FIX DROP 2.1

Phlx, NOM, ISE, GEMX and MRX

Table Of Contents

1. Overview 2
2. Session Information 2
3. Data Types. 3
4. Fault Redundancy 3
5. Service Bureau Configuration 3
6. Standard Message Header 3
7. Standard Message Trailer 4
8. Outbound Sequenced Messages 4
9. Notes 10
10. Support. 10
11. Revision History 10

1. Overview

It is assumed that the reader is familiar with the FIX 4.2 protocol as described at http://www.fixprotocol.org. This document describes the differences between the Nasdaq implementation and the FIX 4.2 standard.

2. Session Information

2.1. Logon

The Logon must be the first message sent by the subscriber after the TCP connection is established. EncryptMethod is ignored (FIX level encryption is not supported). The IP Address of the subscriber, the SenderCompId and TargetCompId will be validated. If validation fails, the connection will be dropped.

2.1.1. ID Fields

SenderCompID sent	The SenderCompID as assigned by Nasdaq. The maximum size is 4 to 6 characters.
TargetCompID	The TargetCompID as assigned by Nasdaq. The maximum size is 4 to 6 characters.

If the connection is unexpectedly broken, upon reconnect the subscriber may receive a Logon Acknowledgement with a sequence number greater than expected. This means that in-flight messages were missed (likely important execution reports). The subscriber should issue a Resend Request to retrieve the missed messages.

Similarly, NASDAQ will issue a Resend Request to the subscriber for messages that it missed. *HeartbeatInterval* must be specified by the subscriber in the Logon message in whole seconds. Though there are no restrictions imposed by NASDAQ on *HeartbeatInterval*, we recommend using a value as low as possible, so disconnects are detected sooner. The accepted *HeartbeatInterval* value will be returned on the Logon Acknowledgement message.

2.2. Sequence Numbers

Sequence numbers, both inbound and outbound, will be reset to 1 at the beginning of each session. Messages are processed sequentially. Sequenced messages that have fallen behind (other than Sequence Reset – Reset, Sequence Reset - GapFill and those marked with PossDup flag of 'Y') can cause an immediate logout. Sequence Reset – Reset attempting to reset the sequence to a new sequence number that is lower than current expected sequence will also cause an immediate logout.

Messages with sequence numbers higher than expected (other than Logon and Logout) will trigger message recovery via Resend Request.

2.3. Heartbeat

A Heartbeat message should be sent if the agreed upon *HeartbeatInterval* has elapsed since the last message sent. If any message has been sent during the preceding *HeartbeatInterval* a Heartbeat message need not be sent.

2.4. Test Request

Nasdaq will reply with a Heartbeat message to a Test Request message, providing TestReqId as of original Test Request.

Nasdaq will issue a Test Request if a HearbeatInterval + 1 seconds have elapsed since the last message received. If 3 consequent Nasdaq Test Requests go by without receiving a message the TCP connection is considered broken and will be dropped.

2.5. Resend Request

As discussed in the FIX 4.2 specification, it is possible to send an open or closed sequence range in a Resend Request (an open range uses sequence zero as the EndSeqNo). Nasdaq will honor either type of request. Any messages sent in response to Nasdaq Resend Request should have PossDup="Y".

2.6. Reject

Session level rejects are used to indicate violations of the session protocol or missing (or invalid) fields. These are to be expected during development and certification but should be extremely rare in production. Application layer rejects (like Order Reject and Cancel Reject) are normal.

2.7. Sequence Reset

Sequence Reset - Gap Fill (GapFillFlag = “Y”) messages should conform to standard message sequencing rules, sequence numbers in the past will be ignored and treated as PossDup=”Y”.

Sequence Reset - Reset (GapFillFlag not “Y”) is used only as a last resort, and always by human intervention, to allow an otherwise confused session to be resumed. In these cases, all chances at automatic message recovery are lost.

2.8. Logout

Either side may issue a Logout to gracefully close the session. The side that issues the Logout should process messages normally until it sees the Logout Acknowledgement, and then break the TCP connection. Nasdaq will typically only request Logout after the scheduled end of a FIX session.

3. Data Types

Nasdaq follows FIX standard for data types.

4. Fault Redundancy

A single FIX Drop account can be bound to multiple physical FIX Drop instances. These FIX Drop instances then provide “parallel” fix sessions for fault redundancy.

In this configuration, all instances are able to “drop” messages. Both incoming and outgoing sequencing will be maintained across all instances. However, subscriber will be allowed to maintain only one active connection at a time. If the subscriber connects to one of the alternative instances when still connected on another instance, the old connection will be dropped and the new connection will be accepted.

5. Service Bureau Configuration

A DROP host can deliver information for one or more firms, allowing a service bureau configuration. In this case, the DROP account must be authorized by each desired firm using a DROP Port Authorization Form.

6. Standard Message Header

Message Header

Tag	Field Name	Req’d	Comments
8	BeginString	Y	FIX.4.2. Must be the first field in message.
9	BodyLength	Y	Must be second field in the message.
35	MsgType	Y	Must be the third field in the message.
34	MsgSeqNum	Y	
49	SenderCompID	Y	SenderCompID as assigned by NASDAQ.
56	TargetCompID	Y	TargetCompID as assigned by NASDAQ.
52	SendingTime	Y	Required by FIX but not validated by NASDAQ.
50	SenderSubID	N	Ignored. When sending execution report NASDAQ will send INET in this field.

Tag	Field Name	Req'd	Comments
57	TargetSubID	N	Ignored, When sending execution report NASDAQ will provide SenderSubID in this field.
43	PossDupFlag	N	Should be present on retransmitted messages, whether prompted by the sending system or as the result of a resend request.
97	PossResend	N	Required when message may be duplicate of another message sent under a different sequence number.
122	OrigSendingTime	N	Required for message resends but not validated by NASDAQ.

7. Standard Message Trailer

Tag	Field Name	Req'd	Description
10	CheckSum	Y	Modulo 256 checksum of all characters in message up to and including the delimiter preceding the CheckSum field. Three digits with leading zeroes if necessary.

8. Outbound Sequenced Messages

The member can configure to receive either Trade, Order or both types of messages based on Account, Firm, OCC Account Number and/or CMTA based on configuration applied by market operations. All updates will come via the Execution Report Message.

Note, the following treatments applicable to Execution Report Message:

- *OrdStatus* (Tag 39) is necessary for electronic trades and will be absent for manual trades.
- Manual trades entered by market operations will result in the following fields being populated as described:
  - CLOrdID (Tag 11), QuoteId(117), Price(44), OrderType(40), TimeInForce(59), and all other order related tags will not be there.
  - ExecType (Tag 150) will be 2('Filled')
  - OrderQty(38), LeavesQty (151), CumQty(14), AvgPx(6) will be 0
  - OrdStatus (Tag 39) will not be present
  - ExecTransType (Tag 20) will be 0 ('New')
- Trade Cancellations will result in the following fields being populated as described:
  - ExecTransType (Tag 20) will be populated with 1 ('Cancel')
  - ExecRefId (Tag 19) will be populated with the reference ExecID
  - ExecType (Tag 150) will be 2('Filled')
  - OrderStatus (Tag 39) will be 2 ('Filled') if original trade is not a manual trade. It will be not be present if original trade is a manual trade.
- Successful Post Trade Allocation Request or corrections will result in the following fields being populated as described:
  - Trade Cancel Message with:
    - *ExecTransType* (Tag 20) ='1'
    - *ExecRefID* (Tag 19) will be populated with the reference ExecID
    - ExecType (Tag 150) will be 2('Filled')
    - *OrderStatus* (Tag 39) will be 2 ('Filled') if original trade is not a manual trade. It will not be present if original trade is a manual trade.

– New Trade Message with:

- *ExecTransType* (Tag 20) ='0'
- *ExecRefID* (Tag 19) will be populated with the reference ExecID
- ExecType (Tag 150) will be 2('Filled')
- *OrderStatus* (Tag 39) will be 2 ('Filled') if original trade is not a manual trade. It will not be present if original trade is a manual trade.

Please note, all the PTA, corrections and busts will be based on the trade and not the current order state.

8.1. Execution Report

The Execution Report message is used to:

- confirm the receipt of an order
- confirm changes to an existing order
- confirm cancelation of an existing order
- relay fill information on working orders
- report trade busts or other post-trade corrections Regular orders are reported atomically.

Multi-leg orders are reported per leg, in any order. *SecurityType* (167) can be configured to report MLEG (default) for all legs, or CS and OPT (depending on the leg instrument type).

Regular crossing orders are reported per side, in any order.

Multi-leg crossing orders are reported per leg per side, in any order.

Fill or Kill orders (FOK) are represented with Tag 18 *ExecInst* = "G"=All Or None (AON) and Tag 59 *TimeinForce* = "IOC"

In case of busts or other post trade corrections, the fields *OrderID* (37), *StopPX* (77), *Maxfloor* (111), *PriceProtectionScope* (1092) will be populated on execution messages. The fields of *AvgPx* (6), *CumQty* (14), *DayCumQty* (425), *DayAvgPx* (426) and *LeavesQty* (251) will be populated with '0'.

In case of a Stock Leg, the fields, OpenClose (77), CallOrPut (201), StrikePrice (202), MaturityDate (541) and Series ID (5333) will not be present.

The following tags are supported on the Execution Report message:

Table 1: Execution Report Message Format

Tag	Field Name	Req	Comments
	<Standard Header>	Y	MsgType = 8
1	Account	N	
6	AvgPx	N	Will be 0 for busts or other post-trade corrections
11	ClOrdID	N	Unique order identifier per incoming protocol connection (may not be unique for the drop session)
117	QuoteID	N	Identifier of the SQF quote/sweep being reported. If TIF = 3 (IOC) & this tag is present, it refers to a sweep- id sent by the client. If TIF = 0 (DAY) & this tag is present, it refers to a quote-id sent by the client. See notes for explanation how this tag will be decoded
14	CumQty	N	Will be 0 for busts or other post-trade corrections
17	ExecID	Y	Internal trade ID
18	ExecInst	N	'G=All Or None (AON) f=Intermarket Sweep Order (ISO)†
19	ExecRefID	N	

Tag	Field Name	Req	Comments
20	ExecTransType	Y	0=New 1=Cancel Trade breaks will be sent with an ExecTransType of '1'. NASDAQ does not support trade corrections.
30	LastMkt	N	For stock trades, market that executed the stock leg. " " (space) = Nasdaq Execution Services All values NON-STANDARD For option linkage trades, away execution exchange: A = NYSE AMEX B = BOX C = CBOE D = MIAX Emerald E = EDGX G = MX2 H = GEMX I = ISE J = MRX M = Miami P = MIAX Pearl N = NYSE ARCA Q = NASDAQ S = MIAX Sapphire T = NASDAQ TX Options U = MEMX V = IEX W = C2 X = NASDAQ PHLX Z = BATS
31	LastPx	N	
32	LastShares	N	
37	OrderID	Y	Unique ID assigned by exchange
38	OrderQty	Y	
39	OrdStatus	C	0=New 1=Partially Filled 2=Filled 4=Canceled 5=Replaced
40	OrdTyp	N	
41	OrigClOrdID	N	
44	Price	N	
47	StockCapacity (Rule80A)	N	
54	Side	N	
55	Symbol	N	Security symbol for option executions or will populate with underlying on stock leg executions
58	Text	N	Free format text string. In case of orders, replaces and fills, will be a optional 13 character supplementary id if specified on order entry In case of cancel will also contain NASDAQ cancel reason code
59	TimeInForce	N	

Tag	Field Name	Req	Comments
60	TransactTime	Y	Time of execution. YYYYMMDD-HH-mm:SS (seconds) YYYYMMDD-HH-mm:SS.sss (milliseconds) YYYYMMDD-HH-mm:SS.sss.sssssssss (nanoseconds) Firm can choose level of confirmation at the port level
76	ExecBroker	N	Order updates will provide only if provided on original inbound order. Execution updates will always provide give-up from execution
77	OpenClose	Y	
99	StopPx	N	
111	MaxFloor	N	
150	ExecType	Y	0=New 1=Partially Filled 2=Filled 4=Canceled 5=Replace
151	LeavesQty	Y	Number of contracts open for further execution. If the OrdStatus is Cancelled, DoneForTheDay, Expired, Calculated, or Rejected (in which case the order is no longer active) then LeavesQty could be 0, otherwise LeavesQty = OrderQty – CumQty
167	SecurityType	Y	CS OPT MLEG (Configurable by request)
201	CallOrPut	Y	0 = Put 1 = Call
202	StrikePrice	Y	
204	CustomerOrFirm	Y	0 = Customer 1 = Firm 5 = Nasdaq registered Market Maker 2 = Broker Dealer 8 = Professional Customer 4 = Other exchange registered Market Maker 7 = Joint Back Office (PHLX, NOM and BX only)
541	MaturityDate	Y	Month, Day and Year of the maturity. Format YYYYMMDD (e.g., 20100918 to represent Sept 18, 2010)
424	DayOrderQty	N	GTC/GTD orders only: DayOrderQty is the OrderQty minus the contracts that were traded on previous days.
425	DayCumQty	N	GTC/GTD orders only: The number of contracts that have traded today. Will be 0 for busts or other post-trade corrections
426	DayAvgPx	N	GTC/GTD orders only: The average price of contracts that have traded today. Will be 0 for busts or other post-trade corrections
439	ClearingFirm	N	CMTA
440	ClearingAccount	N	OCC sub-account
442	MultiLegReportingType	N	2=Individual leg of a multi-leg security 3=Multi-leg security

Tag	Field Name	Req	Comments
548	CrossID	N	
654	LegRefID	N	
5333	SeriesID	N	InstrumentID
9076	StockLegGiveUp	N	Stock Leg Give Up
9370	AuctionID	N	
9373	AuctionType	N	P = PIM F = Facilitation S = Solicitation B= Block C = Customer to Customer Cross Q = QCC X = Flex Auction
810	UnderlyingQty	N	Present only in QCC Order ER (if user provided at order entry)
879	UnderlyingPrice	N	Present only in QCC Order ER (if user provided at order entry)
847	RoutingStrategy	N	“DNR” “SRCH” “FIND” “POST”
1083	DisplayWhen	N	1 = Immediate 2 = Exhaust As specified for the reserve order
1092	PriceProtectionScope	N	
5333	Series ID	N	Instrument ID
9043	Stepup Price Type	N	Valid Values 1=Market 2=Limit
9044	Stepup Price	N	
9439	CounterpartyExecBroker ClearingFirm	N	Trade counter-party CMTA NON-STANDARD field - DROP COPY ONLY
9176	CounterpartyExecBroker	N	Trade counterparty OCC Number NON-STANDARD field – DROP COPY ONLY
9404	CounterpartyCustomer OrFirm	N	Trade counter-party client category 0 = Customer 1 = Firm 5 = Nasdaq registered Market Maker 2 = Broker Dealer 8 = Professional Customer 4 = Other exchange registered Market Maker 7 = Joint Back Office Not supported at this time
9405	FloorBrokerNumber	N	The Floor Broker Number in case of a Floor Order or Trade
7300	OrderSource	N	"B" = Floor/FBMS (This tag will only be present in case of Floor orders/Trades)

Tag	Field Name	Req	Comments
9730	LiquidityIndicator	N	0=undefined 1=Maker 2=Taker 4=Hidden 5=Opening 6=Cross 7=Response 8=Flashed Order 9=Flash Response 10=Routed Out 11=Trade Report 12=Combo Maker Against Combo 13=Combo Taker Against Combo 14=Combo Response Against Combo 15=Combo Hidden Against Combo 16=Combo Opening Rotation 17=Combo Cross 18=Combo Taker Against Regular 19=Regular Maker Against Combo 20=Combo Taker Against IO 21=Regular Taker Against IO (incl. PIM) 22=IO Maker Against Combo 23=IO Maker Against Regular 24=Regular Maker Against IO Participant 25=IO Participant Taker Against Regular 26=Broken Price Improvement 27=Broken Facilitation 28=Broken Solicitation 29=Combo Broken Price Improvement 30=Combo Broken Facilitation 31=Combo Broken Solicitation 32=Block 33=Block Response 34=Directed Response 35=Facilitation 36=Facilitation Response 37=Price Improvement 38=Price improvement Response 39=Solicitation 40=Solicitation Response 41=Qualified Contingent Cross 42=Customer to Customer 43=Combo Facilitation 44=Combo Facilitation Response 45=Combo Price Improvement 46=Combo Price Improvement Response 47=Combo Solicitation 48=Combo Solicitation Response 49=Combo Qualified Contingent Cross 50=Combo Customer to Customer 51=Sweep Routed Out 52=Sweep Trade Report 53=Combo Taker Against Regular – Thru NBBO 54=Combo Taker Against IO – Thru NBBO 55=Simple Exposure Order – Upon Receipt 56 =Simple Exposure Order – Subsequent 57=Simplex Exposure Order - Responder 58 - Flex Auction 59 - Flex Auction Responder 60 - Flex Price Improvement 61 - Flex Price Improvement Responder 62 - Flex Broken Price Improvement 63 - Flex Solicitation 64 - Flex Solicitation Responder 65 - Flex Broken Solicitation 66 - Combo Flex Auction 67 - Combo Flex Auction Responder 68 - Combo Flex Price Improvement 69 - Combo Flex Price Improvement Responder 70 - Combo Flex Broken Price Improvement 71 - Combo Flex Solicitation 72 - Combo Flex Solicitation Responder 73 - Combo Flex Broken Solicitation
9811	PriceDelta	N	Present only in QCC Order ER (If user provided at order entry)
432	ExpireDate	N	
8020	DisplayRange	N	

9. Notes

Quote/Sweep Id

- SQF Quote / Sweep message Ids are specified as binary strings. 8-byte binary SQF Ids are encoded as 16-byte ASCII strings where each byte of the SQF Id is represented by two 0-F ASCII characters, e.g., “5E” for 0×5e.

Cancel Order Reasons

Reason Explanation

#SUP Supervisory. The order was manually cancelled or reduced by a NASDAQ supervisory terminal.

10. Support

If you have any questions or comments about this specification, email optionshelpdesk@nasdaq.com. We welcome suggestions for new features or improvements.

11. Revision History

Revision #	Date	Change
1.0	09/13/16	Created a separate specification for Fix Drops
1.1	11/18/16	• AvgPx (6), CumQty (14), DayCumQty(425) and DayAvgPx(426) will not be provided on busts or other post trade allocation changes • Fill or Kill order will have TimeInForce = IOC and ExecInst = AON • Adding QuoteID to Execution Report
1.1.1	1/7/17	• LeavesQty (Tag 151) will not be populated on execution messages from busts or other PTA corrections • Manual Trade, Trade Correct/Cancellation messaging details clarified • Adding MIAX Pearl enumeration as P to LastMkt
1.1.1	4/19/17	• Clarifying Security Type (Tag 167) is not configurable
1.1.2	7/14/17	• Adding clarifying Security Type (Tag 167) configurability • Adding following tags to Execution report to support QCC – ExDestination (100) – UnderlyingQty (810) – UnderlyingPrice (879) – PriceDelta (9811) – Stepup Price Type (9043) – Step up Price (9044) • Clarifying OrderID (37) will be sent on PTAs
1.1.2	8/22/18	• Clarifying that clearing changes initiated by the contra side will be reported
1.1.3	11/6/20	• Adding MIAX Emerald enumeration D to LastMkt • Adding SeriesID (5333) to Trade-Drop Copy Report Message – for use at a future date • Adding SeriesID (5333) to Order-Drop Copy Report Message – for use at a future date • Adding Series ID (5333) to Execution Report Message – for use at a future date

Revision #	Date	Change
2.0	11/7/22	• Support MRX replatform to version 2.0; eliminate Drop Copy and Order Drop message types and introduce Trade vs order mode configuration. • Other markets will continue to support version 1.1.3 and cannot use this specification • Deprecate tags no longer in use including: SideTradeID (1506), AuctionInst (8601), SpecialOrdType (9202), BranchSeqNbr (9681), EffectiveTime (168), MaturitymonthYear (200), MaturityDay (205), CopyMessageIndiciator (797) • Introduce new liquidity codes • Harmonize liquidity enumerations to all numeric • Harmonize CustomerorFirm (204) enumerations with BX, PHLX and NOM • Introduce tag RoutingStrategy (847) • Introduce ClientID (109) as a reserved field for future markets • Adjusting TargetSubID (57) to always return SenderSubID from order or execution • Clarifying ExecBroker (76) order vs execution message report handling • Clarifying CustomerOrFirm (204) can be configured to provide OCC Capacity • Clarifying CounterPartyExecBroker (9176) will provide OCC number on executions • Clarifying SeriesID (5333) will provide instrumentID • Clarifying Symbol (55) will provide Security symbol for option executions and underlying symbol for stock leg executions • Adding cancel order reasons (Added: 9/6/2022)
2.0	1/17/2023	Clarifying the tags populated for Busts and PTA in Execution Report
2.0	1/31/2023	• Clarifying the presence of tags 47 (Rule80A), 54 (Side) and 9076 (Stock MPID)
2.0	3/31/2023	GEMX to adopt FIX Drop v2.0 during the Replatform scheduled to complete on November 13, 2023
2.0	6/14/2023	Adding MEMX spec updates to Security Exchange, Last Mkt, Liquidity Flag, Execution Mkt and Origin Mkt.
2.0	1/23/2024	Adding MIAX Sapphire to LastMkt
2.0	3/11/2024	ISE to adopt FIX Drop v2.0 during the Replatform scheduled to complete on September 23, 2024
2.0	6/14/2024	Modifying OrdStatus (tag 39) and ExecType (tag 150) in case of New Manual Trade, Trade Cancels and Trade Corrections
2.1	7/2/2024	Adding support for Flex Options on ISE • Adding Auction Duration (Tag 9379) and LegPrices (Tag 566) to Execution Report message. • New AuctionType (Tag 9373) value "X" for "Flex Auctions". • New Liquidity codes from 58 to 73.
2.1	9/9/2024	• Leg Prices and Auction Duration will not be supported on FIX Drop. • Adding New liquidity codes
2.1a	9/18/2024	• Clarifying the fields that will not be sent for Stock Legs
2.1b	1/3/2025	• Clarifying that Tag 549 CrossType isn't used.
2.1c	1/27/2025	• Clarifying Tag 204 (CustomerOrFirm) on Execution Report
2.1c	3/16/2025	• PHLX to adopt FIX Drop v2.1 during the replatform scheduled to complete in December 2025.
2.1d	5/6/2025	• Introducing Tag 9405 (FloorBrokerNumber) and Tag 7300 (OrderSource) to identify Floor Trades.
2.1d	5/14/2025	• Modify Tag 7300 enumeration from "F" to "B" in case of FBMS Order/Trade.
2.1d	7/23/2025	• Clarifying the enumeration for 'JBO' Capacity. • Clarifying decommission of Tag 109
2.1d	02/23/2026	• NOM to adopt FIX Drop 2.1d during the Replatform scheduled to complete in August 2026. • Nasdaq BX Options to be renamed to Nasdaq TX Options (NTX Options)
2.1d	03/13/2026	• Clarifying Tag 1083 (DisplayWhen)
2.1e	07/13/2026	• Adding IEX Options and MX2 to LastMkt

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