

# FalconX Router (FxR)

FIX API Specification

version 2.0.2

## 1. Prerequisites

In order to access this functionality, each account must have a set of **API keys** generated that has trading access enabled. For users that would like to access the FalconX API but do not yet have a set of API keys generated, please reach out to your FalconX Customer Rep or inquire on chat.

Note:

- FalconX only stores the salted hash of your passphrase for verification. We won't be able to recover your passphrase if lost.

### 1.1 FIX SESSION REQUEST

Please request for a FIX session by sending the request to FalconX Customer Rep or inquire on chat. The details required will be:

- IP To be whitelisted
- API key label that is already generated at your end. Once the session is up you can integrate the session as described in further sections.

## 2. Business API Messages

### 2.1. Market Data Request

Purpose: Used to request or manage subscriptions for market data.

Message Direction : FIX Client to FalconX FIX Server

Market Data Request			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	V - Market_Data_Request
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
262	MDReqID	Y	Must be unique, or the ID of previous Market Data Request <V> to disable if SubscriptionRequestType <263> ='2'(Disable previous Snapshot + Updates Request).
263	SubscriptionRequestType	Y	0 - Snapshot 1 - Snapshot + Updates (Subscribe) 2 - Disable previous Snapshot + Update

			Request (Unsubscribe)
264	MarketDepth	Y	0 - Full Book
265	MDUpdateType	Y	1 - Incremental Refresh - One price update at a time 0 - Incremental Refresh - Multiple price updates at once (Recommended option)
267	NoMDEntryTypes	Y	Number of MDEntryType
=>269	MDEntryType	Y	0 - Bid
=>269	MDEntryType	Y	1 - Offer
146	NoRelatedSym	Y	Specifies the number of repeating symbols specified.
=>55	Symbol	Y	List of symbols: Symbol format COIN/CURRENCY, for example 'BTC/USD'
<b>Footer</b>			
10	Checksum	Y	

## 2.2. Market Data Snapshot Response

Purpose: Used to return a snapshot of market prices for subscribed symbols.

Message Direction : FalconX FIX Server to FIX Client

MD Snapshot Response			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	W - Market_Data_Snapshot_Full_Refresh
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
262	MDReqID	Y	
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
268	NoMDEntries	Y	Number of entries following.
=>269	MDEntryType	Y	0 - Bid 1 - Offer
=>270	MDEntryPx	Y	Price of the Market Data Entry.
=>271	MDEntrySize	Y	Quantity or volume represented by the Market Data Entry.
=>290	MDEntryPositionNo	Y	Display position of a bid or offer, numbered from most competitive to least competitive, per market side, beginning with 1.
<b>Footer</b>			
10	Checksum	Y	

## 2.3. Market Data Incremental Refresh

Purpose: Used to send an incremental price feed for a subscribed token. It will send one price update at a time. To enable this feature, set the FIX tag 265=1 in the market data request (35=V).

Message Direction : FalconX FIX Server to FIX Client

Incremental Update Response			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	

35	MsgType	Y	X - Market_Data_Incremental_Refresh
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
262	MDReqID	Y	
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
=>279	MDUpdateAction	Y	0 - New 1 - Change 2 - Delete
=>269	MDEntryType	Y	0 - Bid 1 - Offer
=>271	MDEntrySize	Y	
=>270	MDEntryPx	Y	
=>278	MDEntryID	Y	Unique Market Data Entry identifier
<b>Footer</b>			
10	Checksum		

## 2.4. Market Data Incremental Refresh - Multiple price updates at once

### (Recommended option)

Purpose: Used to send an incremental price feed for a subscribed token, and it uses repeating groups to send multiple price updates in a single message. To enable this feature, set the FIX tag 265=0 in the market data request (35=V).

Message Direction : FalconX FIX Server to FIX Client

Incremental Update Response			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	X - Market_Data_Incremental_Refresh
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
262	MDReqID	Y	

55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
268	NoMDEntries	Y	Number of entries following.
=> 279	MDUpdateAction	Y	0 - New 1 - Change 2 - Delete
=> 269	MDEntryType	Y	0 - Bid 1 - Offer
=> 271	MDEntrySize	Y	
=> 270	MDEntryPx	Y	
=> 278	MDEntryID	Y	Unique Market Data Entry identifier
<b>Footer</b>			
10	Checksum		

## 2.5. Market Data Request Reject

Purpose: Used to send the reason for rejecting a market data request.

Message Direction : FalconX FIX Server to FIX Client

Market Data Request Reject			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	Y - Market_Data_Request_Reject
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
262	MDReqID	Y	
58	Text	Y	
<b>Footer</b>			
10	Checksum	Y	

## 3. Transaction API Messages

### 3.1. New Order Single Request (D)

**Purpose:** The new order message type is used by institutions wishing to electronically submit orders to a broker for execution.

**Message Direction :** FIX Client to FalconX FIX Server

New Order Single			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	D - Order_Single
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
11	ClOrdID	Y	
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
54	Side	Y	1 - Buy 2 - Sell
60	TransactTime	Y	
40	OrdType	Y	1 - Market 2 - Limit
44	Price	C	Valid for Limit order
38	OrderQty	Y	
59	TimeInForce	C	Valid for Limit order (40=2): 1 = Good Till Cancel (GTC) 4 = Fill or Kill (FOK) 5 = Good Till Crossing (GTX)
126	ExpireTime	C	Valid for GTX Order <59=5> Format : YYYYMMDD-HH:MM:SS.sss
<b>Footer</b>			
10	Checksum		

## 3.2. Execution Report (8)

**Purpose:** The execution report message is used to: 1. confirm the receipt of an order 2. confirm changes to an existing order (i.e. accept cancel and replace requests) 3. relay order status information 4. relay fill information on working orders 5. relay unsolicited messages 6. reject orders

**Message Direction :** FalconX FIX Server to FIX Client.

Execution Report			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	8 - Execution_Report
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
37	OrderID	Y	Unique identifier of most recent order as assigned by sell-side.
11	ClOrdID	Y	Unique identifier for Order as assigned by the buy-side..
17	ExecID	Y	Unique identifier of execution message as assigned by the sell-side
150	ExecType	Y	0 = New 4 = Canceled 5 = Replaced 8 = Rejected C = Expired D = Restated (Execution Report <8> sent unsolicited by sell-side) F = Trade (partial fill or fill)
39	OrdStatus	Y	0 = New 1 = Partially filled 2 = Filled 4 = Canceled 5 = Replaced 8 = Rejected C = Expired
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'



54	Side	Y	1 - Buy 2 - Sell
40	OrdType	Y	1 - Market 2 - Limit
59	TimeInForce	N	1 = Good Till Cancel (GTC) 4 = Fill or Kill (FOK) 5 = Good Till Crossing (GTX)
38	OrderQty	Y	
44	Price	N	
32	LastQty	N	
31	LastPx	N	
151	LeavesQty	N	
14	CumQty	N	
6	AvgPx	N	
58	Text	N	Rejection Reason (Free Text)
60	TransactTime	Y	
<b>Footer</b>			
10	Checksum	Y	

### 3.3. Order Cancel/Replace Request (G)

**Purpose:** The order cancel/replace request is used to change the parameters of an existing order. Do not use this message to cancel the remaining quantity of an outstanding order, use the Order Cancel Request message for this purpose. Cancel/Replace will be used to change any valid attribute of an open order (i.e. reduce/increase quantity, change limit price, change ExpiryTime for GTX order).

**Message Direction :** FIX Client to FalconX FIX Server

Execution Report			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	G - Order Cancel/Replace Request
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
<b>Body</b>			
37	OrderID	Y	Unique identifier of most recent order as assigned by sell-side.

11	ClOrdID	Y	Unique identifier for Order as assigned by the buy-side..
41	OrigClOrdID	Y	ClOrdID <11> of the previous non rejected order (NOT the initial order of the day) when canceling or replacing an order.
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
54	Side	Y	1 - Buy 2 - Sell
40	OrdType	Y	1 - Market 2 - Limit
59	TimeInForce	C	Valid for Limit order (40=2): 1 = Good Till Cancel (GTC) 4 = Fill or Kill (FOK) 5 = Good Till Crossing (GTX)
38	OrderQty	Y	
44	Price	Y	
126	ExpireTime	N	Conditionally required if Valid for GTX Order <59=5> Format : YYYYMMDD-HH:MM:SS.sss
60	TransactTime	Y	
<b>Footer</b>			
10	Checksum	Y	

### 3.4. Order Cancel Request (F)

**Purpose:** The Order Cancel Request <F> message requests the cancellation of all of the remaining quantity of an existing order. Note that the Order Cancel/Replace Request <G> should be used to partially cancel (reduce) an order).

**Message Direction :** FIX Client to FalconX FIX Server

Execution Report			
Tag	Field Name	Required	Valid Values
<b>Header</b>			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	F - Order Cancel Request
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	

Body			
37	OrderID	Y	Unique identifier of most recent order as assigned by sell-side.
11	CIOrdID	Y	Unique identifier for Order as assigned by the buy-side..
41	OrigCIOrdID	Y	CIOrdID <11> of the previous non rejected order (NOT the initial order of the day) when canceling or replacing an order.
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
54	Side	Y	1 - Buy 2 - Sell
60	TransactTime	Y	
Footer			
10	Checksum	Y	

### 3.5. Order Cancel Reject (9)

**Purpose:** The Order Cancel Reject <9> message is issued by the sell-side upon receipt of a cancel request or cancel/replace request message which cannot be honored. Requests to change price or decrease quantity are executed only when an outstanding quantity exists.

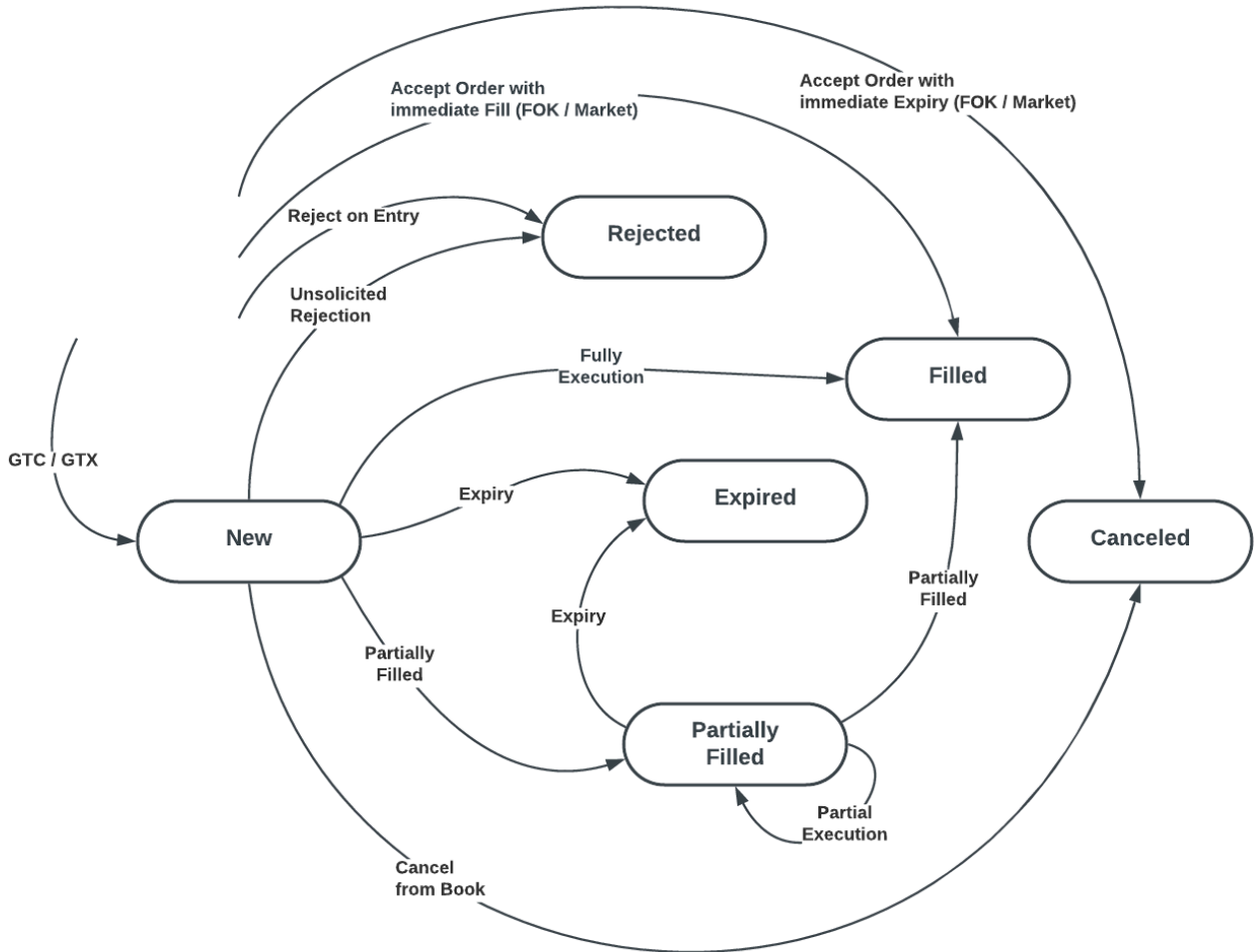
When rejecting a Cancel/Replace Request <G> (or Cancel Request <F>), the Cancel Reject <9> message should provide the CIOrdID <11> which was specified on the Cancel/Replace Request (or Cancel Request) message for identification, and the OrigCIOrdID should be that of the last accepted order.

**Message Direction :** FalconX FIX Server to FIX Client.

Execution Report			
Tag	Field Name	Required	Valid Values
Header			
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	F - Order Cancel Request
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
52	SendingTime	Y	
Body			

37	OrderID	Y	Unique identifier of most recent order as assigned by sell-side.
11	CIOrdID	Y	Unique identifier for Order as assigned by the buy-side..
41	OrigCIOrdID	Y	CIOrdID <11> of the previous non rejected order (NOT the initial order of the day) when canceling or replacing an order.
55	Symbol	Y	Symbol format COIN/CURRENCY, for example 'BTC/USD'
54	Side	Y	1 - Buy 2 - Sell
39	OrdStatus	Y	0 = New 1 = Partially filled 2 = Filled 4 = Canceled 5 = Replaced 8 = Rejected C = Expired
102	CxlRejReason	Y	Other
58	Text	Y	Rejection Reason (Free Text)
60	TransactTime	Y	
<b>Footer</b>			
10	Checksum	Y	

## 3.6. Order State Change Diagram



## 3.7. Order Type and Status Mapping

Order Status	Market Order	Limit Order		
		FOK	GTC	GTX
NEW	NO	NO	YES	YES
REJECTED	YES	YES	YES	YES
FILLED	YES	YES	YES	YES
PARTIALLY FILLED	NO	NO	NO	NO
CANCELED	YES	YES	YES	YES
EXPIRY	NO	NO	NO	YES

## 4. Session/Administrative API Messages

### 4.1. Logon Message (A)

Purpose: Used to establish a connection between a FIX Client (initiator) and FalconX FIX Gateway (acceptor)

Message Direction : FIX Client to FalconX FIX Server

Logon Request & Response (35=A)			
Tag	Field Name	Required	Valid Values
8	BeginString	Y	
9	BodyLength	Y	
35	MsgType	Y	A = Logon Note: Client Should initiate a login request
49	SenderCompID	Y	
56	TargetCompID	Y	
34	MsgSeqNum	Y	
553	Username	Y	Customer's API key
554	Password	Y	Customer's passphrase
96	RawData	Y	Client message signature
141	ResetSeqNumFlag	C	<p><b>For Market Data:</b> TAG &lt;141&gt;: FIX Initiator must send a login request with Tag &lt;141=Y&gt; in every login request.</p> <p><b>For Transaction:</b> TAG &lt;141&gt; : The FIX Initiator should send a login request with the &lt;141=Y&gt; tag at the beginning of the day. If for some reason the order FIX session is disconnected during the day, the FIX client MUST NOT send ResetSeqNumFlag &lt;141=Y&gt; on the next login request.</p>
52	SendingTime	Y	
98	EncryptMethod	Y	0 = None_Other
108	HeartBtInt	Y	
10	Checksum	Y	

The FIX MD client should send a Logon request with a sequence number of 1 on every logon request.

## 4.1.1. API key details

Your API key credentials have three values:

1. API key
2. Passphrase
3. Secret key

In the logon message, you need to pass the values as follows:

1. Use 'Username(553)' as the API key
2. Use 'Password(554)' as the passphrase

## 4.1.2. How to generate Client Message Signature (RawData)

The client message signature is generated using the following steps;

1. Build a pre hash string by combining the sending-time(tag 52), message-type(tag 35), message-seq-number(tag 34), sender-comp-id(tag 49), target-comp-id(tag 56), passphrase(your api key passphrase) using ASCII code 1(\x01).
  - a. pre\_hash\_string =  
`{{sending-time}}+{{separator}}+{{message-type}}+{{separator}}+{{message-seq-number}}+{{separator}}+{{sender-comp-id}}+{{separator}}+{{target-comp-id}}+{{separator}}+{{passphrase}}`
  - b. **Note:** There is no trailing separator
2. Sign(*SHA-256 method*) the pre hash string using your base64 encoded secret key.
3. Your client message signature is the base64 encoded value of the above signature.

You can find a sample code to generate client message signature in the FAQ section.

## 4.1.3. Authentication / Seccession related Error Messages:

FIX Error Message	Case
Authentication failed due to invalid login credentials.	If the client sends an invalid credential in the login request.
Incoming message could not be accepted due to invalid session state, reconnect your session	If the session times out and the client sends any business or session messages to the server.
Unable to process the transaction due to invalid session. Reconnect your session and initiate the transaction.	If the session times out and the client transaction waits in the servers queue.
The request could not be processed due to an internal error. Please reach out to our Client Support.	Server Internal error case.

## 4.2. FIX Session Maintenance Window

Currently a daily maintenance window (once every 24 hours) is implemented In a production environment including weekends. Session reset windows are limited to 5 minutes as mentioned below.

05:00:00 AM (UTC)	Incoming FIX application request (order, market data) and new login request will not be accepted at this stage.
05:01:00 AM (UTC)	Both market data feed and order notification will be stopped for the active FIX sessions.
05:01:30 AM (UTC)	The FIX Client session will be disconnected followed by logout.
05:05:00 AM (UTC)	At this point all FIX services will be restarted and wait for client connection.

During the maintenance window, the FIX server cleans up all session data and prepares it for the next session, so the FIX order client must send a login request with sequence number 1 at the beginning of the session (after the maintenance window). If there is any disconnection during the trading session, it should continue with the latest sequence numbers on the next login request.

The FIX MD client should send a Logon request with a sequence number of 1 on every logon request.

## 4.3. Logout (5)

Follows the standard according to the FIX 4.4 protocol.

## 4.4. Test Request (1)

Follows the standard according to the FIX 4.4 protocol.

## 4.5. Heart Beat (0)

Follows the standard according to the FIX 4.4 protocol.

## 4.6. Resend Request (2)

Follows the standard according to the FIX 4.4 protocol.

## 4.7. Session Level Reject

Follows the standard according to the FIX 4.4 protocol.

## 4.8. Sequence Reset (4)

Follows the standard according to the FIX 4.4 protocol.

## 5. Transaction Error Code and Reason



Error Code	Reason
ZERO_QUANTITY	You cannot request a quantity of zero.
TRADING_DISABLED	All trading has been disabled at FalconX at this time and we are not currently accepting quote or execution requests.
QUOTE_NOT_AVAILABLE	Our partners were unable to provide a quote.
PARTNER_FAILURE	Our partners failed to return a quote.
THIN_ORDERBOOK	Our partners' order books were too thin to provide you a quote.
MAX_USD_SIZE_LIMIT	You have surpassed the maximum value in USD for which we can provide a quote at this time.
INTERNAL_ERROR	Our internal server returned an error.
QUANTITY_TOO_SMALL	The quantity you requested is below our platform's minimum trading limit. Please contact your relationship manager to have this modified if required.
QUANTITY_TOO_BIG	The quantity you requested is above our platform's maximum trading limit. Please contact your relationship manager to have this modified if required.
QUOTE_EXPIRED	The trade was not executed because the quote expired.
ACCOUNT_DISABLED	Your account has not yet been approved for trading.
ACCOUNT_READ_ONLY	Your account has read-only permission, but does not have permission to trade.
INVALID_QUOTE_ID	The given quote ID is invalid.
INSUFFICIENT_BALANCE	You do not have sufficient balance to execute this trade.
RETRY_ERROR	You cannot execute the same quote twice. The provided quote is under process or already executed.
PERMISSION_DENIED	You have insufficient permission to access the quote.
MARKET_NOT_ALLOWED	You do not have access to the requested market.
MIN_TRADE_LIMIT_BREACH	The trade was not executed because the quantity you requested is less than the minimum allowed.
MAX_TRADE_LIMIT_BREACH	The trade was not executed because the quantity you requested is greater than the maximum allowed.
MIN_QUOTE_LIMIT_BREACH	Requested quote size is less than the minimum allowed.
MAX_QUOTE_LIMIT_BREACH	Requested quote size is greater than the minimum allowed.

TRADE_NOT_FILLED	Your trade was not executed.
MAX_NET_BREACHED	Your trade was not executed because you hit your max net outstanding limit.
MAX_GROSS_BREACHED	Your trade was not executed because you hit your max gross outstanding limit.
QUOTE_EXPIRED_MARKET_VOLATILITY	Your trade was not executed because the quote expired early due to market volatility.
UNAUTHORIZED	You are not authorized to access this resource.
NO_VALID_EXECUTABLE_QUOTE	Your trade was not executed because it was no longer a valid executable quote. The quote expired early due to market volatility.
EXECUTION_PENDING	Trade execution is in progress.
PER_SECOND_RATE_LIMIT	Number of requests per second exceeded the per second rate limit.
PER_MINUTE_RATE_LIMIT	Number of requests per minute exceeded the per minute rate limit.
PER_HOUR_RATE_LIMIT	Number of requests per hour exceeded the per hour rate limit.
API_KEY_DISABLED	Your API Key is pending approval by FalconX.
REQUEST_IP_RESTRICTED	Your IP is not whitelisted to access our APIs.
WHITELISTED_API_ENDPOINT	Your account does not have access to this endpoint.
INVALID_DATE_FORMAT	The input requires an ISO date format.
INSUFFICIENT_PARAMETERS_PROVIDED	The number of parameters provided are insufficient.
ORDER_NOT_FILLED	The order could not be filled

## 6. Sample API Messages

### 6.1. Sample Administrative Messages

#### 6.1.1. Logon Request (Inbound)

Logon Request			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	71	BodyLength	
35	A	MsgType	Logon
49	FXMDCH1	SenderCompID	
56	FALCXMD	TargetCompID	

34	1	MsgSeqNum	<p>1) For Transaction - Client should send a Logon request with a sequence number of 1 at the session start time and persist the sequence numbers on the next login request.</p> <p>2) For Market Data - Clients should send a Logon request with a sequence number of 1 on every logon request.</p>
52	20230908-13:45:41	SendingTime	
98	0	EncryptMethod	None_Other
553	Username	xxxxxxxxxxxxx	Customer's API key
554	Password	xxxxxx	Customer's passphrase
96	RawData	xxxxxxxxxxxxxxxxxxxxxxxxx	Generated Client's message signature
108	30	HeartBtInt	
10	77	Checksum	Correct

### 6.1.2. Success Logon Response (Outbound)

Success Logon Response			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	75	BodyLength	
35	A	MsgType	Logon
49	FALCXMD	SenderCompID	
56	FXMDCH1	TargetCompID	
34	1	MsgSeqNum	
52	20230908-13:45:41.658	SendingTime	
98	0	EncryptMethod	None_Other
108	30	HeartBtInt	
10	34	Checksum	Correct

### 6.1.3. Failure Logon Response (Outbound)

Failure Logon Response			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	163	BodyLength	
35	5	MsgType	Logout

49	FALCXMD	SenderCompID	
56	XYZ	TargetCompID	
34	1	MsgSeqNum	
52	20230908-13:52:21.191	SendingTime	
58	Authentication failed due to invalid login credentials.	Text	
10	162	Checksum	Correct

## 6.2. Sample Market Data Messages

### 6.2.1. MD Request for Snapshot & Incremental Refresh (Inbound)

Market Data Request - Snapshot & Updates for Bid & Offer			
Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	126	BodyLength	
35	V	MsgType	Market_Data_Request
49	FXMDCH1	SenderCompID	
56	FALCXMD	TargetCompID	
34	3	MsgSeqNum	
52	20230913-08:39:25	SendingTime	
<b>Body</b>			
262	1004	MDReqID	
263	0	SubscriptionRequestType	Snapshot
264	0	MarketDepth	Full Book
265	1	MDUpdateType	Incremental_Refresh
267	2	NoMDEntryTypes	
=>269	0	MDEntryType	Bid
=>269	1	MDEntryType	Offer
146	2	NoRelatedSym	
=>55	BTC/USD	Symbol	
=>55	ETH/USD	Symbol	
<b>Footer</b>			
10	136	Checksum	Correct

### 6.2.2. MD Response for Snapshot (Outbound)

MD Snapshot Response For Symbol ETH/USD

Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	526	BodyLength	
35	W	MsgType	Market_Data_Snapshot_Full_Refresh
49	FALCXMD	SenderCompID	
56	FXMDCH1	TargetCompID	
34	4	MsgSeqNum	
52	20230913-08:39:25.482	SendingTime	
<b>Body</b>			
262	1004	MReqID	
55	ETH/USD	Symbol	
268	12	NoMDEntries	
269	0	MDEntryType	Bid
270	1685.52079	MDEntryPx	
271	50	MDEntrySize	
290	1	MDEntryPositionNo	
269	0	MDEntryType	Bid
270	1684.337613	MDEntryPx	
271	20	MDEntrySize	
290	2	MDEntryPositionNo	
269	0	MDEntryType	Bid
270	1684.337613	MDEntryPx	
271	100	MDEntrySize	
290	3	MDEntryPositionNo	
269	0	MDEntryType	Bid
270	1683.492486	MDEntryPx	
271	10	MDEntrySize	
290	4	MDEntryPositionNo	
269	0	MDEntryType	Bid
270	1682.647359	MDEntryPx	
271	5	MDEntrySize	
290	5	MDEntryPositionNo	
269	0	MDEntryType	Bid
270	1675.886345	MDEntryPx	
271	1	MDEntrySize	
290	6	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	1672.200426	MDEntryPx	

271	1	MDEntrySize	
290	7	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	1675.077642	MDEntryPx	
271	5	MDEntrySize	
290	8	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	1676.086758	MDEntryPx	
271	20	MDEntrySize	
290	9	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	1678.780654	MDEntryPx	
271	50	MDEntrySize	
290	10	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	1678.78089	MDEntryPx	
271	100	MDEntrySize	
290	11	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	1679.284941	MDEntryPx	
271	10	MDEntrySize	
290	12	MDEntryPositionNo	
<b>Footer</b>			
10	47	Checksum	Correct

Snapshot Response for Symbol BTC/USD			
Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	433	BodyLength	
35	W	MsgType	Market_Data_Snapshot_Full_Refres h
49	FALCXMD	SenderCompID	
56	FXMDCH1	TargetCompID	
34	3	MsgSeqNum	
52	20230913-08:39:25.481	SendingTime	
<b>Body</b>			

262	1004	MReqID	
55	BTC/USD	Symbol	
268	12	NoMDEntries	
269	0	MEntryType	Bid
270	19972.992	MEntryPx	
271	50	MEntrySize	
290	1	MEntryPositionNo	
269	0	MEntryType	Bid
270	19920.979	MEntryPx	
271	5	MEntrySize	
290	2	MEntryPositionNo	
269	0	MEntryType	Bid
270	19896.973	MEntryPx	
271	10	MEntrySize	
290	3	MEntryPositionNo	
269	0	MEntryType	Bid
270	19896.973	MEntryPx	
271	100	MEntrySize	
290	4	MEntryPositionNo	
269	0	MEntryType	Bid
270	19840.959	MEntryPx	
271	20	MEntrySize	
290	5	MEntryPositionNo	
269	0	MEntryType	Bid
270	19816.953	MEntryPx	
271	1	MEntrySize	
290	6	MEntryPositionNo	
269	1	MEntryType	Offer
270	0	MEntryPx	
271	1	MEntrySize	
290	7	MEntryPositionNo	
269	1	MEntryType	Offer
270	0	MEntryPx	
271	5	MEntrySize	
290	8	MEntryPositionNo	
269	1	MEntryType	Offer
270	0	MEntryPx	

271	10	MDEntrySize	
290	9	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	0	MDEntryPx	
271	20	MDEntrySize	
290	10	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	0	MDEntryPx	
271	50	MDEntrySize	
290	11	MDEntryPositionNo	
269	1	MDEntryType	Offer
270	0	MDEntryPx	
271	100	MDEntrySize	
290	12	MDEntryPositionNo	
<b>Footer</b>			
10	71	Checksum	Correct

### 6.2.3. MD Request only for Snapshot (Inbound)

Market Data Request - Only for Snapshot			
Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	126	BodyLength	
35	V	MsgType	Market_Data_Request
49	FXMDCH1	SenderCompID	
56	FALCXMD	TargetCompID	
34	3	MsgSeqNum	
52	20230908-14:22:18	SendingTime	
<b>Body</b>			
262	1004	MDReqID	
263	0	SubscriptionRequestType	Snapshot
264	0	MarketDepth	Full Book
265	1	MDUpdateType	Incremental_Refresh
267	2	NoMDEntryTypes	
=>269	0	MDEntryType	Bid
=>269	1	MDEntryType	Offer



146	2	NoRelatedSym	
=>55	BTC/USD	Symbol	
=>55	ETH/USD	Symbol	
<b>Footer</b>			
10	131	Checksum	Correct

## 6.2.4. MD Incremental Refresh (Outbound)

Incremental Update Response for Bid			
Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	123	BodyLength	
35	X	MsgType	Market_Data_Incremental_Refresh
49	FALCXMD	SenderCompID	
56	FXMDCH1	TargetCompID	
34	18	MsgSeqNum	
52	20230908-14:03:08.718	SendingTime	
<b>Body</b>			
262	1004	MDReqID	
55	BTC/USD	Symbol	
279	1	MDUpdateAction	Change
269	0	MDEntryType	Bid
271	0.1	MDEntrySize	
270	25881.53251	MDEntryPx	
278	1	MDEntryID	
<b>Footer</b>			
10	196	Checksum	Correct

Incremental Update Response for Offer			
Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	121	BodyLength	
35	X	MsgType	Market_Data_Incremental_Refresh
49	FALCXMD	SenderCompID	
56	FXMDCH1	TargetCompID	

34	20	MsgSeqNum	
52	20230908-14:03:08.718	SendingTime	
<b>Body</b>			
262	1004	MDReqID	
55	BTC/USD	Symbol	
279	1	MDUpdateAction	Change
269	1	MDEntryType	Offer
271	1	MDEntrySize	
270	25864.97363	MDEntryPx	
278	3	MDEntryID	
<b>Footer</b>			
10	117	Checksum	Correct

## 6.2.5. MD Request Reject

Market Data Request Reject			
Tag	Tag Value	Field Name	Value Description
<b>Header</b>			
8	FIX.4.4	BeginString	
9	94	BodyLength	
35	Y	MsgType	Market_Data_Request_Reject
49	FALCXMD	SenderCompID	
56	FXMDCH1	TargetCompID	
34	9	MsgSeqNum	
52	20230908-14:25:07.131	SendingTime	
<b>Body</b>			
262	1004	MDReqID	
58	Unsupported MDUpdateType	Text	
<b>Footer</b>			
10	151	Checksum	Correct

## 6.3. Sample Transaction Messages

### 6.3.1. New Order Single Request (Inbound)

New Order Single			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	134	BodyLength	

35	D	MsgType	Order_Single
49	FXTXCH1	SenderCompID	
56	FALCXTX	TargetCompID	
34	17	MsgSeqNum	
52	20230913-10:14:51	SendingTime	
11	2064550168	ClOrdID	
55	BTC/USD	Symbol	
54	2	Side	Sell
60	20230913-10:14:51	TransactTime	
40	2	OrdType	Limit
44	26150	Price	
38	1	OrderQty	
59	4	TimeInForce	Fill_Or_Kill
10	192	Checksum	Correct

### 6.3.2. ER - Trade Execution Message (Outbound)

Order Execution			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	264	BodyLength	
35	8	MsgType	Execution_Report
49	FALCXTX	SenderCompID	
56	FXTXCH1	TargetCompID	
34	16	MsgSeqNum	
52	20230913-10:14:51.894	SendingTime	
37	8eb8de2f9df1444063c648fa0433fdef	OrderID	
11	2064550168	ClOrdID	
17	8eb8de2f9df1444063c648fa0433fdef	ExecID	
150	F	ExecType	Trade
39	2	OrdStatus	Filled
55	BTC/USD	Symbol	
54	2	Side	Sell
59	4	TimeInForce	Fill_Or_Kill
38	1	OrderQty	
44	26149.99895	Price	

32	1	LastQty	
31	26149.99895	LastPx	
151	0	LeavesQty	
14	1	CumQty	
6	26149.99895	AvgPx	
60	20230913-10:14:51.860	TransactTime	
10	177	Checksum	Correct

### 6.3.3. ER - Order Cancellation Message (Outbound)

Cancelled Order			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	260	BodyLength	
35	8	MsgType	Execution_Report
49	FALCCTX	SenderCompID	
56	FXTXCH1	TargetCompID	
34	15	MsgSeqNum	
52	20230913-10:14:46.581	SendingTime	
37	79b1ad5f6322432846c325748340ef43	OrderID	
11	2064550167	ClOrdID	
150	4	ExecType	Canceled
39	4	OrdStatus	Canceled
55	BTC/USD	Symbol	
54	1	Side	Buy
59	4	TimeInForce	Fill_Or_Kill
38	1	OrderQty	
44	26150	Price	
32	0	LastQty	
31	0	LastPx	
151	0	LeavesQty	
14	0	CumQty	
6	0	AvgPx	
60	20230913-10:14:46.581	TransactTime	
58	The order could not be filled due to market volatility.'	Text	
10	102	Checksum	Correct

## 6.3.4. ER - Order Rejection Message (Outbound)

Rejected Orders			
Tag	Tag Value	Field Name	Value Description
8	FIX.4.4	BeginString	
9	310	BodyLength	
35	8	MsgType	Execution_Report
49	FALCXTX	SenderCompID	
56	FXTXCH1	TargetCompID	
34	42	MsgSeqNum	
52	20230913-10:21:55.115	SendingTime	
37	8f0f38f0054b44565a0771036af767cd	OrderID	
11	2064550184	ClOrdID	
150	8	ExecType	Rejected
39	8	OrdStatus	Rejected
55	XYZ/USD	Symbol	
54	2	Side	Sell
59	4	TimeInForce	Fill_Or_Kill
38	1	OrderQty	
44	45000	Price	
32	0	LastQty	
31	0	LastPx	
151	0	LeavesQty	
14	0	CumQty	
6	0	AvgPx	
60	20230913-10:21:55.115	TransactTime	
58	You do not have access to the requested market. Please reach out to our Client Support, clients@falconx.io	Text	
10	84	Checksum	Correct

## 7. FAQ

### 1. Sample code to generate client message signature

```

Python

import hmac
import hashlib
import base64
import logging

def generate_signature(secret, sending_time, message_type, message_seq_number,
sender_comp_id, target_comp_id, password):
    try:
        hmac_key = base64.b64decode(secret)
    except Exception as e:
        logging.error("Error decoding base64: %s" % e)
        return ""

    data_to_sign = "\x01".join([sending_time, message_type, message_seq_number,
sender_comp_id, target_comp_id, password])

    h = hmac.new(hmac_key, msg=data_to_sign.encode('utf-8'), digestmod=hashlib.sha256)
    signature = h.digest()

    sign_b64 = base64.b64encode(signature).decode('utf-8')
    return sign_b64

# Example usage:
secret_key = "YourApiSecretKey"
sending_time = "20240111-10:10:10.100"
message_type = "A"
message_seq_number = "123"
sender_comp_id = "SENDER001"
target_comp_id = "TARGET001"
password = "my_api_passphrase"

result = generate_signature(secret_key, sending_time, message_type, message_seq_number,
sender_comp_id, target_comp_id, password)
print("Generated Signature: ", result)

```

### 2. How long does it take to get market data response for a subscribed token pair?

#### SubscriptionRequestType: 0 = Snapshot

On a successful request (35=V), it takes 6 seconds to receive a snapshot response (35=X) for the subscribed token pairs and no further price update will be sent if the subscription request type is “snapshot (0)”.

#### SubscriptionRequestType: 1 = Snapshot + Updates (Subscribe)

On a successful request (35=V), it takes 6 seconds to receive a snapshot response (35=W) and a price update (35=X) is continuously published for the subscribed token pairs if the subscription request type is “snapshot + Updates (1)”.

