Polaris

FIX PROTOCOL SPECIFICATION – ALGO PROVIDER

VERSION: 1.2

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Introduction

This FIX specification defines the fields and associated tags that will allow NYSE Floor Brokers to route orders to external Algorithm Providers from the Trading Floor. The messages specified in this document support the FIX format 4.2.

DEFINITIONS

- **Algo Provider** – Algo provider or vendor who will receive order flow from NYSE Floor Brokers.
- **Polaris Algo FIX Gateway** — For the purpose of this document, the FIX Gateway provided by Pragma for NYSE Floor Brokers to send orders to the Algo Provider using Polaris.
- **Firm** — Floor Broker Firm sending orders to Algo Providers for execution via Polaris.
- **IntroducingBadgeID** – Floor Broker's badge #. Polaris provides this on the parent order. If this is not provided by Polaris, then the the order can still be traded by the Algo Provider, but it (and its corresponding child orders) will not have parity. This means that the Algo Provider child orders cannot have a Badge ID when sent to NYSE.

To help with backwards compatibility, the following fields are defined:

- **OnBehalfOfMPID** —The NYSE MPID of the NYSE member originating the order. In the NYSE Pillar Gateway FIX Protocol Specification, this was tag 115.
- **OnBehalfOfSubMPID** — A NYSE sub-MPID of the NYSE member originating the order. In the NYSE Pillar Gateway FIX Protocol Specification, this was tag 116. NYSE has updated the term “mnemonic” to “sub-MPID”.

IDENTIFIERS

Execution Reports and Cancel Rejects must explicitly echo the Firm, and if received on the order or cancel/replace messages, the IntroducingBadgeID.

MESSAGE TYPE	Firm *	ComplianceID*	OnBehalfOfMPID*	OnBehalfOf SubMPID*	Retail Designation	Introducing BadgeID
D, G	Tag 115	Tag 376	Tag 9115	Tag 9116	Tag 9050	Tag 9448
8, 9	Tag 128					Tag 9448

*** Required**

CAT REPORTING

Pragma reports the order activity that occurs within Polaris. The Algo Provider is responsible for reporting the order activity that occur within their system.

BROKERS

For orders routed to brokers, Polaris reports the following events:

RECORD	NOTE
MENO	Polaris receives a new order from a buy-side

RECORD	NOTE
MEOA	Polaris receives a new order from a sell-side
MEOM	The parent order is modified within Polaris
MEOC	The parent order is canceled within Polaris
MEOR	Polaris sends a child order to the Algo Provider
MEMR	Polaris amends the child order at the Algo Provider
MECR	Polaris cancels the child order at the Algo Provider

In order for the Algo Broker to match the SenderIMID / ReceiverIMID reported by Polaris, Polaris sends the following tags:

FOR THE …	BASE THIS ON …
SenderIMID	The Floor Broker MPID in OnBehalfOfCompID (115)
ReceiverIMID	Your MPID provided in the onboarding documentation

VENDORS

For algo orders routed to vendors, Polaris will report the following events:

RECORD	NOTE
MENO	Polaris receives a new order from a buy-side
MEOA	Polaris receives a new order from a sell-side
MEOM	The parent order is modified within Polaris
MEOC	The parent order is canceled within Polaris

NOTE: `Polaris does not report desk route events, including MEIR.`

The vendor is expected to report at least the following events:

RECORD	NOTE
MEOR	Vendor sends a child order to NYSE
MEMR	Vendor amends the child order to NYSE
MECR	Vendor cancels the child order to NYSE

RAT

In order for the Algo Broker to match the SenderIMID reported by Polaris, Polaris sends the following tags:

FOR THE …	BASE THIS ON …
SenderIMID	The Floor Broker MPID in OnBehalfOfCompID (115)

In order for the Algo Broker to match the internal orderID reported by Polaris, Polaris sends the following tags:

FOR THE …	BASE THIS ON …
orderID	Polaris EOD Child Order Audit ComplianceID field. Tag 376 (ComplianceID) in the Algo Provider FIX order message contains a link to the Polaris Child Order Audit EOD file (ChildOrder.ClOrdID). This file contains the CAT orderID that Polaris will report to FINRA (ChildOrder.ComplianceID).

CANCEL-ON-DISCONNECT (COD)

The Algo Provider should configure all sessions to have CoD enabled.

CONTACT US

The Polaris support team can be reached at polarisfixsupport@pragmatrading.com

Standard Header & Trailer

MESSAGE HEADER

All FIX messages sent and received via the Polaris Algo FIX Gateway must include a Header and Trailer as defined below.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
8	BeginString	String (7)	Y	FIX.4.2	Always first field in message.
9	BodyLength	Int (6)	Y	Message length, in bytes, forward to the CheckSum field.	Always second field in message.
35	MsgType	String (1)	Y	**A** – Logon **0** – Heartbeat **1** – Test Request **2** – Resend Request **3** – Session Layer Reject **4** – Sequence Reset **5** – Logout **D** – New Order Single **F** – Order Cancel Request **G** – Order Cancel/Replace Request **8** – Execution Report **9** – Order Cancel Reject **Q** – Don't Know Trade	Always third field in message.
34	MsgSeqNum	Int (20)	Y	First message sent has sequence of 1.	Last sequence number processed.
43	PossDupFlag	Boolean (1)	C	**Y** – Yes **N** – No	Conditionally required if the message is a retransmission.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
49	SenderCompID	String (32)	Y		Values on incoming messages will identify Port owner, to be assigned by Pragma. Values will be echoed in tag 56 in outgoing messages.
52	SendingTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	Time of message transmission on incoming messages from Algo Provider & outgoing messages from Polaris.
56	TargetCompID	String (32)	Y		Value on incoming messages will be equal to "POLARIS". Value will be echoed in tag 49 in on outgoing messages.
97	PossResend	Boolean (1)	C	**Y** – Yes **N** – No	Conditionally required if the message is a resend.
122	OrigSendingTime	UTC Timestamp (27)	N	YYYYMMDD-HH:MM:SS.mmm	Original time of message transmission when transmitting orders as the result of a resend request.

TRAILER

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
10	CheckSum	String (6)	Y	Three byte, simple checksum that serves, with the trailing <SOH>, as the end-of-message delimiter.	Always last field in message. Always unencrypted.

FIX Session Layer

This section describes the protocol for the initiation, operation, and termination of FIX sessions with the Polaris Algo FIX Gateway. TCP/IP is the required transmission protocol, and FIX 4.2 is the required application protocol supplemented by certain custom tags and values as defined in this specification.

POLARIS FIX SESSION LAYER HANDLING

The Polaris Algo FIX Gateway validates and handles inbound Session Layer messages according to the following rules:

- MsgSeqNum as expected – all messages with a sequence number equal to the expected value will be accepted and processed in full, provided they pass basic message type format validations. This includes both Session and Application Layer messages, regardless of the PossDup or GapFillFlag values indicated on the inbound message.
- MsgSeqNum greater than expected – in general, upon receipt of a message with a sequence number greater than the expected value, Polaris Algo FIX Gateway will neither accept nor process the message and will not increment the expected client-side sequence number. The gateway will respond with a Resend Request with BeginSeqNo = the expected value, and EndSeqNo = 0 (infinity).

- However, there is a case with special handling:
  - Sequence Reset with GapFillFlag set to N, or not set – Polaris Algo FIX Gateway will accept and process the request, provided it passes basic message type format validations. The expected client-side sequence number will be adjusted according to the NewSeqNo specified in the Sequence Reset message, as long as the requested number is higher than the next expected value.
- MsgSeqNum less than expected – in general, upon receipt of a message with a sequence number less than the expected value, Polaris Algo FIX Gateway will respond with a Logout message, then close the TCP connection. The expected client-side sequence number will not be incremented.
- However, there are two cases with special handling:
  - Any Message with PossDup set to Y – Polaris Algo FIX Gateway will silently ignore the message.
  - Sequence Reset with GapFillFlag set to N, or not set – Polaris Algo FIX Gateway will accept and process the request, provided it passes basic message type format validations. The expected client-side sequence number will be adjusted according to the NewSeqNo specified in the Sequence Reset message, as long as the requested number is higher than the next expected value.

LOGON

This single message format is used as either a Logon Request or Logon Response depending on the message direction:

USAGE	DESCRIPTION	DIRECTION
Logon Request	Request to establish a FIX session.	Polaris Algo FIX Gateway to Algo Provider
Logon Response	Confirmation a FIX session has been established successfully.	Algo Provider to Polaris Algo FIX Gateway

The format for the Logon Request message is below:

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=A
98	EncryptMethod	Int (1)	Y	0	Must be 0 (No encryption)
108	HeartBtInt	Int (2)	Y	1—60	The Heartbeat interval in seconds.
141	ResetSeqNumFlag	Boolean (1)	N	N	Indicates both sides of a FIX session should reset sequence numbers. If included, this tag must be set to N.
	Standard Trailer		Y		

The format for the successful Logon Response message is below:

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=A
98	EncryptMethod	Int (1)	Y	0	Must be 0 (No encryption)

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
108	HeartBtInt	Int (2)	Y	1—60	The Heartbeat interval in seconds.
	Standard Trailer		Y		

LOGOUT

TAG	FIELD NAME	DATA TYPE	REQ'D	NOTES
	Standard Header		Y	MsgType[35]=5
58	Text	String (60)	N	Logout description.
	Standard Trailer		Y	

HEARTBEAT AND TEST REQUEST

The Algo Provider must send a Heartbeat message [35=0] if the interval specified in the Logon Message HeartBtInt [108] passes without the client sending any messages. If HeartBtInt seconds pass without the Polaris Algo FIX Gateway receiving any messages from the Algo Provider, the Polaris Algo FIX Gateway will send a Test Request [35=1] to solicit a Heartbeat from the Algo Provider. If an additional HeartBtInt seconds pass without receiving any messages, the Polaris Algo FIX Gateway will send a logout and close the TCP connection.

It is recommended that the Algo Provider implements similar monitoring for messages received from the Polaris Algo FIX Gateway.

The Heartbeat message format is below:

TAG	FIELD NAME	DATA TYPE	REQ'D	NOTES
	Standard Header		Y	MsgType[35]=0
112	TestReqID	String (20)	C	Conditionally required when the Heartbeat is in response to a Test Request. Must be the same value as in the Test Request that solicited the Heartbeat.
	Standard Trailer		Y	

The Test Request message format is below:

TAG	FIELD NAME	DATA TYPE	REQ'D	NOTES
	Standard Header		Y	MsgType[35]=1
112	TestReqID	String (20)	Y	Identifier included in Test Request message to be returned in resulting Heartbeat.
	Standard Trailer		Y	

MESSAGE RETRANSMISSION

If Pragma receives a MsgSeqNum [34] higher than expected, Pragma will disregard the message, and issue a Resend Request, as described in the "Polaris FIX Session Layer Handling" section of this specification.

Algo Provider may issue a Resend Request to Pragma. In response, Pragma will retransmit Application Layer messages only. Pragma will never retransmit any Session Layer messages (including Session-Level Rejects).

The format for the Resend Request message is below:

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=2
7	BeginSeqNo	Int (20)	Y	1—9223372036854775807	The message sequence number of the first message in the range of messages to be re-sent.
16	EndSeqNo	Int (20)	Y	0—9223372036854775807	The message sequence number of the last message in the range of messages to be re-sent. If the request is for all the messages since the BeginSeqNo, set EndSeqNo to 0.
	Standard Trailer		Y		

NOTE: Pragma will ignore the contents of PossResend [97] beyond basic message integrity validations and will treat all messages with PossResend = Y as new messages.

SEQUENCE RESET

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=4
123	GapFillFlag	Boolean (1)	Y	**Y** – Gap Fill Reset (MsgSeqNum[34] validated) **N** – Sequence Reset (MsgSeqNum[34] ignored)	Indicates the mode in which the message is to be interpreted.
36	NewSeqNo	Int (20)	Y	1—9223372036854775807	The new valid sequence number.
	Standard Trailer		Y		

SESSION-LEVEL REJECTS

Pragma generates a Session-Level Reject upon receipt of a message containing a session-level rule violation (e.g. a required FIX tag is missing). Error details are contained in SessionRejectReason [373] and 58 [Text], while the tag causing the error (if applicable) is identified in RefTagID [371].

The Session-Level Reject message format is below:

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=3
45	RefSeqNum	Int (20)	Y	1—9223372036854775807	The sequence number of the rejected message.
373	SessionRejectReason	Int (2)	N	**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 **7** – Decryption problem **8** – Signature problem **9** – CompID problem (SenderCompID, TargetCompID, or both) **10** – SendingTime accuracy problem **11** – Invalid MsgType **13** – Tag Appears More than Once (non-repeating group tags only) **14** – Tag specified out of required order **15** – Repeating group fields out of order **99** – Other	A code, which identifies the reason for the session level reject.
371	RefTagID	Int (9)	N	1—999999999	The tag number of the FIX field being referenced.
372	RefMsgType	String (1)	N		The MsgType of the FIX message being referenced.
58	Text	String (60)	N		Reject text, which identifies the reason for the rejected message.

FIX Application Layer Messages

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*NOTE: The following applies to tags 17, 19, 30, 37, 58
Only printable ASCII characters allowed, excluding comma, semicolon, pipe delimiter, "at"
symbol, greater than/less than, ampersand (&) and single/double quotation mark.
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This section describes the following application-level messages which are supported by this interface between the Algo Provider system and Polaris:

OUTBOUND MESSAGES (FROM POLARIS)

- New Order – Single (MsgType D)
- Order Cancel Request (MsgType F)
- Order Cancel/Replace (MsgType G)
- Don't Know Trade (MsgType Q)

INBOUND MESSAGES (TO POLARIS)

- New Order Acknowledgment / Reject (MsgType 8)
- Order Cancel Acknowledgment (MsgType 8)
- Order Cancel Reject (MsgType 9)
- Order Cancel/Replace Acknowledgment (MsgType 8)
- Unsolicited Order Cancel (MsgType 8)
- Execution Report (MsgType 8)

NOTE: All Order, Order Cancel, and Order Cancel/Replace messages must be explicitly acknowledged (accept or reject) by the ALGO Provider system.

NEW ORDER – SINGLE

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=D
1	Account	String (16)	N		
11	ClOrdID	String (20)	Y		Unique ID of the new Order request as assigned by Polaris.
18	ExecInst	String (1)	Y	**1** – Not held **5** – Held	
21	HandlInst	Char (1)	Y	**2** – Automated execution order, public, Broker intervention OK	
38	OrderQty	Qty (9)	Y	1—999999999	
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
44	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (E.g.: Berkshire Class A would be 55=BRK 65=A)
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	Polaris application time
65	SymbolSfx	String (10)	N		Valid NYSE Suffix value (E.g.: Berkshire Class A would be 55=BRK 65=A)
114	LocateReqd	Boolean (1)	C	**N** – No	Conditionally required: for 54=5 or 54=6.
115	OnBehalfOfCompID		Y		Identifies the Firm sending the order to the Algo Provider. This is the Firm associated with the IntroducingBadgeID[9448].
126	ExpireTime		N		The specified end time of the algo order. All unexecuted shares should be Canceled back to the Broker at the end time. GMT timestamp. YYYYMMDD-HH:MM:SS Colons, dash, and period required. When Polaris does not provide this field, then the Algo Provider should default this to appropriately for their algorithm. For example, this likely defaults to the closing time.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
168	EffectiveTime		N		The specified start time of the algo order. GMT timestamp. YYYYMMDD-HH:MM:SS Colons, dash, and period required. When Polaris does not provide this field, then the Algo Provider should default this appropriately for their algorithm. For example, if the user has not selected Pre-Open, this likely default to the later of the NYSE opening time or the current time.
376	ComplianceID	String (20)	Y		Links to the Polaris child order, which contains the orderID; only printable ASCII characters allowed. *See CAT reporting section.*
386	NoTradingSessions	Int (1)	Y	1	
336	TradingSessionID	Char (1)	Y	**2** – Core Trading Session **4** – PreOpen & Core Trading Sessions	
528	OrderCapacity	Char (1)	Y	**A** – Agency **P** – Principal **Q** – Error Account **R** – Riskless Principal	
847	TargetStrategy	String (20)	Y		Target strategy of the order. Identifies the specific algorithm strategy to be used. Valid values to be provided by algorithm providers, e.g., arrival_suppass.
849	ParticipationRate	Float (5)	N	0.01 – 100	Examples: values received of 5, 0.01 and 99.99 will indicate 5%, 0.01% and 99.99% respectively
7928	SelfTradeType	Char (1)	Y	**T** – No Self-Trade Protection **N** – Cancel Newest **O** – Cancel Oldest (Letter O, not zero) **C** – Cancel Both* **D** – Cancel Decrement*	Used to prevent the order from trading against another order with the same OnBehalfOfMPID[9115]. If this field is provided then it's recommended to carry this field to the eQuote.
9050	RetailDesignation	String (3)	N	**RET** – Retail Firm	Identifies if the order qualifies as Retail at NYSE. Polaris will pass this tag through to NYSE. Please contact NYSE directly to discuss this tag - including when it can be sent, and what NYSE functionality it drives.
9115	OnBehalfOfMPID	String (4)	Y		Values will identify the NYSE MPID executing the order.
9116	OnBehalfOfSubMPID	String (4)	Y		Values will identify NYSE SubID.
9303	RoutingInstruction	Char (1)	N	**N –** Non-routable	Routing instruction specified by the Broker.
9448	IntroducingBadgeID	String (4)	N		Initiating Broker Badge ID (4 numeric characters 0 padded). If the Introducing Badge ID is not provided, the order can still be traded, but it (and the corresponding child orders) will not have parity. This means that the Algo Provider child orders cannot have a badge id when sent to NYSE.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
9601	10b-18	Char (1)	N	**Y**	
9602	CloseAuction	Char (1)	N	**Y**	
9603	MinParticipationRate	Float (5)	N	0.01 – 100	Examples: values received of 5, 0.01 and 99.99 will indicate 5%, 0.01% and 99.99% respectively
9604	MaxParticipationRate	Float (5)	N	0.01 – 100	Examples: values received of 5, 0.01 and 99.99 will indicate 5%, 0.01% and 99.99% respectively
9605	WouldPrice	Price (14)	N		
	Standard FIX Trailer		Y		

NEW ORDER ACKNOWLEDGMENT / REJECT – INBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=8
1	Account	String (16)	N		
6	AvgPx	Price (16)	Y	0—999999.999999	
11	ClOrdID	String (20)	Y		Unique ID of the new Order.
14	CumQty	Qty (9)	Y	0—999999999	
17	ExecID	String (32)	Y		Unique identifier of the FIX message. *See ***NOTE***
20	ExecTransType	Char (1)	Y	**0** – New	
31	LastPx	Price (16)	Y	0	
32	LastQty	Qty (9)	Y	0	
37	OrderID	String (20)	Y		Unique identifier of most recent order as assigned by Algo Provider. *See ***NOTE***
38	OrderQty	Qty (9)	Y	1—999999999	
39	OrdStatus	Char (1)	Y	**0** – New **8** – Rejected	Status of the order
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
44	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (Example: Berkshire Class A would be 55=BRK 65=A)
58	Text	String (60)	N		*See ***NOTE***

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	
65	SymbolSfx	String (10)	C		Valid NYSE Suffix value. Conditionally if received in original order. (Example: Berkshire Class A would be 55=BRK 65=A)
150	ExecType	Char (1)	Y	**0** – New **8** – Rejected	
151	LeavesQty	Qty (9)	Y	0—999999999	
	Standard FIX Trailer		Y		

ORDER CANCEL REQUEST – OUTBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=F
11	ClOrdID	String (20)	Y		Unique ID of the Cancel request.
41	OrigClOrdID	String (20)	Y		Represents the ClOrdID of the previously entered order intended for cancellation (NOT necessarily the initial order of the day).
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol (E.g.: Berkshire Class A would be 55=BRK 65=A)
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	Polaris application time
65	SymbolSfx	String (10)	N		Valid NYSE Suffix value Conditionally required if received in original order. (E.g.: Berkshire Class A would be 55=BRK 65=A)
	Standard FIX Trailer		Y		

ORDER CANCEL REQUEST ACKNOWLEDGMENT – INBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=8
1	Account	String (16)	N		
6	AvgPx	Price (16)	Y	0—999999.999999	
11	ClOrdID	String (20)	Y		Unique ID of the Cancel request.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
14	CumQty	Qty (9)	Y	0—999999999	
17	ExecID	String (32)	Y		Unique identifier of the FIX message. *See* ****NOTE***
20	ExecTransType	Char (1)	Y	**0** – New	
31	LastPx	Price (16)	Y	0	No fill information can be conveyed on a Cancel Request Response.
32	LastQty	Qty (9)	Y	0	No fill information can be conveyed on a Cancel Request Response.
37	OrderID	String (20)	Y		Unique identifier of most recent order as assigned by Algo Provider. *See* ****NOTE***
38	OrderQty	Qty (9)	Y	1—999999999	
39	OrdStatus	Char (1)	Y	**4** – Cancelled	Status of the order
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
41	OrigClOrdID	String (20)	C		Returned from Order Cancel or Cancel/Replace Request. Represents the ClOrdID of the previously entered order intended for cancellation or replacement (NOT necessarily the initial order of the day).
44	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (Example: Berkshire Class A would be 55=BRK 65=A)
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	
65	SymbolSfx	String (10)	C		Valid NYSE Suffix value. Conditionally if received in original order. (Example: Berkshire Class A would be 55=BRK 65=A)
150	ExecType	Char (1)	Y	**4** – Cancelled	
151	LeavesQty	Qty (9)	Y	0—999999999	
	Standard FIX Trailer		Y		

ORDER CANCEL REJECT AND ORDER CANCEL/REPLACE REJECT – INBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=9
11	ClOrdID	String (20)	Y		Returned from the Cancel or Cancel/Replaced Request – the ClOrdID of the message that is rejected (Cancel or Cancel/Replace request).
37	OrderID	String (20)	Y		OrderID of the order intended for cancellation or replacement. Unique identifier of most recent order as assigned by Algo Provider. If CxlRejReason = "Unknown Order", specify 'NONE' otherwise Identifier of the order as assigned by the order originator *See ***NOTE***
39	OrdStatus	Char (1)	Y	**0** – New **1** – Partially Filled **2** – Filled **4** – Cancelled **5** – Replaced **8** – Rejected	
41	OrigClOrdID	String (20)	Y		Returned from Order Cancel or Cancel/Replace Request. Represents the ClOrdID of the previously entered order intended for cancellation or replacement (NOT necessarily the initial order of the day).
58	Text	String (60)	N		*See ***NOTE***
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	
102	CxlRejReason	Char (1)	N	**0** = Too late to cancel **1** = Unknown order **2** = Broker Option **3** = Order already in Pending Cancel or Pending Replace status	Code to identify reason for cancel rejection.
434	CxlRejResponseTo	Char (1)	Y	**1** – Order Cancel Request **2** – Order Cancel/Replace Request	
	Standard FIX Trailer		Y		

CANCEL/REPLACE – OUTBOUND

Only a limited number of fields can be changed via the cancel/replace request (35=G), All other fields will be retransmitted as sent in the original order (35=D), identified in table below.. *Changeable tags.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=G
1	Account	String (16)	N		
11*	ClOrdID	String (20)	Y		Unique ID of the new Cancel/Replace request.
21	HandlInst	Char (1)	Y	**2** – Automated execution order, public, Broker intervention OK	
38*	OrderQty	Qty (9)	Y	1 —999999999	
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
41*	OrigClOrdID	String (20)	Y		ClOrdID of the previously entered order intended for replacement (NOT necessarily the initial order of the day).
44*	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (E.g.: Berkshire Class A would be 55=BRK 65=A)
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	Polaris application time
65	SymbolSfx	String (10)	C		Valid NYSE Suffix value. Conditionally required if received in original order. (E.g.: Berkshire Class A would be 55=BRK 65=A)
114	LocateReqd	Boolean (1)	C	**N** – No	Conditionally required for 54=5 or 54=6,
115	OnBehalfOfCompID		Y		Identifies the Firm sending the order to the Algo Provider. This is the Firm associated with the IntroducingBadgeID[9448].
126*	ExpireTime		C		The specified end time of the algo order. All unexecuted shares should be Canceled back to the Broker at the end time.GMT timestamp. YYYYMMDD-HH:MM:SS Colons, dash, and period required. When Polaris does not provide this field, then the Algo Provider should default this to appropriately for their algorithm. For example, this likely defaults to the closing time.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
168*	EffectiveTime		C		The specified start time of the algo order. GMT timestamp. YYYYMMDD-HH:MM:SS Colons, dash, and period required. When Polaris does not provide this field, then the Algo Provider should default this appropriately for their algorithm. For example, if the user has not selected Pre-Open, this likely default to the later of the NYSE opening time or the current time.
376	ComplianceID		Y		Links to the Polaris child order, which contains the orderID; only printable ASCII characters allowed. *See CAT reporting section.*
386	NoTradingSessions	Int (1)	Y	1	
336	TradingSessionID	Char (1)	Y	**2** – Core Trading Session **4** – PreOpen & Core Trading Sessions	
528	OrderCapacity	Char (1)	Y	**A** – Agency **Q** – Error Account **P** – Principal **R** – Riskless Principal	
847	TargetStrategy	String (20)	Y		Target strategy of the order. Identifies the specific algorithm strategy to be used. Valid values to be provided by algorithm providers, e.g., arrival_suppass. Must match original order.
849*	ParticipationRate	Float (5)	C	0.01 – 100	Examples: values received of 5, 0.01 and 99.99 will indicate 5%, 0.01% and 99.99% respectively
7928	SelfTradeType	Char (1)	Y	**T** – No Self-Trade Protection **N** – Cancel Newest **O** – Cancel Oldest (Letter O, not zero) **C** – Cancel Both* **D** – Cancel Decrement*	Used to prevent the order from trading against another order with the same OnBehalfOfMPID[9115]. Must match original order.If this field is provided then it's recommended to carry this field to the eQuote.
9050	RetailDesignation	String (3)	C	**RET** – Retail Firm	Identifies if the order qualifies as Retail at NYSE. Polaris will pass this tag through to NYSE. Please contact NYSE directly to discuss this tag - including when it can be sent, and what NYSE functionality it drives.
9115	OnBehalfOfMPID	String (4)	Y		Values will identify the NYSE MPID executing the order.
9116	OnBehalfOfSubMPID	String (4)	Y		Values will optionally identify NYSE subID.
9303*	RoutingInstruction	Char (1)	C	**N –** Non-routable	Routing instruction specified by the Broker.
9448	IntroducingBadgeID		C		Initiating Broker Badge ID (4 numeric characters 0 padded). If the Introducing Badge ID is not provided, the order can still be traded, but it (and the corresponding child orders) will not have parity. This means that the Algo Provider child orders cannot have a badge id when sent to NYSE.
9601*	10b-18	Char (1)	C	**Y**	

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
9602*	CloseAuction	Char (1)	C	**Y**	
9603*	MinParticipationRate	Float (5)	C	0.01 – 100	Examples: values received of 5, 0.01 and 99.99 will indicate 5%, 0.01% and 99.99% respectively
9604*	MaxParticipationRate	Float (5)	C	0.01 – 100	Examples: values received of 5, 0.01 and 99.99 will indicate 5%, 0.01% and 99.99% respectively
9605*	WouldPrice	Price (14)	C		
	Standard FIX Trailer		Y		

CANCEL/REPLACE ACKNOWLEDGMENT – INBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=8
1	Account	String (16)	N		
6	AvgPx	Price (16)	Y	0—999999.999999	
11	ClOrdID	String (20)	Y		Unique ID of the Cancel/Replace.
14	CumQty	Qty (9)	Y	0—999999999	
17	ExecID	String (32)	Y		Unique identifier of the FIX message. *See ***NOTE***
20	ExecTransType	Char (1)	Y	**0** – New	
31	LastPx	Price (16)	Y	0	No fill information can be conveyed on a Cancel Request Response.
32	LastQty	Qty (9)	Y	0	No fill information can be conveyed on a Cancel Request Response.
37	OrderID	String (20)	Y		OrderID of the order intended for cancellation or replacement. Unique identifier of most recent order as assigned by Algo Provider. *See ***NOTE***
38	OrderQty	Qty (9)	Y	1—999999999	
39	OrdStatus	Char (1)	Y	**5** – Replaced	Status of the order
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
41	OrigClOrdID	String (20)	C		Returned from Cancel/Replace Request. Represents the ClOrdID of the previously entered order intended for cancellation or replacement (NOT necessarily the initial order of the day).
44	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (Example:

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
					Berkshire Class A would be 55=BRK 65=A)
58	Text	String (60)	N		*See ***NOTE***
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	
65	SymbolSfx	String (10)	C		Valid NYSE Suffix value. Conditionally if received in original order. (Example: Berkshire Class A would be 55=BRK 65=A)
150	ExecType	Char (1)	Y	**5** – Replaced	
151	LeavesQty	Qty (9)	Y	0—999999999	
	Standard FIX Trailer		Y		

EXECUTION REPORT – FILLS AND BUSTS – INBOUND

Busts of an order in a terminal state (e.g. fully filled, canceled) will not re-open the order for further executions.

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=8
1	Account	String (16)	N		
6	AvgPx	Price (16)	Y	0—999999.999999	
11	ClOrdID	String (20)	Y		Unique ID of the Order as assigned by Polaris.
14	CumQty	Qty (9)	Y	0—999999999	
17	ExecID	String (32)	Y		Unique identifier of the FIX message. *See ***NOTE***
19	ExecRefID	String (32)	C		Conditionally sent if 20=1, Contains the ExecID (tag 17) value of the Fill that is busted. *See ***NOTE***
20	ExecTransType	Char (1)	Y	**0** – New **1** – Cancel (Trade Break Only)	
30	LastMkt	String (4)	C		On fills and partial fills, Market Identifier Code (MIC) of the sending market. *See ***NOTE***
31	LastPx	Price (16)	Y	0—999999.999999	Price of current partial fill or fill message.
32	LastQty	Qty (9)	Y	0—999999999	Quantity of current partial fill or fill message.
37	OrderID	String (20)	Y		Unique identifier of most recent order as assigned by Algo Provider. *See ***NOTE***
38	OrderQty	Qty (9)	Y	1—999999999	
39	OrdStatus	Char (1)	Y	**1** – Partially Filled **2** – Filled	

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
44	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (Example: Berkshire Class A would be 55=BRK 65=A)
58	Text	String (60)	N		*See* ***NOTE**
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	
65	SymbolSfx	String (10)	C		Valid NYSE Suffix value. Conditionally if received in original order. (Example: Berkshire Class A would be 55=BRK 65=A)
150	ExecType	Char (1)	Y	**0** – New **1** – Partially Filled **2** – Filled	
151	LeavesQty	Qty (9)	Y	0—999999999	
9448	IntroducingBadgeID		C		Echoed if provided
9483	DealID	String (20)	Y		Associates all buy and sell execution reports and tape prints for NYSE trades. Not used non-NYSE trades, set to "000000" when that is the case.
9730	LiquidityIndicator	String (5)	N		For fills done on NYSE, pass through the values provided by NYSE in Tag 9730. For fills done in other markets, please populate tag 9730 with the Liquidity Indicator provided by those markets.
	Standard FIX Trailer		Y		

UNSOLICITED ORDER CANCEL – INBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=8
1	Account	String (16)	N		
6	AvgPx	Price (16)	Y	0—999999.999999	
11	ClOrdID	String (20)	Y		Unique ID of the last accepted ClOrdID
14	CumQty	Qty (9)	Y	0—999999999	
17	ExecID	String (32)	Y		Unique identifier of the FIX message. *See ***NOTE***
20	ExecTransType	Char (1)	Y	**0** – New	
31	LastPx	Price (16)	Y	0	No fill information can be conveyed on an Unsolicited Cancel.
32	LastQty	Qty (9)	Y	0	No fill information can be conveyed on an Unsolicited Cancel.
37	OrderID	String (20)	Y		Unique identifier of most recent order as assigned by Algo Provider. *See ***NOTE***
38	OrderQty	Qty (9)	Y	1—999999999	
39	OrdStatus	Char (1)	Y	**4** – Cancelled	Status of the order
40	OrdType	Char (1)	Y	**1** – Market **2** – Limit	
44	Price	Price (14)	C	Required for Limit Orders	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		Valid NYSE Equities Ticker Symbol. (Example: Berkshire Class A would be 55=BRK 65=A)
59	TimeInForce	Char (1)	Y	**0** – Day	
60	TransactTime	UTC Timestamp (27)	Y	YYYYMMDD-HH:MM:SS.mmm	
65	SymbolSfx	String (10)	C		Valid NYSE Suffix value. Conditionally if received in original order. (Example: Berkshire Class A would be 55=BRK 65=A)
150	ExecType	Char (1)	Y	**4** – Cancelled	
151	LeavesQty	Qty (9)	Y	0	
	Standard FIX Trailer		Y		

DON'T KNOW TRADE – OUTBOUND

TAG	FIELD NAME	DATA TYPE	REQ'D	VALUES	NOTES
	Standard Header		Y		MsgType[35]=Q
17	ExecID	String (32)	Y		
37	OrderID	String (20)	C		
31	LastPx	Price (16)	C	0—999999.999999	
32	LastQty	Qty (9)	C	0—999999999	
38	OrderQty	Qty (9)	Y	1—999999999	
54	Side	Char (1)	Y	**1** – Buy **5** – Sell Short **2** – Sell **6** – Sell Short Exempt	
55	Symbol	String (16)	Y		
65	SymbolSfx	String (10)	C		
127	DKReason	Char(1)	Y	**A** – Unknown symbol **B** – Wrong side **C** – Quantity exceeds order **D** – No matching order **E** – Price exceeds limit **Z** – Other	Reason for execution rejection.
	Standard FIX Trailer		Y		

Document Version History

Date	Version	Note
6/15/23	1.0	Initial Draft
8/30/23	1.1	▪ Logon ▸ Initiator changed from Algo Provider to Polaris ▪ CANCEL/REPLACE – OUTBOUND ▸ Added modifiable fields: ☐ ExpireTime ☐ EffectiveTime ☐ ParticipationRate ☐ RoutingInstruction ☐ 10b-18 ☐ CloseAuction ☐ MinParticipation ☐ MaxParticipation ☐ WouldPrice
10/18/2023	1.2	▪ Tag 849 - ParticipationRate ▸ Range changed from 0.01 – 1.00 to 0.01 - 100