Visual Trading FIX API

Version 1.3.10
02/02/2017

Confidential and Proprietary

All information contained in this document is proprietary information of Visual Trading, Inc.

Contents

CHANGES LIST

Date	Version	Author	Changes
17/11/2014	0.1	Pavel Borisov	Initial version
27/11/2014	0.2	Pavel Borisov	Replaced quote messages from Quote* to MarketData*
27/11/2014	0.3	Pavel Borisov	Partial fill, order and user identifier are added to order and order response
28/11/2014	0.4	Pavel Borisov	Changes list is added
10/12/2014	0.5	Pavel Borisov	Slightly modified fields of NewOrderSingle and ExecutionReport
2/4/2015	0.6	Pavel Borisov	Added formats for header, trailer and session messages. Some edits.
2/11/2015	0.7	YA	Added descriptive notes, picture and reformatted
03/19/2015	0.9	Pavel Borisov	Restored FillOrKill
03/20/2015	1.0	YA	Added description of limit order and its cancellation requests
03/24/2015	1.1	YA	Added description of order replace request
04/09/2015	1.2	Pavel Borisov	Added STOP order type and time in force GTC. Described behavior for all variants of order type and time in force.
03/19/2015	0.9	Pavel Borisov	Restored FillOrKill
03/20/2015	1.0	YA	Edit description of limit order and its cancellation requests
03/24/2015	1.1	YA	Edit description of order replace request
04/09/2015	1.2	Pavel Borisov	Added STOP order type and time in force GTC. Described behavior for all variants of order type and time in force.
05/18/2015	1.3	Pavel Borisov	Added description of Trade capture messages
05/19/2015	1.3.1	YA	Added connection parameters and security section
05/21/2015	1.3.2	Pavel Borisov	Edited Trade Capture Report comments
06/09/2015	1.3.3	Pavel Borisov	Made tag 11 optional in Execution report
08/07/2015	1.3.4	Pavel Borisov	Made tag 37 optional in Order cancel request and Order cancel replace request
12/23/2015	1.3.5	YA	Available order types correction
02/29/2016	1.3.6	YA	Market data request allows to Subscribe and Unsubscribe, available Full book and Top of the Book
04/13/2016	1.3.7	YA	Optional Settlement date tag added
01/13/2017	1.3.8	YA	Corrected Trade Capture report request
02/02/2017	1.3.9	YA	Edited Order cancel request 35=F

02/22/2017	1.3.10	PB, YA	ClOrdId tag is optional in OrderCancelRequest and OrderCancelReplaceRequest Tag PreviouslyReported is always false in TradeCaptureReport Added tag OrderQty to OrderCancelReplaceRequest Added NewOrderList

INTRODUCTION

Purpose

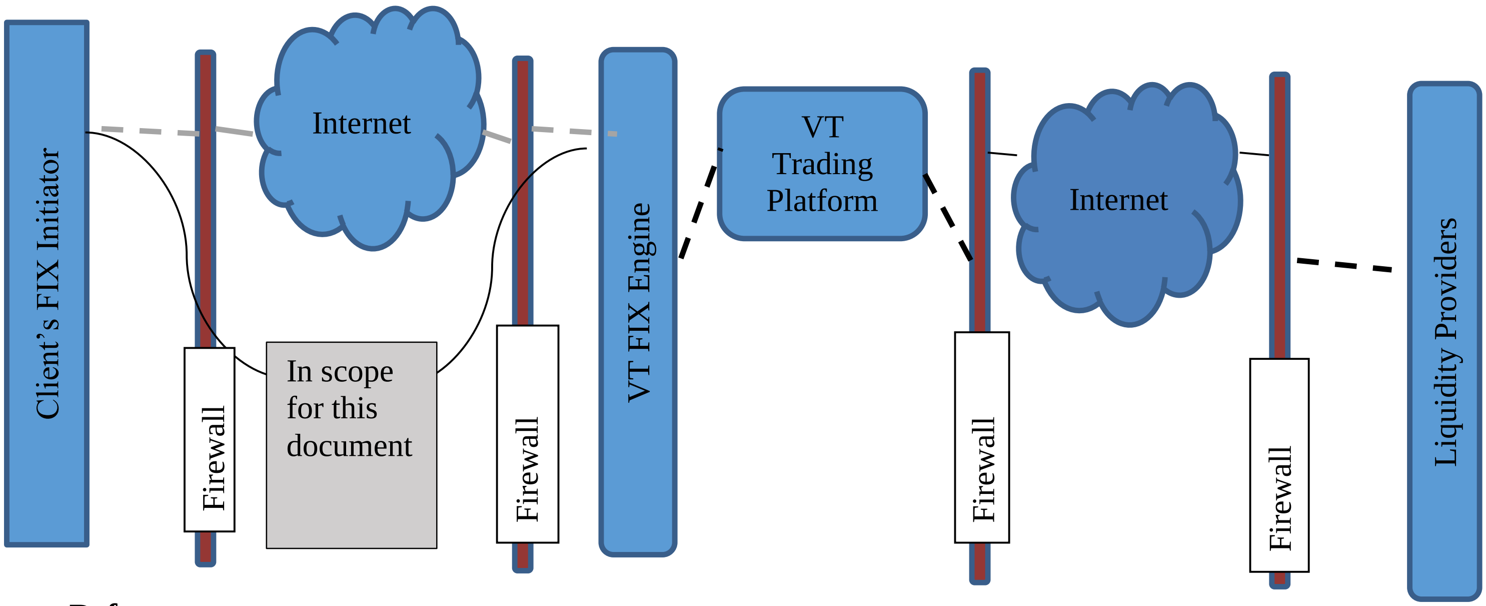
The purpose of this document is to outline the requirements for interfacing with the Visual Trading Inc. FIX gateway (referred hereto as VTFIX) via the Financial Information eXchange (FIX) protocol in order to receive streaming quote data and execute trades.

Functionality

The VTFIX API is designed as a subset of FIX 4.4 protocol specifically for spot foreign exchange (FX) and contracts for difference (CFDs) transactions. It communicates with Visual Trading Inc. quote/trading/routing engine and is designed for the following functionalities:

- Connectivity
- Quote Streaming (Subscription, Incremental Update)
- Order Execution

System Overview



References

FIX Trading Community (http://www.fixtradingcommunity.org) is a definitive source of information regarding FIX protocol and its implementation.

CONNECTIVITY

Introduction

.
The VTFIX provides two Fix Session Connections:

Trading Session: This session provides access to the trading functionality, allowing client to execute orders
Market Data (Quotes) Session: This session allows clients to receive streaming quotes.

Credentials

Customers connecting to via VTFIX will receive the following credentials from VT which should be configurable within their implementation of FIX client.

Quote Session	
IP Address	Provided by VT
Port	Provided by VT
SenderCompID	Same as login name
TargetCompID	Provided by VT
Password	Login password
User name	Login name provided by VT
Trade Session	
IP Address	Provided by VT
Port	Provided by VT (different from Quote session)
SenderCompID	Same as login name
TargetCompID	Provided by VT
Password	Login password (same as for Quote session)
User name	Login name provided by VT (same as for Quote session)

Verification

Prior to testing VTFIX connectivity all clients should verify that they can run a network connectivity test using Telnet. In Microsoft windows open the Command Prompt window and enter:
telnet <IP Address> <Port>

Blank screen indicates a success. Contact VT with any questions.

Session Security

VTFIX API supports a logon process for authenticating the client application based on the user name and password. Only one session per logon is allowed at one time.

VTFIX API does not support an encryption; however, in production environment all transactions are secured by employing SSL.
An appropriate keystore file or other configuration options will be provided with each account credentials.

FIX Messages

Overview

A FIX session is defined as a bi-directional stream of ordered messages between two parties. The FIX protocol is defined at two levels: Session and Application.

A session layer establishes and maintains a FIX session between client and FIX Server API on a TCP/IP connection.

An application layer supports business transaction functionality through sending and receiving application layer messages.

Session messages

- Heartbeat (Client ↔ FIX Server API)
- Test Request (Client ↔ FIX Server API)
- Logon (Client → FIX Server API)
- Logout (Client → FIX Server API)
- Resend Request (Client ↔ FIX Server API)
- Reject (Client ↔ FIX Server API)
- Sequence Reset (Client ↔ FIX Server API)

Application messages

- Market Data Request (Client → FIX Server API)
- Market Data Snapshot Full Refresh (Client ← FIX Server API)
- Market Data Request Reject (Client ← FIX Server API)
- New Order Single (Client → FIX Server API)
- Execution Report (Client ← FIX Server API)

- Order cancel request (Client → FIX Server API)
- Order cancel replace request (Client → FIX Server API)
- Order cancel reject (Client ← FIX Server API)
- Trade capture report request (Client → FIX Server API)
- Trade capture report request acknowledgement (Client ← FIX Server API)
- Trade capture report (Client ← FIX Server API)

Please, note message directions above.

Standard Header and Trailer

For each FIX4.4 message type sent, there is a standard header for outbound messages (from client system to VTFIX API) and a standard header for inbound messages (from VTFIX API to client system). The header for inbound and outbound FIX 4.4 message types is presented separately and referred to in subsequent message type layouts as „Standard header‟. There is also a standard trailer for all FIX 4.4 message types referred to as "Standard trailer".
The *standard header* is included in all FIX Messages sent/received by VTFIX API

Tag	Field name	Required	Comments
8	BeginString	Y	Protocol version, must be FIX.4.4. Always first field in message
9	BodyLength	Y	Message length in bytes. Always second field in message
35	MessageType	Y	Message type. Always third field in message
34	MsgSeqNum	Y	Message sequence number
43	PossDupFlag	N	Indicates possible retransmission of message with this sequence number
49	SenderCompID	Y	The SenderCompID supplied to the client by Visual Trading
52	SendingTime	Y	UTC time message was sent including milliseconds
56	TargetCompID	Y	The TargetCompID supplied to the client by Visual Trading
122	OrigSendingTime	N	Original time of message transmission expressed in UTC when transmitting orders as the result of a resend request.

The *standard trailer* is included in all FIX Messages sent/received by VTFIX API

Tag	Field name	Required	Comments
10	CheckSum	Y	Simple checksum in 3 bytes. Always last field in message

Session FIX Messages

Session FIX Messages are sent via both connections, Trading and Quotes.

Heartbeat (MsgType = 0)

A Heartbeat message is sent by VTFIX API to the client, or the client to VTFIX API as a keep-alive message to verify availability of FIX connection. A Heartbeat is also sent in response to a Test Request.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = 0
112	TestReID	N	TestReID if this messages responds to TestRequest
	Standard trailer	Y	

TestRequest (MsgType = 1)

A Test Request message is sent by VTFIX API to the client, or the client to VTFIX API as a method of verifying two-way FIX connectivity. A Heartbeat is expected in response to a Test Request.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = 1
112	TestReID	Y	Identifier of the request
	Standard trailer	Y	

	Standard header	Y	MsgType = 4
36	NewSeqNo	Y	New sequence number
123	GapFillFlag	N	Indicates that the Sequence Reset message is replacing administrative or application messages which will not be resent
	Standard trailer	Y	

Logon (MsgType = A)
A logon message is sent by the client to initiate a FIX session. The VTFIX API implementation requires the Username and Password for authentication purposes in the original Logon message.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = A
98	EncryptMethod	Y	Use of Encryption, set to “0”.
108	HeartBtInt	Y	Heart beat interval in seconds.
141	ResetSeqNumFlag	N	Indicates both sides of a FIX session should reset sequence numbers
553	Username	Y	Username (provided by Visual Trading)
554	Password	Y	Password (provided by Visual Trading)
	Standard trailer	Y	

Logout (MsgType = 5)

A logout message is sent by VTFIX API to the client, or the client to VTFIX API, to terminate a FIX session. Most FIX engines will automatically generate the Logout message and a response to it. When applicable, the VTFIX API will provide a reason for the Logout in the Text (58) field.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = 5
58	Text	N	Reason for logout
	Standard trailer	Y	

TRADING FIX MESSAGES

Overview
Once connected to the VTFIX API Trade Session, the client can request a trade by sending a NewOrderSingleMessage.

New Order - Single (MsgType = D)
This message is sent to place an order.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = D
11	ClOrdID	Y	Unique identifier for this order.
526	SecondaryClOrdID	N	Secondary identifier for this order. (provided by client)
1	Account	N	Account id (provided by client)
583	ClOrdLinkID	N	Group id (provided by client)
55	Symbol	Y	Instrument name (e.g. EURUSD)
54	Side	Y	Side of order: 1 – BUY 2 – SELL
59	TimeInForce	Y	1 – GoodTillCancel 3 - ImmediateOrCancel 4 - FillOrKill
60	TransactTime	Y	Time this order request was initiated
38	OrderQty	Y	Quantity of order
40	OrdType	Y	Type of order: 1 – MARKET 2 – LIMIT 3 – STOP
44	Price	When OrdType=2 or 3	Client price
	Standard trailer	Y	

New Order List (MsgType = E)

This message is sent to place linked orders. Only GTC stop or limit orders are supported.

Tag	Field name		Required	Comments
	Standard header		Y	MsgType = E
1385	ContingencyType		Y	1 - OCO, 2 one-cancels-other orders 2 - OTO (if-then), if the first is triggered the second is executed, if the first is cancelled the second is cancelled 103 - OTO (if-then-else), if the first is triggered the second is executed, if the first is cancelled the second is cancelled; if the first is triggered the third is cancelled, if the first is cancelled the third is executed
73	NoOrders		Y	
	11	ClOrdID	Y	Unique identifier for this order.
	1	Account	Y	Account id
	55	Symbol	Y	Forex instrument (e.g. EURUSD)
	54	Side	Y	Side of order: 1 – BUY 2 – SELL
	59	TimeInForce	Y	1 – GoodTillCancel is ony supported value
	60	TransactTime	Y	Time this order request was initiated
	38	OrderQty	Y	Quantity of order
	40	OrdType	Y	Type of order, supported values are: 2 – LIMIT 3 – STOP
	44	Price	Y	Client price
	Standard trailer		Y	

Execution Report (MsgType = 8)
This message is sent in response to New Order - Single.

In the case of partial fill several executions reports are generated.
NOTE: When the last part is not filled the execution report contains

- ExecType=1

- OrdStatus=1
- LastQty=0
- LeavesQty = not filled part

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = 8
11	ClOrdID	N	Original client identifier for this order.
526	SecondaryClOrdID	N	Original secondary client identifier for this order.
37	OrderID	Y	Unique identifier for this order generated by system.
1	Account	Y	Account id
583	ClOrdLinkID	N	Group id
17	ExecID	Y	Unique identifier of execution message
40	OrdType	Y	Type of order. Valid values: 1 – MARKET 2 – LIMIT 3 – STOP
55	Symbol	Y	Instrument name (e.g. EURUSD)
54	Side	Y	Side of order Valid values: 1 – Buy 2 – Sell
38	OrderQty	Y	Executed quantity for this order.
150	ExecType	Y	The execution report's type, valid values: 0 – NEW 1 – PARTIAL_FILL 2 – FILL 4 – CANCEL 5 – REPLACE 8 – REJECT

39	OrdStatus	Y	Describe the current state of orders. Valid values: 0 – NEW 1 – PARTIALLY_FILLED 2 – FILLED 4 – CANCELLED 5 – REPLACED 8 – REJECTED
44	Price	When ExecType=2 or 5	The original requested price for the order.
32	LastQty	Y	The quantity filled for this fill.
151	LeavesQty	Y	The remaining quantity to fill from the original requested amount.
14	CumQty	Y	Currently executed quantity for chain of fills for the same order.
31	LastPx	N	Price of this (last) fill.
6	AvgPx	N	Average price.
58	Text	When ExecType=8 or 4	Free format text string. Will contain the reason if OrdStatus is Rejected or Cancelled
103	OrdRejReason	When ExecType=8	Code of order reject reason
60	TransactTime	Y	Time of the original order creation in UTC Format.
64	SettlDate	N	Trading day in format yyyymmdd
	Standard trailer	Y	

Order cancel request (MsgType = F)

This message is sent to cancel limit and stop GTC orders previously placed. At least one of ClOrdID and OrderID must be specified.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = F

11	ClOrdID	N	Original client identifier for this order. Either tag 11 or tag 37 or both must be present
37	OrderID	N	Unique identifier for this order generated by Visual Trading. See above.
1	Account	Y	Account id
60	TransactTime	Y	Time this order request was initiated/released by the trader or trading system.
	Standard trailer	Y	

Order cancel replace request (MsgType = G)

This message is sent to change price of limit and stop GTC orders previously placed. At least one of ClOrdID and OrderID must be specified. At least one of Price or OrderQty must be specified.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = G
11	ClOrdID	Y	Original client identifier for this order.
37	OrderID	N	Unique identifier for this order generated by Visual Trading.
1	Account	Y	Account id
44	Price	N	Desired price of the limit order
38	OrderQty	N	Desired amount of the order
	Standard trailer	Y	

Order cancel reject (MsgType = 9)

This message can be sent in reply to order cancel request and order cancel replace request.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = 9
11	ClOrdID	Y	Original client identifier for this order.
37	OrderID	Y	Unique identifier for this order generated by system.

1	Account	N	Account id
58	Text	Y	Human readable reject reason
	Standard trailer	Y	

Trade capture report request (MsgType = AD)

Used to request one or more trade capture reports based upon selection criteria provided in the request.

Tag	Field name		Required	Comments
	Standard header		Y	MsgType = AD
568	TradeRequestID		Y	Identifier for the trade request
569	TradeRequestType		Y	Only possible value is MATCHED_TRADES_MATCHING_CRITERIA_PROVIDED_ON_REQUEST = 1
263	SubscriptionRequestType		Y	Only possible value is SNAPSHOT = '0'
580	NoDates		N	Number of dates in the provided range. Single date means the start date, 2 dates mean date period.
	60	TransactTime	N	To request trades for a specific time
55	Symbol		N	Forex instrument (e.g. EURUSD)
	Standard trailer		Y	

Trade capture report request acknowledgement (MsgType = AQ)

This message can be sent in reply to the trade capture report request.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = AQ
568	TradeRequestID	Y	Identifier for the trade request
569	TradeRequestType	Y	Value provided in the trade request
263	SubscriptionRequestType	Y	Value provided in the trade request
749	TradeRequestResult	Y	Result of the trade request

750	TradeRequestStatus	Y	Status of the trade request
	Standard trailer	Y	

Trade capture report (MsgType = AE)

This message can be sent in reply to the trade capture report request.

Tag	Field name	Required	Comments
	Standard header	Y	MsgType = AE
568	TradeRequestID	Y	Identifier for the trade request
17	ExecID	N	Unique identifier for this order generated by system.
55	Symbol	Y	Forex instrument (e.g. EURUSD)
38	OrderQty	Y	Initial amount of processed order.
60	TransactTime	N	Order execution time
150	ExecType	N	The execution report's type, valid values: 0 – NEW 1 – PARTIAL_FILL 2 – FILL 4 – CANCEL 5 – REPLACE 8 – REJECT
39	OrdStatus	N	Current state of orders. Valid values: 0 – NEW 1 – PARTIALLY_FILLED 2 – FILLED 4 – CANCELLED 5 – REPLACED 8 – REJECTED
32	LastQty	N	Filled amount of this part.
31	LastPx	N	Price of the last fill.
6	AvgPx	N	Average price.
552	NoSides	Y	Number of sides provided. Always = 1.
	60 TransactTime	Y	To request trades for a specific time

11	ClOrdID	N	Original client identifier for this order.
37	OrderID	Y	Unique identifier for this order generated by system.
1	Account	Y	Account id
40	OrdType	Y	Type of order. Valid values: 1 – MARKET 2 – LIMIT 3 – STOP
54	Side	Y	Side of order Valid values: 1 – Buy 2 – Sell
64	SettlDate	N	Trading date in format yyyymmdd
570	PreviouslyReported	N	Always false
Standard trailer		Y	

Order Type / Time In Force

	GTC	FOK	IOC
Market	Works as IOC.	Will use the best price to fill. No partial fills.	Will use the best price to fill. Order may be filled partially.
Limit	An order is active until cancelled by client or executed at client’s price. Execution on strict client’s price is not guaranteed for now, slippage may present. Buy price must be lower than market price, and sell price must be higher than marker price. Order may be filled partially.	Will fill the order at client’s or better price. The order can be rejected when there is no liquidity at client’s price. No partial fills.	Will fill the order at client’s or better price. The order can be rejected when there is no liquidity at client’s price. Order may be filled partially.

Stop	An order is active until cancelled by client or executed at client's price. Execution on strict client's price is not guaranteed for now, slippage may present. Buy price must be higher than market price, and sell price must be lower than marker price. Order may be filled partially.	Works as GTC.	Works as GTC.