PowerTrade Order Entry FIX API Specification

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VERSION 1.0 (see Revision History)

1. Introduction

Institutions can use the FIX Order Entry session to submit and cancel orders.

> Please note that for `FIX Order Entry` sessions API key with **"Trade"** permission `is required` as a password in Logon <A> .

API keys can be generated in [PowerTrade Web App](#).

2. FIX Dictionary

PowerTrade uses FIX 4.4 with the 20030618 errata. No custom tags are used.

2.1. Downloads

https://raw.githubusercontent.com/quickfix/quickfix/master/spec/FIX44.xml

3. Connecting

Steps to get connected to our FIX infrastructure:

3.1. Get connected

There are 4 options for production FIX connectivity to PowerTrade:

1. Over Internet with TLS encryption using server-side certificate;
2. Over Internet with mutual TLS: using signed certificates on client and server sides.
   - TEST:
     - **DropCopy**: `api.wss.test.power.trade:2020`
     - **OrderEntry**: `api.wss.test.power.trade:2021`
   - PROD:
     - **DropCopy**: `api.wss.prod.power.trade:2020`
     - **OrderEntry**: `api.wss.prod.power.trade:2021`

3.2. SETUP A TEST ACCOUNT

Create a Test account by going to:

https://powertrade-web-test.web.app/

3.3. GENERATE API KEYS

Generate API Keys at: https://powertrade-web-test.web.app/api-keys

4. Session-Level Messages

4.1. Establishing a connection

1. Client sends server → Logon <A> message

2. Is client ResetSeqNumFlag <141> to Y?

   ○ Yes, reset sequence numbers and proceed

      ▪ server resets next expected client sequence number

      ▪ server resets its own sequence number

      ▪ server responds with ← Logon <A> message with reset sequence number

      ▪ client sends server → Heartbeat <0>

   ○ No, disconnect

3. Success! Your FIX connection is established.

4.2. When can sequence numbers be reset?

PowerTrade runs the server side of the FIX connection (*"acceptor"*). PowerTrade never resets sequence numbers on the server side during the logon workflow unless the client explicitly requests it.

The client (*"initiator"*) can reset sequence numbers during Logon <A> by setting ResetSeqNumFlag <141> to Y.

PowerTrade recommends that client consider configuring the FIX initiator to automatically reset sequence numbers under the following conditions:

- logon
- logout
- disconnect
- error

While synchronizing sequence numbers after a replay, the client may send a Sequence Reset <4> with GapFillFlag <123> = Y in lieu of a replay.

4.3. Ending a connection

> If the session was initiated using an API Key with enabled `Cancel on Disconnect`, then when the client disconnects from the FIX Order Entry, for whatever reason, the exchange will cancel all the orders associated with that FIX session.

The client may send the server an optional Logout <5> message but the exchange will not interpret its absence as being an abnormal condition.

Under certain conditions, the server may send the client a Logout <5> message where the Text <58>

field contains the reason, such as scheduled maintenance.

4.4. Standard Header

The **Standard Header** is required on every message.

Table 1. `Standard Header` *fields:*

Tag	Name	Required	Description	Valid Values
8	BeginString	Y	Identifies beginning of new message and protocol version. Must be first field in message	`"FIX.4.4"`
9	BodyLength	Y	Message length, in bytes, forward to the CheckSum field. Must be second field in message	
35	MsgType	Y	Defines message type. Must be third field in message	
34	MsgSeqNum	Y	Integer message sequence number.	
43	PossDupFlag	N	Indicates possible retransmission of message with this sequence number. Required for retransmitted messages.	`"Y"` = Possible Duplicate `"N"` = Original Transmission
49	SenderCompID	Y	Assigned value used to identify firm sending message. If this message is sent to PowerTrade, then it should contain an API Key.	
56	TargetCompID	Y	Assigned value used to identify firm sending message.	If this message is sent to PowerTrade, then it should contain PowerTrade Server Identifier: `"PT-OE"` = for Order Entry `"PT-DC"` = for Drop Copy
52	SendingTime	Y	UTC Time of message transmission	`YYYYMMDD-HH:mm:ss.nnnnnnnnn`

4.5. Standard Trailer

The **Standard Trailer** is required on every message. `.Standard Trailer` fields:

Tag	Name	Required	Description	Valid Values
10	CheckSum	Y	Message Checksum, zero-padded 3 chars (e.g. "052"). Must be last field in the message.	Value calculated by the standard algorithm

4.6. Logon <A>

FIX4.4 Standard

Table 2. `Logon` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=A				
98	EncryptMethod	N	PowerTrade does not support encryption.	`"0"` = None
108	HeartBtInt	Y	Heartbeat interval in seconds.	`"30"` = 30 seconds
141	ResetSeqNumFlag	Y	Indicates both sides of a FIX session should reset sequence numbers. Required in PowerTrade.	`"Y"` = Yes, reset sequence numbers
554	Password	Y	Assigned value used to authenticate the firm sending the message.	JWT of PowerTrade API key. API keys can be generated in PowerTrade Web App. Procedure of JWT generation is documented in this article. NOTE: `FIX Drop Copy API` requires `Read-Only` API keys, while `FIX Order Entry API` requires API keys with `Trade` permission enabled.
Trailer				

4.7. Heartbeat <0>

Table 3. `Heartbeat` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=0				
112	TestReqID	C	Required when the heartbeat is the result of a Test Request <1> message	
Trailer				

4.8. Test Request <1>

Table 4. `Resend Request` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=1				
112	TestReqID	C	Required when the heartbeat is the result of a Test Request <1> message	
Trailer				

4.9. Resend Request <2>

Table 5. `Resend Request` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=2				
7	BeginSeqNo	Y	Message sequence number of first message in range to be resent	

Tag	Name	Required	Description	Valid Values
16	EndSeqNo	Y	Message sequence number of last message in range to be resent.

If request is for a single message `BeginSeqNo <7>` = `EndSeqNo <16>`. If request is for all messages subsequent to a particular message, `EndSeqNo <16> = 0` (representing infinity). | |
| Trailer | | | | |

4.10. Reject <3>

FIX4.4 Standard

Table 6. `Reject` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=3				
45	RefSeqNum	Y	MsgSeqNum <34> of the rejected message.	SeqNum
58	Text	N	Human-readable explanation	
371	RefTagID	Y	The tag number of the FIX field being referenced.	
372	RefMsgType	Y	The MsgType <35> of the rejected message.	

Tag	Name	Required	Description	Valid Values
373	SessionRejectReason	Y	Code to identify the reason for the Reject <3> message.	"0" = Invalid tag number "1" = Required tag missing "2" = Tag not defined for this message type "3" = Undefined Tag "4" = Tag specified without a value "5" = Value is incorrect (out of range) for this tag "6" = Incorrect data format for value "10" = SendingTime <52> accuracy problem "11" = Invalid MsgType <35>
Trailer				

4.11. Sequence Reset <4>

FIX4.4 Standard

Table 7. `Resend Request` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=4				
36	NewSeqNo	Y	New sequence number. The receiver should expect this to be the sequence number of the following message.	
123	GapFillFlag	Y	Indicates that the sender is skipping messages rather than resending them.	"Y" = Gap Fill message
Trailer				

4.12. Logout <5>

Table 8. Logout *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=5				
58	Text	N	Human-readable explanation	
Trailer				

4.13. Business Message Reject <j>

Table 9. Business Message Reject *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=j				
45	RefSeqNum	Y	MsgSeqNum <34> of the rejected message.	SeqNum
58	Text	N	Human-readable explanation	
372	RefMsgType	Y	The MsgType <35> of the rejected message.	
379	BusinessRejectRefID	Y	The value of the business level ID field being referenced.	
380	BusinessRejectReason	Y	Code to identify the reason for the Business Message Reject <j> message	"0" = Other "1" = Unknown ID "2" = Unknown Security "3" = Unsupported Message Type "4" = Application not available "5" = Conditionally Required Field Missing
Trailer				

5. Exchange-Bound Messages

5.1. New Order Single <8>

FIX4.4 Standard

Table 10. `New Order Single` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=8				
11	ClOrdID	Y	Unique ID of the new Order, Cancel, or Cancel/Replace request as assigned by the firm. It is critical that this ID is unique and monotonically increased and be in range 0..72'057'594'037'927'936 (2^56) Good practice: start with Unix time in µs and increment for each request.	order_token
18	ExecInst	N	Used to specify values for different order types. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.	`"6"` = Participate Do Not Initiate
40	OrdType	Y	Indicates order type	`"1"` = Market `"2"` = Limit
44	Price	C	Order Price	Required for OrdType=LIMIT orders
38	OrderQty	Y	Order Quantity	Decimal
110	MinQty	N	Minimum quantity of an order to be executed. Should not be set for TimeInForce except `"3"` `IOC` or `"4"` `FOK`.	Quantity `.minimum_quantity` field of full order

Tag	Name	Required	Description	Valid Values
54	Side	Y	Order Side	`"1"` = Buy `"2"` = Sell side
55	Symbol	Y	Symbol of the Tradeable Entity	`.symbol` field of tradeable_entity PowerTrade provides symbols of listed treadable entities in Reference Data: * Simplified MD Feeds * Session-based MD Service Ignored for Multi-Leg Order
65	SymbolSfx	N	ID of the market for corresponding order book	`"0"` = normal order book (where firm orders being matched) `"none"` = indicative order book (RFQ)
59	TimeInForce	Y	Specifies how long the orders remains alive	`"0"` = Cycle `"1"` = GTC `"3"` = IOC `"4"` = FOK `"6"` = GTD time_in_force
60	TransactTime	Y	UTC Time this order request was initiated/released by the trader, trading system, or intermediary.	`YYYYMMDD-HH:mm:ss.nnnnnnnnn`
126	ExpireTime	C	UTC Time of order expiration Required if TimeInForce=GTD	`YYYYMMDD-HH:mm:ss.nnnnnnnnn` time_to_live
Trailer				

5.2. New Order Multileg <AB>

FIX4.4 Standard

Table 11. `New Order Multileg` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=AB				
11	ClOrdID	Y	Unique ID of the new Order, Cancel, or Cancel/Replace request as assigned by the firm. It is critical that this ID is unique and monotonically increased and be in range 0..72'057'594'037'927'936 (2^56) Good practice: start with Unix time in μs and increment for each request.	order_token
18	ExecInst	N	Used to specify values for different order types. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.	`"6"` = Participate Do Not Initiate
40	OrdType	Y	Indicates order type	`"1"` = Market `"2"` = Limit
44	Price	C	Order Price	Required for OrdType=LIMIT orders
38	OrderQty	Y	Order Quantity	Decimal
110	MinQty	N	Minimum quantity of an order to be executed. Should not be set for TimeInForce except `"3" IOC` or `"4" FOK`.	Quantity `.minimum_quantity` field of full order

Tag	Name	Required	Description	Valid Values
54	Side	Y	Order Side	`"1"` = Buy `"2"` = Sell side
55	Symbol	Y	Symbol of the Tradeable Entity	`.symbol` field of tradeable_entity PowerTrade provides symbols of listed treadable entities in Reference Data: * Simplified MD Feeds * Session-based MD Service Ignored for Multi-Leg Order
65	SymbolSfx	N	ID of the market for corresponding order book	`"0"` = normal order book (where firm orders being matched) `"none"` = indicative order book (RFQ)
555	NoLegs	C	Number of legs. Identifies a Multi-leg Execution if present and non-zero.	
Component Block InstrumentLeg:				
600	⇒ LegSymbol	Y	Multileg instrument's individual security's Symbol. See Symbol <55> field for description	`legs.tradeable_entity_id` field of legs
623	⇒ LegRatioQty	Y	The ratio of quantity for this individual leg relative to the entire multileg security.	`legs.ratio` field of legs May be negative to represent Leg's Side as reciprocal to Order's Side
The end of Component Block InstrumentLeg				

Tag	Name	Required	Description	Valid Values
59	TimeInForce	Y	Specifies how long the orders remains alive	`"0"` = Cycle `"1"` = GTC `"3"` = IOC `"4"` = FOK `"6"` = GTD time_in_force
60	TransactTime	Y	UTC Time this order request was initiated/released by the trader, trading system, or intermediary.	`YYYYMMDD-HH:mm:ss.nnnnnnnnn`
126	ExpireTime	C	UTC Time of order expiration Required if TimeInForce=GTD	`YYYYMMDD-HH:mm:ss.nnnnnnnnn` time_to_live
Trailer				

5.3. Order Cancel Request <F>

FIX4.4 Standard

Table 12. `Order Cancel Request` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=F				

Tag	Name	Required	Description	Valid Values
11	ClOrdID	Y	Unique ID of the new Order, Cancel, or Cancel/Replace request as assigned by the firm. It is critical that this ID is unique and monotonically increased and be in range 0..72'057'594'037'927'936 (2^56) Good practice: start with Unix time in µs and increment for each request.	order_token
18	ExecInst	N	Used to specify values for different order types. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.	`"6"` = Participate Do Not Initiate
38	OrderQty	Y	Order Quantity	Decimal
40	OrdType	Y	Indicates order type	`"1"` = Market `"2"` = Limit
44	Price	C	Order Price	Required for OrdType=LIMIT orders
54	Side	Y	Order Side	`"1"` = Buy `"2"` = Sell side
55	Symbol	Y	Symbol of the Tradeable Entity	`.symbol` field of tradeable_entity PowerTrade provides symbols of listed treadable entities in Reference Data: * Simplified MD Feeds * Session-based MD Service Ignored for Multi-Leg Order

Tag	Name	Required	Description	Valid Values
59	TimeInForce	Y	Specifies how long the orders remains alive	`"0"` = Cycle `"1"` = GTC `"3"` = IOC `"4"` = FOK `"6"` = GTD time_in_force
60	TransactTime	Y	UTC Time this order request was initiated/released by the trader, trading system, or intermediary.	`YYYYMMDD-HH:mm:ss.nnnnnnnnn`
126	ExpireTime	C	UTC Time of order expiration Required if TimeInForce=GTD	`YYYYMMDD-HH:mm:ss.nnnnnnnnn` time_to_live
Trailer				

5.4. Security Definition Request <c>

FIX4.4 Standard

Subscription to `Security Definition Request` means subscribing to Security Definition and Security Status updates.

Table 13. `Security Definition Request` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=c				
TBD				
Trailer				

5.5. Security List Request <x>

FIX4.4 Standard

Subscription to `Security List Request` means subscribing to Security Definition and Security Status updates.

Table 14. `Security List Request` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=x				
TBD				
Trailer				

6. Client-Bound Messages

6.1. Execution Report <8>

PowerTrade uses the Execution Report <8> message to:

- confirm the receipt of an order
- confirm the successful cancellation of an order
- relay fill information on orders
- reject orders

Each execution report contains two fields which are used to communicate both the current state of the order as understood by the exchange OrdStatus <39> and the purpose of the message ExecType <150>.

Table 15. `Execution Report` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=8				
1	Account	Y	Identifier of the party associated with the order.	account_id
55	Symbol	Y	Symbol of the Tradeable Entity	`.symbol` field of tradeable_entity PowerTrade provides symbols of listed treadable entities in Reference Data: * Simplified MD Feeds * Session-based MD Service Ignored for Multi-Leg Order
17	ExecID	Y	Unique event ID assigned by PowerTrade.	

Tag	Name	Required	Description	Valid Values
37	OrderID	Y	The PowerTrade-assigned order ID.	order_id `"NONE"` = Unknown OrderID (if `ExecType` = `"8"` Rejected)
11	ClOrdID	Y	Unique ID of the new Order, Cancel, or Cancel/Replace request as assigned by the firm. It is critical that this ID is unique and monotonically increased and be in range 0..72'057'594'037'927'936 (2^56) Good practice: start with Unix time in µs and increment for each request.	order_token
198	SecondaryOrderID	C	Required if order is visible in the Order Book	The PowerTrade-assigned `display_order_id`, appears in Public Market Data: Session-based Service, Simplified MD Feeds. display_order_id
526	SecondaryClOrdID	N		Right 16 bytes from `client_reference` provided by a client in enter_order request Characters in ASCII range 32-127 are allowed

Tag	Name	Required	Description	Valid Values
150	ExecType	Y	Describes the purpose of the Execution Report.	`"0"` = New `"4"` = Cancelled `"8"` = Rejected `"A"` = Pending New `"C"` = Expired `"D"` = Restated `"F"` = Trade `"H"` = Trade Cancel
39	OrdStatus	Y	Describes the current order status.	`"0"` = New `"1"` = Partially Filled `"2"` = Filled `"4"` = Canceled `"8"` = Rejected `"A"` = Pending New `"C"` = Expired order_state
59	TimeInForce	Y	Specifies how long the orders remains alive	`"0"` = Cycle `"1"` = GTC `"3"` = IOC `"4"` = FOK `"6"` = GTD time_in_force

Tag	Name	Required	Description	Valid Values
126	ExpireTime	C	UTC Time of order expiration Required if TimeInForce=GTD	YYYYMMDD-HH:mm:ss.nnnnnnnnn time_to_live
40	OrdType	Y	Indicates order type	"1" = Market "2" = Limit
54	Side	Y	Order Side	"1" = Buy "2" = Sell side
44	Price	C	Order Price	Required for OrdType=LIMIT orders
38	OrderQty	Y	Order Quantity	Decimal
151	LeavesQty	Y	Quantity open for further execution. If the OrdStatus <39> is 4 = Canceled or 8 = Rejected (in which case the order is no longer active) then LeavesQty <151> could be 0, otherwise LeavesQty <151> = OrderQty <38> - CumQty <14>.	Quantity
31	LastPx	C	Price of this (last) fill. Required if ExecType <150> is F = Trade.	.price field of trade
32	LastQty	C	Quantity (e.g. shares) of the fill. This field is only present when the order is updated due to a match on the exchange. Required if ExecType <150> is F = Trade.	.quantity field of trade
6	AvgPx	Y	Calculated average price of all fills on this order. PowerTrade doesn't update this field, so it is always set to 0.	"0"
555	NoLegs	C	Number of legs. Identifies a Multi-leg Execution if present and non-zero.	

Component Block InstrumentLeg:

Tag	Name	Required	Description	Valid Values
600	⇒ LegSymbol	Y	Multileg instrument's individual security's Symbol. See Symbol <55> field for description	legs.tradeable_entity_id field of legs
623	⇒ LegRatioQty	Y	The ratio of quantity for this individual leg relative to the entire multileg security.	legs.ratio field of legs May be negative to represent Leg's Side as reciprocal to Order's Side
The end of Component Block InstrumentLeg				
Trailer				

6.2. Order Cancel Reject <9>

The Order Cancel Reject <9> message is issued by the broker upon receipt of a cancel request or cancel/replace request message which cannot be honored.

Table 16. `Order Cancel Reject` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=9				
37	OrderID	Y	The PowerTrade-assigned order ID.	order_id "NONE" = Unknown OrderID (if ExecType = "8" Rejected)
11	ClOrdID	Y	Unique ID of the new Order, Cancel, or Cancel/Replace request as assigned by the firm. It is critical that this ID is unique and monotonically increased and be in range 0..72'057'594'037'927'936 (2^56) Good practice: start with Unix time in µs and increment for each request.	order_token
41	OrigClOrdID	C	Unique ID of the Order.	order_token

Tag	Name	Required	Description	Valid Values
39	OrdStatus	Y	Describes the current order status.	`"0"` = New `"1"` = Partially Filled `"2"` = Filled `"4"` = Canceled `"8"` = Rejected `"A"` = Pending New `"C"` = Expired order_state
Trailer				

6.3. Security Definition <d>

FIX4.4 Standard

Table 17. `Security Definition` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=d				
TBD				
Trailer				

6.4. Security Status <f>

FIX4.4 Standard

Table 18. `Security Status` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=f				
TBD				
Trailer				

6.5. Security List <y>

FIX4.4 Standard

Table 19. `Security List` *fields:*

Tag	Name	Required	Description	Valid Values
Header with MsgType=y				
TBD				
Trailer				

7. Examples

7.1. Logon

7.1.1. Request

```
8=FIX.4.4|9=371|35=A|34=1|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230802-
11:01:23.047|56=PT-
OE|98=0|108=30|141=Y|554=eyJhbGciOiJFUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJhcGkud3NzLmRl
di5wb3dlci50cmFkZSIsInN1YiI6IjE3YjkyMjMzZjMzYTRkOWExNjg4ZmU3ZDJhNWJlNzA1IiwiZXhwIjoxNj
kwOTc0MDk4LCJpYXQiOjE2OTA5NzQwODN9.p_j6e_1dfmuYT9eveIx-ASu-
mtT8HuXltQ_O_8K896f8Y5W5CZQiNb0G1Y8XGZoDGryjuGC-YzMoEkqsGSIYAA|10=201|


HEADER:
-----------------------------------------------------------------
    [   8]                    BeginString: FIX.4.4 []
    [   9]                    BodyLength: 371 []
    [  34]                     MsgSeqNum: 1 []
    [  35]                       MsgType: A [LOGON]
    [  49]                  SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  52]                   SendingTime: 20230802-11:01:23.047 []
    [  56]                  TargetCompID: PT-OE []

BODY:
-----------------------------------------------------------------
    [  98]                 EncryptMethod: 0 [NONE]
    [ 108]                    HeartBtInt: 30 []
    [ 141]               ResetSeqNumFlag: Y [YES]
    [ 554]                      Password:
eyJhbGciOiJFUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJhcGkud3NzLmRldi5wb3dlci50cmFkZSIsInN1Y
iI6IjE3YjkyMjMzZjMzYTRkOWExNjg4ZmU3ZDJhNWJlNzA1IiwiZXhwIjoxNjkwOTc0MDk4LCJpYXQiOjE2OTA
5NzQwODN9.p_j6e_1dfmuYT9eveIx-ASu-mtT8HuXltQ_O_8K896f8Y5W5CZQiNb0G1Y8XGZoDGryjuGC-
YzMoEkqsGSIYAA []
```

```
TRAILER:
----------------------------------------------------------------------
    [  10]                        CheckSum: 201 []
```

7.1.2. Response

```
8=FIX.4.4|9=98|35=A|34=1|49=PT-OE|52=20230802-
11:01:23.046|56=17b92233f33a4d9a1688fe7d2a5be705|98=0|108=30|141=Y|10=032|

HEADER:
----------------------------------------------------------------------
    [   8]                       BeginString: FIX.4.4 []
    [   9]                       BodyLength: 98 []
    [  34]                        MsgSeqNum: 1 []
    [  35]                          MsgType: A [LOGON]
    [  49]                     SenderCompID: PT-OE []
    [  52]                      SendingTime: 20230802-11:01:23.046 []
    [  56]                     TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
----------------------------------------------------------------------
    [  98]                    EncryptMethod: 0 [NONE]
    [ 108]                       HeartBtInt: 30 []
    [ 141]                  ResetSeqNumFlag: Y [YES]

TRAILER:
----------------------------------------------------------------------
    [  10]                        CheckSum: 032 []
```

7.2. NewOrderSingle: Limit

7.2.1. Request

```
8=FIX.4.4|9=199|35=D|34=7|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230802-
11:20:11.303|56=PT-OE|11=1690975211302602|38=0.1500|40=2|44=22150.00|54=1|55=BTC-
USD|59=6|60=20230802-11:20:11.302|126=20230803-11:20:11.302|10=186|

HEADER:
----------------------------------------------------------------------
    [   8]                       BeginString: FIX.4.4 []
    [   9]                       BodyLength: 199 []
    [  34]                        MsgSeqNum: 7 []
    [  35]                          MsgType: D [ORDER_SINGLE]
    [  49]                     SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  52]                      SendingTime: 20230802-11:20:11.303 []
    [  56]                     TargetCompID: PT-OE []
```

```
     BODY:
     ----------------------------------------------------------------------
         [  11]                          ClOrdID: 1690975211302602 []
         [  38]                          OrderQty: 0.1500 []
         [  40]                           OrdType: 2 [LIMIT]
         [  44]                             Price: 22150.00 []
         [  54]                              Side: 1 [BUY]
         [  55]                            Symbol: BTC-USD []
         [  59]                       TimeInForce: 6 [GOOD_TILL_DATE]
         [  60]                      TransactTime: 20230802-11:20:11.302 []
         [ 126]                        ExpireTime: 20230803-11:20:11.302 []

     TRAILER:
     ----------------------------------------------------------------------
         [  10]                          CheckSum: 186 []
```

7.2.2. Response: Pending

```
8=FIX.4.4|9=290|35=8|34=6|49=PT-OE|52=20230802-
11:20:11.305|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690975211302602|14=0.00
000000|17=P15091429|37=15091429|38=0.15000000|39=A|40=2|44=22150.00|54=1|55=BTC-
USD|59=6|60=20230802-11:20:11.304719000|126=20230803-
11:20:00.000000000|150=A|151=0.15000000|10=117|


HEADER:
----------------------------------------------------------------------
    [   8]                        BeginString: FIX.4.4 []
    [   9]                        BodyLength: 290 []
    [  34]                         MsgSeqNum: 6 []
    [  35]                           MsgType: 8 [EXECUTION_REPORT]
    [  49]                      SenderCompID: PT-OE []
    [  52]                       SendingTime: 20230802-11:20:11.305 []
    [  56]                      TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
----------------------------------------------------------------------
    [   1]                           Account: 333 []
    [   6]                             AvgPx: 0 []
    [  11]                          ClOrdID: 1690975211302602 []
    [  14]                            CumQty: 0.00000000 []
    [  17]                            ExecID: P15091429 []
    [  37]                           OrderID: 15091429 []
    [  38]                          OrderQty: 0.15000000 []
    [  39]                         OrdStatus: A [PENDING_NEW]
    [  40]                           OrdType: 2 [LIMIT]
    [  44]                             Price: 22150.00 []
    [  54]                              Side: 1 [BUY]
    [  55]                            Symbol: BTC-USD []
    [  59]                       TimeInForce: 6 [GOOD_TILL_DATE]
```

```
    [  60]                          TransactTime: 20230802-11:20:11.304719000 []
    [ 126]                            ExpireTime: 20230803-11:20:00.000000000 []
    [ 150]                              ExecType: A [PENDING_NEW]
    [ 151]                             LeavesQty: 0.15000000 []


TRAILER:
-----------------------------------------------------------------------
    [  10]                              CheckSum: 117 []
```

7.2.3. Response: New

```
8=FIX.4.4|9=290|35=8|34=7|49=PT-OE|52=20230802-
11:20:11.306|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690975211302602|14=0.00
000000|17=N15091429|37=15091429|38=0.15000000|39=0|40=2|44=22150.00|54=1|55=BTC-
USD|59=6|60=20230802-11:20:11.306529000|126=20230803-
11:20:00.000000000|150=0|151=0.15000000|10=084|

HEADER:
-----------------------------------------------------------------------
    [   8]                           BeginString: FIX.4.4 []
    [   9]                            BodyLength: 290 []
    [  34]                             MsgSeqNum: 7 []
    [  35]                               MsgType: 8 [EXECUTION_REPORT]
    [  49]                          SenderCompID: PT-OE []
    [  52]                           SendingTime: 20230802-11:20:11.306 []
    [  56]                          TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
-----------------------------------------------------------------------
    [   1]                               Account: 333 []
    [   6]                                 AvgPx: 0 []
    [  11]                               ClOrdID: 1690975211302602 []
    [  14]                                CumQty: 0.00000000 []
    [  17]                                ExecID: N15091429 []
    [  37]                               OrderID: 15091429 []
    [  38]                              OrderQty: 0.15000000 []
    [  39]                             OrdStatus: 0 [NEW]
    [  40]                               OrdType: 2 [LIMIT]
    [  44]                                 Price: 22150.00 []
    [  54]                                  Side: 1 [BUY]
    [  55]                                Symbol: BTC-USD []
    [  59]                           TimeInForce: 6 [GOOD_TILL_DATE]
    [  60]                          TransactTime: 20230802-11:20:11.306529000 []
    [ 126]                            ExpireTime: 20230803-11:20:00.000000000 []
    [ 150]                              ExecType: 0 [NEW]
    [ 151]                             LeavesQty: 0.15000000 []


TRAILER:
-----------------------------------------------------------------------
```

```
    [  10]                         CheckSum: 084 []
```

7.2.4. Response: Trade

```
8=FIX.4.4|9=314|35=8|34=8|49=PT-OE|52=20230802-
11:20:11.307|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690975211302602|14=0.15
000000|17=E741540|31=21150.00|32=0.15000000|37=15091429|38=0.15000000|39=2|40=2|44=221
50.00|54=1|55=BTC-USD|59=6|60=20230802-11:20:11.306529000|126=20230803-
11:20:00.000000000|150=F|151=0.00000000|10=168|
```

```
HEADER:
-----------------------------------------------------------------------
    [   8]                         BeginString: FIX.4.4 []
    [   9]                          BodyLength: 314 []
    [  34]                          MsgSeqNum: 8 []
    [  35]                             MsgType: 8 [EXECUTION_REPORT]
    [  49]                        SenderCompID: PT-OE []
    [  52]                         SendingTime: 20230802-11:20:11.307 []
    [  56]                        TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
-----------------------------------------------------------------------
    [   1]                            Account: 333 []
    [   6]                              AvgPx: 0 []
    [  11]                            ClOrdID: 1690975211302602 []
    [  14]                             CumQty: 0.15000000 []
    [  17]                             ExecID: E741540 []
    [  31]                             LastPx: 21150.00 []
    [  32]                            LastQty: 0.15000000 []
    [  37]                            OrderID: 15091429 []
    [  38]                           OrderQty: 0.15000000 []
    [  39]                          OrdStatus: 2 [FILLED]
    [  40]                            OrdType: 2 [LIMIT]
    [  44]                              Price: 22150.00 []
    [  54]                               Side: 1 [BUY]
    [  55]                             Symbol: BTC-USD []
    [  59]                        TimeInForce: 6 [GOOD_TILL_DATE]
    [  60]                        TransactTime: 20230802-11:20:11.306529000 []
    [ 126]                          ExpireTime: 20230803-11:20:00.000000000 []
    [ 150]                           ExecType: F [TRADE]
    [ 151]                          LeavesQty: 0.00000000 []

TRAILER:
-----------------------------------------------------------------------
    [  10]                           CheckSum: 168 []
```

7.3. NewOrderSingle: Market

7.3.1. Request

```
8=FIX.4.4|9=161|35=D|34=3|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230802-
11:01:08.714|56=PT-OE|11=1690974068713638|38=0.0800|40=1|54=2|55=BTC-
USD|59=3|60=20230802-11:01:08.713|10=183|

HEADER:
----------------------------------------------------------------------
    [    8]                        BeginString: FIX.4.4 []
    [    9]                        BodyLength: 161 []
    [   34]                        MsgSeqNum: 3 []
    [   35]                          MsgType: D [ORDER_SINGLE]
    [   49]                     SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [   52]                      SendingTime: 20230802-11:01:08.714 []
    [   56]                     TargetCompID: PT-OE []

BODY:
----------------------------------------------------------------------
    [   11]                          ClOrdID: 1690974068713638 []
    [   38]                         OrderQty: 0.0800 []
    [   40]                          OrdType: 1 [MARKET]
    [   54]                             Side: 2 [SELL]
    [   55]                           Symbol: BTC-USD []
    [   59]                      TimeInForce: 3 [IMMEDIATE_OR_CANCEL]
    [   60]                      TransactTime: 20230802-11:01:08.713 []

TRAILER:
----------------------------------------------------------------------
    [   10]                         CheckSum: 183 []
```

7.3.2. Response: Pending

```
8=FIX.4.4|9=246|35=8|34=4|49=PT-OE|52=20230802-
11:01:08.716|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690974068713638|14=0.00
000000|17=P15091414|37=15091414|38=0.08000000|39=A|40=1|54=2|55=BTC-
USD|59=3|60=20230802-11:01:08.716150000|150=A|151=0.08000000|10=083|

HEADER:
----------------------------------------------------------------------
    [    8]                        BeginString: FIX.4.4 []
    [    9]                        BodyLength: 246 []
    [   34]                        MsgSeqNum: 4 []
    [   35]                          MsgType: 8 [EXECUTION_REPORT]
    [   49]                     SenderCompID: PT-OE []
    [   52]                      SendingTime: 20230802-11:01:08.716 []
    [   56]                     TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
```

```
BODY:
------------------------------------------------------------------------
    [   1]                          Account: 333 []
    [   6]                            AvgPx: 0 []
    [  11]                          ClOrdID: 1690974068713638 []
    [  14]                           CumQty: 0.00000000 []
    [  17]                           ExecID: P15091414 []
    [  37]                          OrderID: 15091414 []
    [  38]                         OrderQty: 0.08000000 []
    [  39]                        OrdStatus: A [PENDING_NEW]
    [  40]                          OrdType: 1 [MARKET]
    [  54]                             Side: 2 [SELL]
    [  55]                           Symbol: BTC-USD []
    [  59]                      TimeInForce: 3 [IMMEDIATE_OR_CANCEL]
    [  60]                     TransactTime: 20230802-11:01:08.716150000 []
    [ 150]                         ExecType: A [PENDING_NEW]
    [ 151]                        LeavesQty: 0.08000000 []

TRAILER:
------------------------------------------------------------------------
    [  10]                         CheckSum: 083 []
```

7.3.3. Response: New

```
8=FIX.4.4|9=246|35=8|34=5|49=PT-OE|52=20230802-
11:01:08.718|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690974068713638|14=0.00
000000|17=N15091414|37=15091414|38=0.08000000|39=0|40=1|54=2|55=BTC-
USD|59=3|60=20230802-11:01:08.717909000|150=0|151=0.08000000|10=063|

HEADER:
------------------------------------------------------------------------
    [   8]                       BeginString: FIX.4.4 []
    [   9]                        BodyLength: 246 []
    [  34]                        MsgSeqNum: 5 []
    [  35]                           MsgType: 8 [EXECUTION_REPORT]
    [  49]                      SenderCompID: PT-OE []
    [  52]                       SendingTime: 20230802-11:01:08.718 []
    [  56]                      TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
------------------------------------------------------------------------
    [   1]                          Account: 333 []
    [   6]                            AvgPx: 0 []
    [  11]                          ClOrdID: 1690974068713638 []
    [  14]                           CumQty: 0.00000000 []
    [  17]                           ExecID: N15091414 []
    [  37]                          OrderID: 15091414 []
    [  38]                         OrderQty: 0.08000000 []
```

```
    [  39]                           OrdStatus: 0 [NEW]
    [  40]                             OrdType: 1 [MARKET]
    [  54]                                Side: 2 [SELL]
    [  55]                              Symbol: BTC-USD []
    [  59]                         TimeInForce: 3 [IMMEDIATE_OR_CANCEL]
    [  60]                        TransactTime: 20230802-11:01:08.717909000 []
    [ 150]                            ExecType: 0 [NEW]
    [ 151]                           LeavesQty: 0.08000000 []


TRAILER:
------------------------------------------------------------------------
    [  10]                            CheckSum: 063 []
```

7.3.4. Response: Trade

```
8=FIX.4.4|9=314|35=8|34=6|49=PT-OE|52=20230802-
11:01:08.718|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690974067710224|14=0.08
000000|17=E741538|31=22150.00|32=0.08000000|37=15091412|38=0.15000000|39=1|40=2|44=221
50.00|54=1|55=BTC-USD|59=6|60=20230802-11:01:08.717909000|126=20230803-
11:00:00.000000000|150=F|151=0.07000000|10=209|


HEADER:
------------------------------------------------------------------------
    [   8]                          BeginString: FIX.4.4 []
    [   9]                          BodyLength: 314 []
    [  34]                          MsgSeqNum: 6 []
    [  35]                            MsgType: 8 [EXECUTION_REPORT]
    [  49]                         SenderCompID: PT-OE []
    [  52]                          SendingTime: 20230802-11:01:08.718 []
    [  56]                         TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []


BODY:
------------------------------------------------------------------------
    [   1]                             Account: 333 []
    [   6]                               AvgPx: 0 []
    [  11]                             ClOrdID: 1690974067710224 []
    [  14]                              CumQty: 0.08000000 []
    [  17]                              ExecID: E741538 []
    [  31]                              LastPx: 22150.00 []
    [  32]                             LastQty: 0.08000000 []
    [  37]                             OrderID: 15091412 []
    [  38]                            OrderQty: 0.15000000 []
    [  39]                           OrdStatus: 1 [PARTIALLY_FILLED]
    [  40]                             OrdType: 2 [LIMIT]
    [  44]                               Price: 22150.00 []
    [  54]                                Side: 1 [BUY]
    [  55]                              Symbol: BTC-USD []
    [  59]                         TimeInForce: 6 [GOOD_TILL_DATE]
    [  60]                        TransactTime: 20230802-11:01:08.717909000 []
```

```
    [ 126]                      ExpireTime: 20230803-11:00:00.000000000 []
    [ 150]                      ExecType: F [TRADE]
    [ 151]                      LeavesQty: 0.07000000 []


TRAILER:
------------------------------------------------------------------------
    [  10]                      CheckSum: 209 []
```

7.4. NewOrderMultileg: RFQ Limit

7.4.1. Request

```
8=FIX.4.4|9=237|35=AB|34=6|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230802-
11:01:11.732|56=PT-
OE|11=1690974071730671|38=0.1000|40=2|44=16.00|54=1|59=6|60=20230802-
11:01:11.730|65=none|126=20230803-11:01:11.732|555=2|600=BTC-USD|623=1|600=ETH-
USD|623=-1|10=025|


HEADER:
------------------------------------------------------------------------
    [   8]                      BeginString: FIX.4.4 []
    [   9]                      BodyLength: 237 []
    [  34]                      MsgSeqNum: 6 []
    [  35]                      MsgType: AB [NEW_ORDER_AB]
    [  49]                      SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  52]                      SendingTime: 20230802-11:01:11.732 []
    [  56]                      TargetCompID: PT-OE []


BODY:
------------------------------------------------------------------------
    [  11]                      ClOrdID: 1690974071730671 []
    [  38]                      OrderQty: 0.1000 []
    [  40]                      OrdType: 2 [LIMIT]
    [  44]                      Price: 16.00 []
    [  54]                      Side: 1 [BUY]
    [  59]                      TimeInForce: 6 [GOOD_TILL_DATE]
    [  60]                      TransactTime: 20230802-11:01:11.730 []
    [  65]                      SymbolSfx: none []
    [ 126]                      ExpireTime: 20230803-11:01:11.732 []
    [ 555]                      NoLegs: 2 []
    [ 600]                      LegSymbol: BTC-USD []
    [ 623]                      LegRatioQty: 1 []
    [ 600]                      LegSymbol: ETH-USD []
    [ 623]                      LegRatioQty: -1 []


TRAILER:
------------------------------------------------------------------------
    [  10]                      CheckSum: 025 []
```

7.4.2. Response: New

```
8=FIX.4.4|9=323|35=8|34=9|49=PT-OE|52=20230802-
11:01:11.732|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690974071730671|14=0.00
0000|17=N15091416|37=15091416|38=0.100000|39=0|40=2|44=16.0000|54=1|59=6|60=20230802-
11:01:11.731938000|65=none|126=20230803-
11:00:00.000000000|150=0|151=0.100000|555=2|600=BTC-USD|623=1|600=ETH-USD|623=-
1|10=164|


HEADER:
----------------------------------------------------------------------
    [   8]                         BeginString: FIX.4.4 []
    [   9]                         BodyLength: 323 []
    [  34]                         MsgSeqNum: 9 []
    [  35]                           MsgType: 8 [EXECUTION_REPORT]
    [  49]                      SenderCompID: PT-OE []
    [  52]                       SendingTime: 20230802-11:01:11.732 []
    [  56]                      TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
----------------------------------------------------------------------
    [   1]                           Account: 333 []
    [   6]                             AvgPx: 0 []
    [  11]                           ClOrdID: 1690974071730671 []
    [  14]                            CumQty: 0.000000 []
    [  17]                            ExecID: N15091416 []
    [  37]                           OrderID: 15091416 []
    [  38]                          OrderQty: 0.100000 []
    [  39]                         OrdStatus: 0 [NEW]
    [  40]                           OrdType: 2 [LIMIT]
    [  44]                             Price: 16.0000 []
    [  54]                              Side: 1 [BUY]
    [  59]                       TimeInForce: 6 [GOOD_TILL_DATE]
    [  60]                      TransactTime: 20230802-11:01:11.731938000 []
    [  65]                         SymbolSfx: none []
    [ 126]                        ExpireTime: 20230803-11:00:00.000000000 []
    [ 150]                          ExecType: 0 [NEW]
    [ 151]                         LeavesQty: 0.100000 []
    [ 555]                            NoLegs: 2 []
    [ 600]                         LegSymbol: BTC-USD []
    [ 623]                       LegRatioQty: 1 []
    [ 600]                         LegSymbol: ETH-USD []
    [ 623]                       LegRatioQty: -1 []

TRAILER:
----------------------------------------------------------------------
    [  10]                          CheckSum: 164 []
```

7.5. Cancel by ClOrdID

7.5.1. Request

```
8=FIX.4.4|9=150|35=F|34=4|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230802-
11:01:09.723|56=PT-OE|11=1690974069723069|41=1690974067710224|54=1|60=20230802-
11:01:09.723|10=131|

HEADER:
----------------------------------------------------------------------
    [    8]                        BeginString: FIX.4.4 []
    [    9]                        BodyLength: 150 []
    [   34]                        MsgSeqNum: 4 []
    [   35]                          MsgType: F [ORDER_CANCEL_REQUEST]
    [   49]                     SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [   52]                      SendingTime: 20230802-11:01:09.723 []
    [   56]                     TargetCompID: PT-OE []

BODY:
----------------------------------------------------------------------
    [   11]                           ClOrdID: 1690974069723069 []
    [   41]                       OrigClOrdID: 1690974067710224 []
    [   54]                              Side: 1 [BUY]
    [   60]                      TransactTime: 20230802-11:01:09.723 []

TRAILER:
----------------------------------------------------------------------
    [   10]                          CheckSum: 131 []
```

7.5.2. Response

```
8=FIX.4.4|9=310|35=8|34=8|49=PT-OE|52=20230802-
11:01:09.724|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690974069723069|14=0.08
000000|17=C15091412|37=15091412|38=0.15000000|39=4|40=2|41=1690974067710224|44=22150.0
0|54=1|55=BTC-USD|59=6|60=20230802-11:01:09.723523000|126=20230803-
11:00:00.000000000|150=4|151=0.07000000|10=075|

HEADER:
----------------------------------------------------------------------
    [    8]                        BeginString: FIX.4.4 []
    [    9]                        BodyLength: 310 []
    [   34]                        MsgSeqNum: 8 []
    [   35]                          MsgType: 8 [EXECUTION_REPORT]
    [   49]                     SenderCompID: PT-OE []
    [   52]                      SendingTime: 20230802-11:01:09.724 []
    [   56]                     TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
```

```
      ------------------------------------------------------------------
     [    1]                          Account: 333 []
     [    6]                            AvgPx: 0 []
     [   11]                          ClOrdID: 1690974069723069 []
     [   14]                           CumQty: 0.08000000 []
     [   17]                           ExecID: C15091412 []
     [   37]                          OrderID: 15091412 []
     [   38]                         OrderQty: 0.15000000 []
     [   39]                        OrdStatus: 4 [CANCELED]
     [   40]                          OrdType: 2 [LIMIT]
     [   41]                      OrigClOrdID: 1690974067710224 []
     [   44]                            Price: 22150.00 []
     [   54]                             Side: 1 [BUY]
     [   55]                           Symbol: BTC-USD []
     [   59]                      TimeInForce: 6 [GOOD_TILL_DATE]
     [   60]                     TransactTime: 20230802-11:01:09.723523000 []
     [  126]                       ExpireTime: 20230803-11:00:00.000000000 []
     [  150]                         ExecType: 4 [CANCELED]
     [  151]                        LeavesQty: 0.07000000 []


TRAILER:
      ------------------------------------------------------------------
     [   10]                         CheckSum: 075 []
```

7.6. Cancel by OrderID

7.6.1. Request

```
8=FIX.4.4|9=151|35=F|34=17|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230802-
11:01:24.103|56=PT-OE|11=1690974084103284|37=15091423|41=NONE|54=1|60=20230802-
11:01:24.103|10=198|

HEADER:
      ------------------------------------------------------------------
     [    8]                       BeginString: FIX.4.4 []
     [    9]                        BodyLength: 151 []
     [   34]                        MsgSeqNum: 17 []
     [   35]                           MsgType: F [ORDER_CANCEL_REQUEST]
     [   49]                      SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
     [   52]                      SendingTime: 20230802-11:01:24.103 []
     [   56]                      TargetCompID: PT-OE []


BODY:
      ------------------------------------------------------------------
     [   11]                          ClOrdID: 1690974084103284 []
     [   37]                          OrderID: 15091423 []
     [   41]                      OrigClOrdID: NONE []
     [   54]                             Side: 1 [BUY]
     [   60]                     TransactTime: 20230802-11:01:24.103 []
```

```
TRAILER:
---------------------------------------------------------------
    [  10]                          CheckSum: 198 []
```

7.6.2. Response

```
8=FIX.4.4|9=344|35=8|34=22|49=PT-OE|52=20230802-
11:01:24.102|56=17b92233f33a4d9a1688fe7d2a5be705|1=333|6=0|11=1690974084103284|14=0.00
0000|17=C15091423|37=15091423|38=0.100000|39=4|40=2|41=1690974077785721|44=16.0000|54=
1|59=6|60=20230802-11:01:24.102096000|65=none|126=20230803-
11:00:00.000000000|150=4|151=0.100000|555=2|600=BTC-USD|623=1|600=ETH-USD|623=-
1|10=174|

HEADER:
---------------------------------------------------------------
    [   8]                         BeginString: FIX.4.4 []
    [   9]                         BodyLength: 344 []
    [  34]                         MsgSeqNum: 22 []
    [  35]                           MsgType: 8 [EXECUTION_REPORT]
    [  49]                      SenderCompID: PT-OE []
    [  52]                       SendingTime: 20230802-11:01:24.102 []
    [  56]                      TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []

BODY:
---------------------------------------------------------------
    [   1]                           Account: 333 []
    [   6]                             AvgPx: 0 []
    [  11]                           ClOrdID: 1690974084103284 []
    [  14]                            CumQty: 0.000000 []
    [  17]                            ExecID: C15091423 []
    [  37]                           OrderID: 15091423 []
    [  38]                          OrderQty: 0.100000 []
    [  39]                         OrdStatus: 4 [CANCELED]
    [  40]                           OrdType: 2 [LIMIT]
    [  41]                        OrigClOrdID: 1690974077785721 []
    [  44]                             Price: 16.0000 []
    [  54]                              Side: 1 [BUY]
    [  59]                       TimeInForce: 6 [GOOD_TILL_DATE]
    [  60]                       TransactTime: 20230802-11:01:24.102096000 []
    [  65]                         SymbolSfx: none []
    [ 126]                        ExpireTime: 20230803-11:00:00.000000000 []
    [ 150]                          ExecType: 4 [CANCELED]
    [ 151]                         LeavesQty: 0.100000 []
    [ 555]                            NoLegs: 2 []
    [ 600]                         LegSymbol: BTC-USD []
    [ 623]                       LegRatioQty: 1 []
    [ 600]                         LegSymbol: ETH-USD []
    [ 623]                       LegRatioQty: -1 []
```

```
TRAILER:
    ------------------------------------------------------------------
    [  10]                          CheckSum: 174 []
```

7.7. Reference Data

7.7.1. Security Definition Request

```
8=FIX.4.4|9=107|35=c|34=2|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230810-
11:55:16.128|56=PT-OE|320=1691668516128015|321=3|10=075|

HEADER:
    ------------------------------------------------------------------
    [   8]                         BeginString: FIX.4.4 []
    [   9]                          BodyLength: 107 []
    [  35]                             MsgType: c [SECURITY_DEFINITION_REQUEST]
    [  49]                        SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  56]                        TargetCompID: PT-OE []
    [  34]                           MsgSeqNum: 2 []
    [  52]                         SendingTime: 20230810-11:55:16.128 []


BODY:
    ------------------------------------------------------------------
    [ 320]                       SecurityReqID: 1691668516128015 []
    [ 321]                  SecurityRequestType: 3 [REQUEST_LIST_SECURITIES]

TRAILER:
    ------------------------------------------------------------------
    [  10]                          CheckSum: 075 []
```

7.7.2. Security Definition: Spot

```
8=FIX.4.4|9=168|35=d|34=8|49=PT-OE|52=20230810-
11:55:16.128|56=17b92233f33a4d9a1688fe7d2a5be705|15=USD|22=8|48=4|55=BTC-
USD|320=1691668516128015|322=R1691668516128015|323=1|461=IFXXXP|10=100|

HEADER:
    ------------------------------------------------------------------
    [   8]                         BeginString: FIX.4.4 []
    [   9]                          BodyLength: 168 []
    [  35]                             MsgType: d [SECURITY_DEFINITION]
    [  49]                        SenderCompID: PT-OE []
    [  56]                        TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  34]                           MsgSeqNum: 8 []
    [  52]                         SendingTime: 20230810-11:55:16.128 []
```

```
    BODY:
    ----------------------------------------------------------------------
        [ 320]                        SecurityReqID: 1691668516128015 []
        [ 322]                     SecurityResponseID: R1691668516128015 []
        [ 323]                   SecurityResponseType: 1 [ACCEPT_SECURITY_PROPOSAL_AS_IS]
        [  55]                                 Symbol: BTC-USD []
        [  48]                             SecurityID: 4 []
        [  22]                       SecurityIDSource: 8 [EXCHANGE_SYMBOL]
        [ 461]                                CFICode: IFXXXP []
        [  15]                               Currency: USD []


    TRAILER:
    ----------------------------------------------------------------------
        [  10]                               CheckSum: 100 []
```

7.7.3. Security Definition: Option

```
8=FIX.4.4|9=261|35=d|34=1420|49=PT-OE|52=20230810-
11:55:16.196|56=17b92233f33a4d9a1688fe7d2a5be705|15=USD|22=8|48=14548|55=BTC-20240628-
30000C|202=30000|231=1|320=1691668516128015|322=R1691668516128015|323=1|461=OCECCS|541
=20240628|711=1|311=BTC|309=3|305=8|463=IFXXXP|318=USD|10=045|

HEADER:
----------------------------------------------------------------------
    [   8]                          BeginString: FIX.4.4 []
    [   9]                           BodyLength: 261 []
    [  35]                              MsgType: d [SECURITY_DEFINITION]
    [  49]                         SenderCompID: PT-OE []
    [  56]                         TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  34]                            MsgSeqNum: 1420 []
    [  52]                          SendingTime: 20230810-11:55:16.196 []

BODY:
----------------------------------------------------------------------
    [ 320]                        SecurityReqID: 1691668516128015 []
    [ 322]                     SecurityResponseID: R1691668516128015 []
    [ 323]                   SecurityResponseType: 1 [ACCEPT_SECURITY_PROPOSAL_AS_IS]
    [  55]                               Symbol: BTC-20240628-30000C []
    [  48]                           SecurityID: 14548 []
    [  22]                     SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                              CFICode: OCECCS []
    [ 541]                         MaturityDate: 20240628 []
    [ 202]                          StrikePrice: 30000 []
    [ 231]                   ContractMultiplier: 1 []
    [ 711]                         NoUnderlyings: 1 []
    [ 311]                    UnderlyingSymbol: BTC []
    [ 309]                 UnderlyingSecurityID: 3 []
    [ 305]           UnderlyingSecurityIDSource: 8 []
    [ 463]                     UnderlyingCFICode: IFXXXP []
```

```
    [ 318]                        UnderlyingCurrency: USD []
    [  15]                                 Currency: USD []


TRAILER:
-----------------------------------------------------------------------
    [  10]                                 CheckSum: 045 []
```

7.7.4. Security Definition: Future

```
8=FIX.4.4|9=244|35=d|34=1158|49=PT-OE|52=20230810-
11:55:16.184|56=17b92233f33a4d9a1688fe7d2a5be705|15=USD|22=8|48=14245|55=BTC-
20240628|231=1|320=1691668516128015|322=R1691668516128015|323=1|461=FFCCSX|541=2024062
8|711=1|311=BTC|309=3|305=8|463=IFXXXP|318=USD|10=018|


HEADER:
-----------------------------------------------------------------------
    [   8]                                BeginString: FIX.4.4 []
    [   9]                                BodyLength: 244 []
    [  35]                                  MsgType: d [SECURITY_DEFINITION]
    [  49]                               SenderCompID: PT-OE []
    [  56]                               TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  34]                                 MsgSeqNum: 1158 []
    [  52]                               SendingTime: 20230810-11:55:16.184 []


BODY:
-----------------------------------------------------------------------
    [ 320]                              SecurityReqID: 1691668516128015 []
    [ 322]                           SecurityResponseID: R1691668516128015 []
    [ 323]                         SecurityResponseType: 1 [ACCEPT_SECURITY_PROPOSAL_AS_IS]
    [  55]                                     Symbol: BTC-20240628 []
    [  48]                                 SecurityID: 14245 []
    [  22]                             SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                                    CFICode: FFCCSX []
    [ 541]                                MaturityDate: 20240628 []
    [ 231]                            ContractMultiplier: 1 []
    [ 711]                                NoUnderlyings: 1 []
    [ 311]                             UnderlyingSymbol: BTC []
    [ 309]                           UnderlyingSecurityID: 3 []
    [ 305]                        UnderlyingSecurityIDSource: 8 []
    [ 463]                             UnderlyingCFICode: IFXXXP []
    [ 318]                             UnderlyingCurrency: USD []
    [  15]                                    Currency: USD []


TRAILER:
-----------------------------------------------------------------------
    [  10]                                 CheckSum: 018 []
```

7.7.5. Security Definition: Perpetual Future

```
8=FIX.4.4|9=242|35=d|34=26|49=PT-OE|52=20230810-
11:55:16.128|56=17b92233f33a4d9a1688fe7d2a5be705|15=USD|22=8|48=13|55=BTC-USD-
PERPETUAL|231=1|320=1691668516128015|322=R1691668516128015|323=1|461=FFCCSX|711=1|311=
BTC-USD-INDEX|309=14|305=8|463=TICMMX|318=USD|10=169|


HEADER:
---------------------------------------------------------------------
    [   8]                        BeginString: FIX.4.4 []
    [   9]                         BodyLength: 242 []
    [  35]                            MsgType: d [SECURITY_DEFINITION]
    [  49]                       SenderCompID: PT-OE []
    [  56]                       TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  34]                         MsgSeqNum: 26 []
    [  52]                        SendingTime: 20230810-11:55:16.128 []


BODY:
---------------------------------------------------------------------
    [ 320]                      SecurityReqID: 1691668516128015 []
    [ 322]                 SecurityResponseID: R1691668516128015 []
    [ 323]               SecurityResponseType: 1 [ACCEPT_SECURITY_PROPOSAL_AS_IS]
    [  55]                             Symbol: BTC-USD-PERPETUAL []
    [  48]                         SecurityID: 13 []
    [  22]                   SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                            CFICode: FFCCSX []
    [ 231]                 ContractMultiplier: 1 []
    [ 711]                       NoUnderlyings: 1 []
    [ 311]                   UnderlyingSymbol: BTC-USD-INDEX []
    [ 309]                UnderlyingSecurityID: 14 []
    [ 305]          UnderlyingSecurityIDSource: 8 []
    [ 463]                  UnderlyingCFICode: TICMMX []
    [ 318]                 UnderlyingCurrency: USD []
    [  15]                           Currency: USD []


TRAILER:
---------------------------------------------------------------------
    [  10]                           CheckSum: 169 []
```

7.7.6. Security Status

```
8=FIX.4.4|9=147|35=f|34=9|49=PT-OE|52=20230810-
11:55:16.128|56=17b92233f33a4d9a1688fe7d2a5be705|15=USD|22=8|48=4|55=BTC-
USD|324=1691668516128015|326=17|461=IFXXXP|10=057|


HEADER:
---------------------------------------------------------------------
    [   8]                        BeginString: FIX.4.4 []
    [   9]                         BodyLength: 147 []
```

```
       [  35]                          MsgType: f [SECURITY_STATUS]
       [  49]                     SenderCompID: PT-OE []
       [  56]                     TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
       [  34]                        MsgSeqNum: 9 []
       [  52]                      SendingTime: 20230810-11:55:16.128 []

BODY:
--------------------------------------------------------------------
       [ 324]               SecurityStatusReqID: 1691668516128015 []
       [  55]                           Symbol: BTC-USD []
       [  48]                       SecurityID: 4 []
       [  22]                 SecurityIDSource: 8 [EXCHANGE_SYMBOL]
       [ 461]                          CFICode: IFXXXP []
       [  15]                         Currency: USD []
       [ 326]             SecurityTradingStatus: 17 [READY_TO_TRADE]

TRAILER:
--------------------------------------------------------------------
       [  10]                         CheckSum: 057 []
```

7.7.7. Security List Request

```
8=FIX.4.4|9=107|35=x|34=2|49=17b92233f33a4d9a1688fe7d2a5be705|52=20230810-
12:14:03.474|56=PT-OE|320=1691669643474450|559=4|10=115|

HEADER:
--------------------------------------------------------------------
       [   8]                      BeginString: FIX.4.4 []
       [   9]                       BodyLength: 107 []
       [  35]                          MsgType: x [SECURITY_LIST_REQUEST]
       [  49]                     SenderCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
       [  56]                     TargetCompID: PT-OE []
       [  34]                        MsgSeqNum: 2 []
       [  52]                      SendingTime: 20230810-12:14:03.474 []

BODY:
--------------------------------------------------------------------
       [ 320]                     SecurityReqID: 1691669643474450 []
       [ 559]             SecurityListRequestType: 4 [ALL_SECURITIES]

TRAILER:
--------------------------------------------------------------------
       [  10]                         CheckSum: 115 []
```

7.7.8. Security List

```
HEADER:
--------------------------------------------------------------------
```

```
    [   8]                          BeginString: FIX.4.4 []
    [   9]                          BodyLength: 183231 []
    [  35]                            MsgType: y [SECURITY_LIST]
    [  49]                       SenderCompID: PT-OE []
    [  56]                       TargetCompID: 17b92233f33a4d9a1688fe7d2a5be705 []
    [  34]                          MsgSeqNum: 2 []
    [  52]                        SendingTime: 20230810-12:14:03.512 []

BODY:
----------------------------------------------------------------------
    [ 320]                      SecurityReqID: 1691669643474450 []
    [ 322]                 SecurityResponseID: R1691669643474450 []
    [ 560]              SecurityRequestResult: 0 [VALID_REQUEST]
    [ 146]                       NoRelatedSym: 1439 []
    [  55]  #0                         Symbol: BTC-USD []
    [  48]                         SecurityID: 4 []
    [  22]                   SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                            CFICode: IFXXXP []
    [  15]                           Currency: USD []
    [  55]  #1                         Symbol: ETH-USD []
    [  48]                         SecurityID: 5 []
    [  22]                   SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                            CFICode: IFXXXP []
    [  15]                           Currency: USD []
    [  55]  #2                         Symbol: PTF-USD []
    [  48]                         SecurityID: 6 []
    [  22]                   SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                            CFICode: IFXXXP []
    [  15]                           Currency: USD []
    [  55]  #3                         Symbol: BTC-USD-PERPETUAL []
    [  48]                         SecurityID: 13 []
    [  22]                   SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                            CFICode: FFCCSX []
    [ 231]                 ContractMultiplier: 1 []
    [ 711]                      NoUnderlyings: 1 []
    [ 311]                   UnderlyingSymbol: BTC-USD-INDEX []
    [ 309]               UnderlyingSecurityID: 14 []
    [ 305]         UnderlyingSecurityIDSource: 8 []
    [ 463]                  UnderlyingCFICode: TICMMX []
    [ 318]                 UnderlyingCurrency: USD []
    [  15]                           Currency: USD []
    ...
    [  55]  #560                       Symbol: BTC-20240628 []
    [  48]                         SecurityID: 14245 []
    [  22]                   SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                            CFICode: FFCCSX []
    [ 541]                       MaturityDate: 20240628 []
    [ 231]                 ContractMultiplier: 1 []
    [ 711]                      NoUnderlyings: 1 []
    [ 311]                   UnderlyingSymbol: BTC []
    [ 309]               UnderlyingSecurityID: 3 []
```

```
    [ 305]                    UnderlyingSecurityIDSource: 8 []
    [ 463]                          UnderlyingCFICode: IFXXXP []
    [ 318]                         UnderlyingCurrency: USD []
    [  15]                                   Currency: USD []
    ...
    [  55]  #595                            Symbol: BTC-20240628-30000C []
    [  48]                              SecurityID: 14548 []
    [  22]                       SecurityIDSource: 8 [EXCHANGE_SYMBOL]
    [ 461]                                 CFICode: OCECCS []
    [ 541]                            MaturityDate: 20240628 []
    [ 202]                             StrikePrice: 30000 []
    [ 231]                      ContractMultiplier: 1 []
    [ 711]                          NoUnderlyings: 1 []
    [ 311]                       UnderlyingSymbol: BTC []
    [ 309]                   UnderlyingSecurityID: 3 []
    [ 305]               UnderlyingSecurityIDSource: 8 []
    [ 463]                          UnderlyingCFICode: IFXXXP []
    [ 318]                         UnderlyingCurrency: USD []
    [  15]                                   Currency: USD []
    ...

 TRAILER:
 ------------------------------------------------------------------
    [  10]                                  CheckSum: 060 []
```

8. Revision History

Table 20. revision history:

Date	Version	Notes
2023/08/10	1.01	SecurityDefinitionRequest, SecurityDefinition, SecurityStatus, SecurityListRequest, SecurityList
2023/08/01	1.0	Public release
2023/07/30	0.1	Initial Order Entry FIX API documentation