DUKASCOPY
Swiss Banking Group

Dukascopy FIX API

Programming Guide

Revision 8.8.1

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1. Introduction

1.1 General Information

Dukascopy FIX API is based on FIX4.4 protocol. The API is used to receive a real-time data feed, submit orders, set / modify / cancel orders, and receive automated notifications of trading activities. Dukascopy follows the International Organization for Standardization (ISO) currency pair symbol convention of CCY1/CCY2.

Limit for max orders per second is 16.
Limit for max open positions is 100.

2. Overall Description

2.1 Connection Schema

Both clients and Dukascopy FIX engines communicate using SSL-encrypted TCP sockets. No special SSL certificates needed for now. Client can use either resource provided by FIX engine or using SSL tunneling. The SSL-tunneling functionality is provided by freely-available open source products.

The time of client's machine should be synchronized with Dukascopy FIX server. Dukascopy uses GMT time as a base.

Incoming connection is identified by the IP address of the system where client's application is running.

There are two FIX connections per client which are used for the FIX interface: one for data feed and one for Trading.

In order to connect to Dukascopy FIX API server, user must obtain from Dukascopy:
- TargetCompId
- two SenderCompId
- username
- password

Client must connect to Dukascopy FIX API server from previously agreed IP addresses and ports. For each IP address connection attepmts are limited to five per minute per server. The following system messages are used:

Logon – a message sent by a client to initiate a FIX session to Dukascopy. The Logon message establishes the communication session, authenticates the connecting client, and initializes the message sequence number.

FIX session logon message type „A" should be the first message sent by FIX API client to the server, after establishing network connection. Note, that password in the client's logon message should match the expected value, otherwise the session will be terminated.

Logon Message Fields

Tag	Tag name	Description
98	EncryptMethod	This field specifies the method of encryption. Messages are always uncrypted
108	HeartBtInt	Heartbeat interval is in seconds. The heartbeat interval is driven by the FIX client. Default value is 30 seconds
141	ResetSeqNumFlag	Indicates that the both sides of the FIX session should reset sequence numbers. Should be 'Y' - yes
553	Username	The username provided by Dukascopy
554	Password	The password provided by Dukascopy

Example message:
8=FIX.4.4|9=111|35=A|34=1|49=SampleCompID|52=20210616-11:05:31.322|56=DUKASCOPYFIX|98=0| 108=30|141=Y|553=SampleLogin|554=SamplePassword|10=060|8=FIX.4.4|9=85|35=A|34=1|49=DUKA SCOPYFIX|52=20210616-11:05:31.469|56=SampleCompID|98=0|108=30|141=Y|10=145|

Logon message is needed both for Data feed session and trading session.
In case of unsuccessful Logon, FIX server will send Logout message (MsgType=35).

Heartbeat – a message sent by Dukascopy during periods of application inactivity to ensure connection validity. The FIX client will automatically respond to the heartbeat messages upon receipt.

Resend Request – a message that can be sent by either Dukascopy or a client, to request certain messages for resending. The resend is used when gaps are detected in the sequence numbering, message losing, or during the initialization process.

Logout – a message warns about the normal termination of the trading session. Sessions terminated without a Logout message will be considered an abnormal condition. The Dukascopy FIX gateway treats a client as logged out whenever the communication session is dropped. Client is disconnected if session is not restored in 2 hours.

3. Message Flow

The following page describes typical message flows.

3.1 Message Flow Matrix (FIX 4.4)

API Client	Direction	Dukascopy	Comments
Market Data Request (Subscribe)	→		1..n Market Data Requests
	←	Market Data Request Reject	If not a valid request
	←	Market Data Snapshot	Streaming prices for subscribed symbols
	←	Quote Status Report	Information about current status of instruments
Market Data Request (Unsubscr)	→		Client sends unsubscribe request
New Order Single (Market, Limit, Stop or Quote)	→		Client sends an Order (Market, Immediate or Cancel, Limit, Stop or Quote)
Order Cancel Request	→		Client sends order cancel request to cancel pending limit orders or executing quote orders
Order Cancel / Replace Request	→		Client sends order cancel request to edit pending limit orders or executing quote orders
	←	Execution Report	Order Acknowledged/Rejected (OrdStatus)
OrderMassStatus Request	→		Client sends request to resend all pending orders and info about currently opened positions
	←	Notification	Text information about system events and order execution process
	←	Instrument Position Info	Information about currently opened positions
Account Info Request	→		Client sends a request for the account details
	←	Account Info	Text information regarding user account

3.2 FIX 4.4 Messages Format

All message formats meet the FIX 4.4 specification. All fields required by FIX are required by Dukascopy API, and the order must be according to the FIX specification.

All messages must have all required FIX header / footer fields, BeginString, BodyLength, MsgType, SenderCompID, TargetCompID, MsgSeqNum, SendingTime, and CheckSum in their appropriate places according to the FIX 4.4 specification.

4. Data Feed interface

4.1 Market Data Request (MsgType = V)

User must send market data request for subscription or un-subscription to / from data feed. „TimeInForce" field is optional and used only for Fill or Kill data feed subscription.

Tag	Tag name	Description
262	MDReqID	Identifier of request. Set by client.
263	Subscription RequestType	«Snapshot + Updates (Subscribe)» and «Disable previous Snapshot + Update Request (Unsubscribe)» is supported
264	MarketDepth	Valid values: '1' Top of Book '2' .. '5' Number of feed level
265	MDUpdateType	Full Refresh (0) is supported only
267	NoMDEntryTypes	Must contain both MDEntryType (269) Bid (0) and Offer (1)
146	NoRelatedSym	Must be set to 1 – ONE (or all) instrument only
55	Symbol (Instrument block)	Currency pair symbol ('EUR/USD' for example) for subscription to the instruments must be set.
59	TimeInForce	Valid Values: '4' Fill or Kill (FOK) Use this field only in case if you want to subscribe for "Fill or Kill" data feed

Example messages:
MarketDataRequest Subscribe
8=FIX.4.4|9=157|35=V|34=5|49=FEED_SampleCompID|52=20210616-11:07:16.013|56=DUKASCOPYFIX|262=AUD/CAD 16.06.2021 14:07:16|263=1|264=1|265=0|146=1|55=AUD/CAD|267=2|269=0|269=1|10=076|
MarketDataRequest Unsubscribe
8=FIX.4.4|9=157|35=V|34=6|49=FEED_SampleCompID|52=20210616-11:07:19.111|56=DUKASCOPYFIX|262=AUD/CAD 16.06.2021 14:07:19|263=2|264=1|265=0|146=1|55=AUD/CAD|267=2|269=0|269=1|10=083|

4.2 Market Data - Snapshot/full Refresh (MsgType = W)

As a response to «Market Data request» Market Data – Snapshot / Full Refresh starts sending data to client. 'TimeInForce ' field indicates subscription for "Fill of Kill" data feed.

Tag	Tag name	Description
55	Symbol (Instrument block)	Currency pair for which the market data applies. 'EUR/USD' for example
268	NoMDEntries	Number of entries(MDEntryType) in Market Data message(Market depth)
269	MDEntryType	Bid(0) or offer(1)
270	MDEntryPx	Price of current bid or offer
271	MDEntrySize	Value of current bid or offer
59	TimeInForce	Valid Values: '4' Fill or Kill (FOK) This field indicates subscription for "Fill or Kill" data feed.
273	MDEntryTime	Time of Market Data Entry

Example message:
8=FIX.4.4|9=228|35=W|34=68|49=DUKASCOPYFIX|52=20210616-11:07:17.266|56=FEED_SampleCompID|55=AUD/CAD|262=AUD/CAD 16.06.2021 14:07:16|268=2|269=1|270=0.93886|271=1000000|273=11:07:17.268|276=A|269=0|270=0.93869|271=1000000|273=11:07:17.268|276=A|10=030|

4.3 Quote Status Report (MsgType = AI)

The message is used to deliver information about current status of instrument. Dukascopy API server will automatically send those messages without request upon login or instrument status change. Client doesn't need to subscribe to receive this information. Use this message to define available instruments.

Tag	Tag name	Description
117	QuoteID	Instrument code
55	Symbol	Currency pair symbol. 'EUR/USD' for example
537	QuoteType	Trade status of current instrument. Can be Tradeable (1) and Restricted Tradeable (2)

Example message:
8=FIX.4.4|9=100|35=AI|34=64|49=DUKASCOPYFIX|52=20210616-11:05:32.484|56=FEED_SampleCompID|55=GBP/USD|117=2026|537=1|10=143|

4.4 Market Data Request Reject (MsgType = Y)

If a Market Data Request is not accepted, Dukascopy will send a FIX 4.4 "Market Data Request Reject".

Tag	Tag name	Description
62	MDReqID	Must refer to the MDReqID (262) of the request.
281	MDReqRejReason	Following values can be set: '0' Unknown symbol '4' Unsupported SubscriptionReq '5' Unsupported MarketDepth '6' Unsupported MDUpdateType '8' Unsupported MDEntryType

5. Trading Interface

After client successfully logged into a FIX API server, the server automatically sends to client Execution Reports about orders in pending or executing state.

5.1 Execution Report (MsgType=8)

If an order has been partially filled, then for each remaining order execution, an execution report will be sent to a client, showing the current executed amount in the CumQty field.

Tag	Tag name	Description
37	OrderID	OrderID of order. Set by Dukascopy FIX API
11	ClOrdID	Identifier of order. Set by client
17	ExecID	Unique OrderID of execution. Set by Dukascopy FIX API. For partially filled orders API server sends execution report for each execution with unique ExecID & same OrderID
39	OrdStatus	Following order states are supported: '2' Filled (if partly too) '4' Canceled '8' Rejected 'A' Pending New (Order has been received by FIX system but not yet accepted for execution) 'B' Calculated (sent to execution)
150	ExecType	To get current status of order use OrdStatus. ExecType always set to 'I' - Order Status
55	Symbol	Currency pair symbol. 'EUR/USD' for example
59	TimeInForce	'1' Good Till Cancel (GTC) '3' Immediate or Cancel (IOC) – the sort of Limit order '4' Fill or Kill (FOK) – execution without partial lls '6' Good till date (GTD)
14	CumQty	Currently executed amount
151	LeavesQty	Remained quantity for further execution
38	OrderQty	Initially requested order amount
54	Side	Valid values: '1' Buy '2' Sell '7' Undisclosed (OrdStatus '4' Canceled or '8' Rejected)
40	OrdType	Valid values: '1' Market '2' Limit '3' Stop (Stop-Limit if slippage is specified) 'Q' Quote (Dukascopy specific BID/OFFER order) • in this case Tag 59 is not considered 'Z' Only for instrument exposure closing
6	AvgPx	Price at which the trade was executed
126	ExpireTime	Valid only if OrdType is Q (quote), or OrdType is '2'; '3' and TimeInForce = '6'
60	TransactTime	Time of execution report. Sets by Dukascopy FIX API

Tag	Tag name	Description
912	LastRpt Requested	Only for reports with 'reject' state! Value 'FALSE ' will be set in case if the order will be resubmitted
1	Account	External account ID. This field is used only for multi accounts connection
12	Commission	Commission of execution
13	CommType	Commission type. Provided only type '3' - absolute, in account currency
7011	Slippage	Used only for Market, Limit and Stop orders. Defines the maximum allowed slippage in pips. The minimum half a pip step is allowed (i.e. 3 or 3.5 is accepted, 3.2 is not accepted). If slippage is not defined, the order will be placed based on a default slippage value
103	OrdRejReason	Relevant if 'OrdStatus ' is Rejected. Valid values: '3' Order Exceeds Limit '99' Other
544	CashMargin	The field is set only in case of Margin Call trade. Valid value: '3' Margin Close

Example message:
8=FIX.4.4|9=221|35=8|34=246|49=DUKASCOPYFIX|52=20210616-13:06:59.564|56=SampleCompID |6=0.9394|11=1623848819377|12=0.01|13=3|14=1000|17=820323434|32=1000|37=820323434|38=10 00|39=2|40=1|54=1|55=AUD/CAD|60=20210616-13:06:59.563|150=I|151=0|10=049|

5.2 New Order - Single (MsgType =D)

Market , Limit, Immediate or Cancel, Stop and Quote orders are supported. In case of "Limit" and "Quote" orders, an order will be executed when market price is equal or better than requested price. "Market" order will be executed by the best available market price.

Tag	Tag name	Description
11	ClOrdID	Unique identifier for the order as assigned by client
44	Price	Price at which the trade was requested. Do not set for market orders
40	OrdType	Valid values: '1' Market '2' Limit '3' Stop (Stop-Limit if slippage is specified) 'Q' Quote (Dukascopy specific BID/OFFER order) • in this case Tag 59 is not considered 'Z' Only for instrument exposure closing
59	TimeInForce	'1' Good Till Cancel (GTC) '3' Immediate or Cancel (IOC) – the sort of Limit order '4' Fill or Kill (FOK) – execution without partial fills '6' Good Till Date (GTD) – enables Expire Time setting for Stop Limit & stop orders
55	Symbol	Currency pair symbol. 'EUR/USD' for example
38	OrderQty	Requested order amount
54	Side	Valid values: '1' Buy (Bid for OrdType = Quote) '2' Sell (Offer for OrdType = Quote)

60	TransactTime	Time when this order request was initiated/released by the trader or trading system
126	ExpireTime	Valid only if OrdType is Q (quote), or OrdType is '2';'3' and TimeInForce = '6'
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)
7011	Slippage	Used only for Market, Limit and Stop orders. Defines the maximum allowed slippage in pips. The minimum half a pip step is allowed (i.e. 3 or 3.5 is accepted, 3.2 is not accepted). If slippage is not defined, the order will be placed based on a default slippage value

Example message:
8=FIX.4.4|9=140|35=D|34=240|49=SampleCompID|52=20210616-13:06:59.491|56=DUKASCOPYFIX|11=163848819377|38=1000|40=1|54=1|55=AUD/CAD|60=20210616-13:06:59.491|10=168|

5.3 Order Cancel Request (MsgType = F)

Please note that only limit/stop orders in 'Pending New' status and quote orders in „Calculated" status can be canceled.

Tag	Tag name	Description
37	OrderID	Unique OrderID of order that should be canceled
41	OrigClOrdID	ClOrdID of the previous non-rejected order
11	ClOrdID	Unique account ID of request
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)
55	Symbol	Currency pair symbol. 'EUR/USD' for example

Example message:
8=FIX.4.4|9=117|35=F|34=248|49=SampleCompID|52=20210616-13:10:03.377|56=DUKASCOPYFIX|11=1623849003377|37=820323507|41=BUY|55=AUD/CAD|10=171|

5.4 Order Cancel/Replace Request (MsgType = G)

Use this message for updating order details. Please note that limit/stop orders in 'Pending New' status and quote orders in „Calculated" status can be updated only.

Tag	Tag name	Description
37	OrderID	Unique OrderID of order that should be updated
41	OrigClOrdID	ClOrdID of the previous non-rejected order
11	ClOrdID	Unique account ID of request
38	OrderQty	New requested amount of order
44	Price	New stop price at which the trade was requested
54	Slide	New side value
126	ExpireTime	New expiration time
1	Account	External account ID (only for multi accounts. Ignored for a single connection)

40	OrdType	Valid values:
		'1' Market
		'2' Limit
		'3' Stop (Stop-Limit if slippage is specified)
		'Q' Quote (Dukascopy specific BID/OFFER order)
		• in this case Tag 59 is not considered
		'Z' Only for instrument exposure closing
7011	Slippage	Used only for Market, Limit and Stop orders. Defines the maximum allowed slippage in pips. The minimum half a pip step is allowed (i.e. 3 or 3.5 is accepted, 3.2 is not accepted). If slippage is not defined, the order will be placed based on a default slippage value
55	Symbol	Currency pair symbol. 'EUR/USD' for example
59	TimeInForce	'4' Fill or Kill (FOK)
		Set this field only in case if you operate with „Fill or Kill" orders!

Example message:
8=FIX.4.4|9=161|35=G|34=247|49=SampleCompID|52=20210616-13:09:57.115|56=DUKASCOPYFIX|11=1623 848983133|37=820323507|38=3000|40=2|41=testoFIX_1623848969749|44=0.9|54=1|55=AUD/CAD|10=086|

5.5 Notification (MsgType = 'U1')

The message is used for client information about current account state.

Tag	Tag name	Description
7003	NotifPriority	Valid values:
		'0' INFO
		'1' WARNING
		'2' ERROR
		'3' ALERT
58	Text	Text explanation of reason for rejection
7004	AccountName	SenderCompId of the client
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)

5.6 Account Info Request (MsgType = 'U7')

Client requests information about current account state. „Account" field in AccountInfoRequest message is mandatory for multi user accounts; For a single connection blank AccountInfoRequest message must be sent.

Tag	Tag name	Description
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)

Example message:
8=FIX.4.4|9=70|35=U7|34=256|49=SampleCompID|52=20210616-13:13:45.552|56=DUKASCOPYFIX |10=004|

5.7 Account Info (MsgType = 'U2')

The message is used for client information about current account state.

Tag	Tag name	Description
7005	Leverage	Leverage of account
7006	UsableMargin	Current margin of account
7007	Equity	Current equity of account
15	Currency	Currency of account
7004	AccountName	SenderCompId of the client
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)

Example message:
8=FIX.4.4|9=137|35=U2|34=275|49=DUKASCOPYFIX|52=20210616-13:13:45.582|56=SampleCompID|15=USD|828=0|7004=SampleCompID|7005=100|7006=943983.23|7007=943983.23|10=001|

5.8 Instrument Position Info (MsgType = 'U3')

The message is used for client information about currently opened positions.

Tag	Tag name	Description
5	Symbol	Trading instrument
7008	Amount	Current position amount (positive value for "long", negative for "short")
7004	AccountName	AccountName SenderCompId of the client
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)

Example message:
8=FIX.4.4|9=116|35=U3|34=286|49=DUKASCOPYFIX|52=20210616-13:15:52.939|56=SampleCompID|44=0.9393|55=AUD/CAD|7004=d_fixtest|7008=1000|10=042|

5.9 OrderMassStatusRequest (MsgType = 'AF')

Client requests orders in pending status and info about currently opened positions. Report will be sent by server for each pending order and each position.

Tag	Tag name	Description
585	MassStatusReqType	'7' Status for all orders is supported only
584	MassStatusReqID	
1	Account	External account ID (Only for multi accounts. Ignored for a single connection)

Example message:
8=FIX.4.4|9=94|35=AF|34=262|49=SampleCompID|52=20210616-13:15:52.905|56=DUKASCOPYFIX|584=1623849352905|585=7|10=154|

5.10 Activation Request (MsgType = 'U5')

This type of request should be implemented only for Multiple Accounts. It's used for information purposes about the accounts under one accounts' group.

5.11 Activation Response (MsgType = 'U6')

This type of response is used only for Multiple Accounts. It's sent by Dukascopy as a reply to Activation Request.

Tag	Tag name	Description
553	MassStatusReqType	Username (login) of the account
1	Account	External account ID

5.12 Overnight Report (MsgType = 'U4')

This message is sent each day after settlement, informing a client about overnights result.

Tag	Tag name	Description
1	Account	External client's ID or Account ID in case of single user
15	Symbol	Currency
7008	Amount	Difference between secondary amounts of the two swap legs

Example message:
8=FIX.4.4|9=107|35=U4|34=890|49=DUKASCOPYFIX|52=20210616-21:23:41.753|56=SampleCompID
|1=1400414|15=USD|7008=-1.88307719751|10=106