen]	O		Tag ignored for processing.
349	[EncodedIssuer]	O		Tag ignored for processing.
350	[EncodedSecurityDesc Len]	O		n/a
351	[EncodedSecurityDesc]	O		n/a
354	[EncodedTextLen]	O		n/a
355	[EncodedText]	O		n/a
376	[ComplianceID]	O		n/a
377	[SolicitedFlag]	O		n/a
	Standard message trailer	M		

7.3 Execution Reports (Message type 8)

The Execution Report message is used to advise the Client about the status of their order at certain points during the transaction lifecycle.

Tag	Tag Name	M-O	Content	Remarks
	Standard message header	M	Tag35 MsgType = 8	
1	Account	M	The original account in the NewOrderSingle is echoed back.	Mapped from the original message, tag 1.
6	AvgPx	M	Average price. Deal price as an actual amount.	The Val/Amt, if present, else '0'.
11	ClOrdID	M	Unique identifier for Order.	The order Reference value.

Tag	Tag Name	M-O	Content	Remarks
12	Commission	O	The commission amount.	All the commissions and fees are netted together and are shown in tag 12. See Tag 58 Text for the breakdown. For Confirmations: Sum of the Applied Commission amounts (fee+tax+other-waived discount) with the same currency as the Value amount, up to 5 decimals. For Confirmation Cancellation: The same tag value from the Execution Report.
13	CommissionType	O	The commission type. 1 = per unit 2 = percentage 3 = absolute 4 = percentage waived - cash discount 5 = percentage waived - enhanced units 6 = points per bond or contract	For Confirmations : If tag 12 is filled, then "3'. For Confirmation Cancellation: The same tag value from the Execution Report.
14	CumQty	O	Currently executed shares for chain of orders.	The number of units if present, else '0'.
15	Currency	M	The currency of the deal price.	For Confirmation : The currency of the deal price (Val/Amt). For Confirmation Cancellation: The same tag value from the Execution Report.
17	ExecID	M	Unique for each Execution Report message (SEME).	The Message ID (MsgId) if present.
19	ExecRefID	CM	For Cancel Confirmation message (identify Original Execution Fill)	The previous Reference value.
20	ExecTransType	O	0 = New 1 = Cancel 2 = Correct 3 = Status	If there is an order confirmation cancellation instruction, '1', else '0'.
22	IDSource	M	Identifies class of alternative Security id.	Tag 22 from the Original message.
30	LastMkt	O	Market of the executions	
31	LastPx	O	Price of this fill.	The deal price of the order confirmation (Fill).
32	LastShares	O	Quantity of shares bought/sold on this fill.	The number of units (UnitsNb) of the order confirmation (Fill) if present. For order confirmation cancellation instruction, the same tag value from the Execution Report.
37	OrderID	M	Vestima Order Reference	.
38	OrderQty	M	Order quantity.	Confirmed order quantity.

Tag	Tag Name	M-O	Content	Remarks
39	OrdStatus	M	Current state of a Chain of orders. 0 = New 2 = Filled 4 = Cancelled 8 = Rejected	'8' if Rejected '0' if new (PACK) '2' if confirmed order (Fill) '4' if order cancelled (CAND) The order status shows the current state of the order.
40	OrderType	M	1 = Market	Tag 40 from the New Order single message.
41	OrigClOrdID	O	ClOrdID of the previous order, identify the previous order in cancel requests.	The Order Reference if present.
44	Price	M	Deal price up to 4 decimals.	The Val/Amt, if present, else tag 44 from the Execution Report.
48	SecurityID	M	The security identifier.	The ISIN if present, else the CMC if present.
54	Side	M	1 = Buy 2 = Sell	1 if Subscription, 2 if Redemption.
55	Symbol	O	Common, "human understood" representation of the security.	Tag 55 from the Original message.
58	Text	M	Free-format text up to 50-char.	Order Instruction Status. If status is "PACK": "Order Accepted. No deadline for fund". Otherwise, the Additional Info if present. Order Cancellation Status If status is "CAND": "Order Cancelled". Securities Message Rejection The Additional Info if present. Order confirmation A breakdown of the various elements of the charge are shown with the following shorthand: CO = Commission / Initial charges DI = Discount TF = Ticket Fee OL = Other Levies
59	TimeInForce	O	Specifies how long the order remains in effect.	Tag 59 from the New Order single message.
60	[TransactTime]	O	Time of execution/order creation expressed in UTC.	The Creation Date time if present.

Tag	Tag Name	M-O	Content	Remarks
63	[SettlmntTyp]	O	The order settlement period. (default is Regular). 0 = Regular 1 = Cash 2 = Next Day 3 = T+2 4 = T+3 5 = T+4 6 = Future 7 = When Issued 8 = Sellers Option 9 = T+ 5	'6' if the Settlement date (SttlmDt) is present, else the same tag value from the Execution Report.
64	[FutSettDate]	O	Date of trade settlement. Required when 63 = 6 or 8.	The Settlement date (SttlmDt) if present, else the same tag value from the Execution Report.
75	TradeDate	O	Date of trade.	The Date value if present, else the same tag value from the Execution Report.
76	[ExecBroker]	O	Identifies executing / give-up broker.	Tag 76 from the Original message.
99	[StopPX]	O	Price per unit of quantity.	
103	OrdRejReason	O	Reason for order rejection. 0 = Broker option 1 = Unknown symbol 2 = Exchange closed 3 = Order exceeds limit 4 = Too late to enter 5 = Unknown Order 6 = Duplicate Order 7 = Duplicate of a verbally communicated order 8 = Stale Order	
107	SecurityDesc	O	The security description.	The instrument name (Nm) if present.
109	ClientID	O	The Firm identifier used in third party-transactions.	For FIX Clients: the Vestima Participant ID (from tag 109 if the original order was sent with Vestima Participant in tag 109). For Ex-CFCL Clients, tag 115 from the Original message.
119	SettlCurrAmt	O	Total amount due expressed in settlement currency.	The Settlement amount (SttlmAmt) if present; else the same tag value from the Execution Report.
120	SettlCurrency	O	Currency code of settlement denomination.	The Settlement Amount currency (SttlmAmt@Ccy) if present, else the same tag value from the Execution Report.
126	[ExpireTime]	O	Time/Date of order expiration expressed in UTC.	Tag 126 from the New Order Single.

Tag	Tag Name	M-O	Content	Remarks
150	ExecType	M	Describes the type of execution report. 0 = New 2 = Fill 4 = Cancelled 8 = Rejected	Same value as tag 39. '0' if new (PACK) '2' if confirmed order (Fill) '4' if order cancelled (CAND) '8' if Rejected The order status shows the current state of the order.
151	LeavesQty	M	Amount of shares open for further execution.	Tag 38 from the New Order Single if order not in a final status (confirmed/cancelled), else '0'.
152	CashOrderQty	O	The approximate order quantity desired in total monetary units.	Tag 152 from the Original message.
155	SettlCurrForexRate	O	The Foreign exchange rate used to compute the SettlCurrAmt.	The Exchange rate (XchgRate) if present, else 1.
156	SettlCurrFXRateCalc	O	Specifies whether the SettlCurrFxRate should be multiplied or divided. M=Multiply D=Divide	See below.
193	XpctdCshSttlmDt	O	Specifies if any cash due date has been provided.	Cash due date.
381	GrossTradeAmt	O	The total amount traded.	
432	[ExpireDate]	O	Date of order expiration (last day the order can trade), always expressed in terms of the local market date.	
	Standard message trailer	M		

7.4 Cancel Request Reject (Message type 9)

The Order Cancel Reject (9) message is used to reject a previously sent Cancel Request message. The following tags are supported and sent in FIX 4.2:

Tag	Tag Name	M-O	Content	Remarks
	Standard message header	M	Tag35 MsgType = 9	
1	Account	O		Mapped from the original new order message, tag 1.
10	CheckSum	M		n/a
11	ClOrdID	M	Unique order id.	The Reference value (RELA//reference).
37	OrderID	M	Unique identifier for Order as assigned by broker.	The Message Reference.

Tag	Tag Name	M-O	Content	Remarks
39	OrdStatus	M	The Order status after this cancel reject is applied. 0 = New 2 = Filled 4 = Cancelled 6 = Pending Cancel/Replace 8 = Rejected	
41	OrigClOrdID	M	ClOrdID of the previous order.	The Order Reference value, if present.
58	Text	O	Free-format text up to 50-char.	The text from the Additional info if present.
60	TransactTime	O	Transaction date time.	n/a
76	[ExecBroker]	O	Identifies executing / give-up broker.	Mapped from the original new order message, tag 76.
102	CxlRejReason	O	The cancellation rejection reason: 0 = Too late to cancel 1 = Unknown order 3 = Order already in Pending Cancel or Pending Replace status	
109	ClientID	O	Used for firm identification in third-party transactions.	The Vestima Participant ID (tag 109 from the original order message) NOTE: For ex-CFCL Clients, tag 115 from the Original message.
434	CxlRejResponseTo	M	Identifies the type of request that a Cancel Reject is in response to. 1 = Order Cancel Request (F)	'1' (Order Cancel Request).
	Standard message trailer	M		

8.0 Testing Framework

To implement order routing via FIX to Clearstream Banking Luxembourg, testing must first be undertaken to ensure the client's interface conforms to the correct specifications and can successfully transmit messages and process responses.

The client should appoint individuals on their testing team with representatives from the following areas:

- IT Development (FIX Infrastructure)
- IT Production – Network & Security
- Business Technology
- Project Management

To facilitate the communication between the testing parties, contact telephone numbers and email addresses should be exchanged.

The following should be defined and mutually agreed upon before each testing session:

- Date and Time
- Definition of which business entities are being tested
- Goal of testing session
- Scope of testing
- Test cases with expected result

Clearstream can provide client certificates for its TEST environments by email. Further information will be provided as part of the onboarding.

Contact

www.clearstream.com

Published by

Clearstream Banking S.A.

Registered address

Clearstream Banking S.A.
42 Avenue JF Kennedy
L-1855 Luxembourg

Postal address

Clearstream Banking
L-2967 Luxembourg

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