NEO Exchange

Exchange FIX 4.2 Drop Copy Specification

Private & Confidential

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Version: 1.09 - Final

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1 Referenced Documents

1.1 Referenced Documents

Related Documents Title	Version
NEO Exchange - Connectivity Guide	

1.2 Document Version History

Version	Comments / Revision Type	Date
1.01	Initial document publication	Sept 14 '14
1.02	Specification updates: - Correction to referenced documents to include Reject Reason Code - S7.3.1 – Message header to correct from "FIX 4.2" to "FIX.4.2"	Nov 4 '14
1.03	Specification updates: - S7.5.1 – Added NEO MIC Code definition	Mar 13 '15
1.04	Specification updates: - S7.5.1 – Added Trading Session ID value for Closing - S7.5.1 – Removed Cross Buy and Sell tags from Execution Report	Nov 11 '15
1.05	Specification update for NEO Connect: - S7.5.1– Added TradeDate (75) Specification update for Matching Priority - S7.5.1– Added Matching Priority (7732) tag with values; (1) Broker Preferencing and (100) Market Maker (Note: this value will only be sent to Market Makers)	Feb 24 '17
1.06	Specification update for IIROC Changes - S7.5.1– Added new value for Account Type (6750): (BU) Bundled - S7.5.1– Added new value for Cross Type (6773): (D) Derivative	Jun 14 '17
1.07	Specification updates: - S7.5.1 - Updated (ungreyed) several fields (100, 110, 20000, 20001, 20005) related to NEO-D functionality	Jun 7 '18
1.08	Specification updates: - S7.5.1– Added new fields (1724, 2883, 8025, 8026, 8027, 8028) and added new value (MC) for existing fields (6750)	Oct 5 '20

1.09	Specification update for NEO-D changes: - S7.5.1 – Added new value 'x' for ExecInst (18) for MPI orders	Aug 5 '21

1.3 Terms & Definitions

Term	Definition
DR	Disaster Recovery Site
PDC	Primary Data Centre
SDC	Secondary Data Centre
NEO	NEO Exchange
NEO-L	Trading Book
NEO-N	Trading Book
NEO-D	Trading Book

2 Overview

NEO offers a drop copy gateway that will enable participants and service bureaus to receive additional copies of the Execution Reports generated by the matching system. The drop copy service cannot be used to submit orders or receive public market data.

The interface is a point-to-point service based on the technology and industry standards TCP/IP and FIX. The session and application event models and messages are based on version 4.2 of the FIX protocol.

The encryption of messages between the FIX client and FIX server is not supported.

2.1 Production Hours of Operation

The FIX server will operate from *06:00:00* to *18:00:00* (ET) each trading day.

2.2 Support

For any questions or general enquiries regarding this document, please contact NEO Exchange Operations.

E-mail: exchangeoperations@neostockexchange.com

Phone: 416-933-5950

3 Service Description

3.1 Services Supported by Trading Gateway

A description of the services (e.g. order types, quotes, notification of market operations actions, etc.) available via the Trading Gateway is provided in the FIX Trading Gateway specification which vendors are encouraged to read together with this specification.

3.2 Connection Configuration

A real-time client will receive a drop copy of each eligible Execution Report immediately after it is published.

A participant connection will be configured to receive a drop copy of all the Execution Report messages generated for the firm for the events outlined in Section 3.3, or only Execution Report messages pertaining to order/quote executions[1]. The connection of a service bureau will be configured to receive drop copies for all the firms it serves. If required, a firm or service bureau connection could be configured to only receive drop copies for selected trading mnemonics.

For the purpose of redundancy, the service supports the configuration of multiple drop copy connections to send the same information on the activity of the selected firms/mnemonics.

The identity of the CompID that transmitted the order a particular drop copy relates to will be specified in the header field OnBehalfOfCompID (115).

Please refer to Section 6.4 for a description of how the Execution Reports published during the time a drop copy client is disconnected from the FIX server can be recovered.

3.3 Supported Events

Clients will receive drop copies of the Execution Reports generated for the following events:

(i) Order accepted
(ii) Order rejected
(iii) Order executed
(iv) Order cancelled
(v) Order Restated

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[1]Inclusive of trade corrections and cancellations.

(vi)   Order cancel/replaced

(vii) Trade cancellation

(viii) Trade correction

FIX clients will receive drop copies of Order Cancel Rejects to indicate rejections of Order Cancellation or Amendment requests.

3.4   Indication of Interest

FIX server generated Indication of Interest messages are not available via the drop copy service.

3.5   Execution Reports

The Execution Report message is used to communicate many different events to FIX clients. The events are differentiated by the values in the fields ExecTransType (20), ExecType (150) and OrdStatus (39).

Exec Type	Ord Status	ExecTrans Type	Usage
0	0	0	**Order Accepted** Indicates that a new order has been accepted. This message will also be sent unsolicited if an order was submitted by the service desk on behalf of the FIX client.
8	8	0	**Order Rejected** Indicates that an order has been rejected. The reason for the rejection is specified.
1, 2	1, 2	0	**Order Executed** Indicates that an order or quote has been partially or fully filled. The execution details (e.g. price and quantity) are specified.

4	4	0	**Order Cancelled** Indicates that an order cancel request has been accepted and successfully processed or an order has expired in terms of its time qualifier or an order has been cancelled by the system due to the handling instructions of the order type. In a scenario where the order is cancelled by the service desk, the Execution Report will include the ExecRestatementReason (378) "Market Option" (8).
5	1, 5	0	**Order Cancel/Replaced** Indicates that an order cancel/replace request has been accepted and successfully processed.
D	0,1, 5	0	**Order Restatement** Indicates that an order has received an unsolicited cancel/replacement. It will not include an OrigClOrdID (41).
0,1	0, 1	1	**Trade Bust** Indicates that an execution has been busted by the service desk. The Execution Report will include an ExecRefID (19) to indicate the execution being cancelled.
1, 2	1, 2	2	**Trade Correct** Indicates that an execution has been corrected by the service desk. The Execution Report will include an ExecRefID (19) to indicate the execution being corrected and the updated execution details (e.g. price and quantity).

3.5.1   Order Status

As specified in the FIX protocol, the OrdStatus (39) field of an Execution Report is used to convey the current state of an order. If an order simultaneously exists in more than one order state, the value with highest precedence is reported as the OrdStatus (39). The relevant order statuses are given below from the highest to lowest precedence.

Value	Meaning
2	Filled
4	Cancelled

1	Partially Filled
5	Replaced
0	New
8	Rejected

3.5.2 Order and Execution Identifiers

3.5.2.1 Client Order IDs

In the case of orders, the ClOrdID (11) included in each Execution Report will be that specified when the order was submitted. An order's ClOrdID (11) will be updated each time an Order Cancel/Replace Request or an Order Cancel Request is accepted.

In the case of quotes, the ClOrdID (11) included in each Execution Report will be the QuoteMsgID (1166) of the last Quote message.

3.5.2.2 Order IDs

The FIX server uses the OrderID (37) field to affix the order identification numbers of the matching system. Order IDs are unique across trading days.

In terms of the FIX protocol, unlike ClOrdID (11) which requires a chaining through Cancel/Replace Requests and Cancel Requests, the OrderID (37) of an order will remain constant throughout its life.

3.5.2.3 Public Order IDs

The FIX server uses SecondaryOrderID (198) field of the Execution Report to affix the Public Order ID of an order which is an order identification number that will be stamped for each order that has an OrderID (37). SecondaryOrderID (198) will be the same as the OrderID (37) for all orders that are not iceberg orders. For iceberg orders, the SecondaryOrderID (198) will renew with each replenishment to the visible order size. Participants should identify their orders on the market data feeds using the SecondaryOrderID (198) that is the identification number that will be disseminated for order book updates on market data feeds.

3.5.2.4 Execution IDs

The FIX server uses the ExecID (17) field to affix the execution identification numbers of the matching system. Execution IDs are unique across trading days.

3.5.2.5 Trade IDs

An Execution Report published to notify a FIX client of a trade, will affix the unique identifier of a trade to the ExecID (17) field. As the identifier of a trade is identical for each side of the trade, the ExecID (17) field will include the suffix 'B' (buy) or 'S' (sell) dependent on the side of published in the Execution Report. FIX clients should exclude this suffix when identifying the unique identifier for each trade referenced in the trade messages of the market data feed.

An Execution Report published to notify a FIX client of a trade cancellation or correction includes the TradeID of the trade with the corresponding suffix appended in the ExecRefID (19) field.

3.5.3 Instrument Identification

Instruments may be identified using the Symbol (55). The instrument identification included in an Execution Report will be that specified in the order or quote the message relates to.

3.5.4 Party Identification

ID	Description	Relevant FIX Tags
On Behalf Comp ID	CompID of the connection that originated the order.	OnBehalfOfCompID (115)
Trading Mnemonic	Identifier of the trading mnemonic the message is submitted under. Trading privileges are assigned at the level of trading mnemonics.	UserID (6751)
BrokerNumber	Identifier of a member firm.	BrokerNumber (6774) ContraBroker (375)

3.5.5 Corporate Actions

When a carried forward order is adjusted, cancelled or expired as a result of a corporate action, the Execution Report transmitted at the start of the market will include an ExecType(150) of Restated(D) and ExecRestatementReason(378) of GT Corporate Action(0) to indicate the order adjustment or expiration.

3.6 Timestamps and Dates

The timestamps SendingTime (52), OrigSendingTime (122) and TransactTime (60) should be in UTC and in the YYYYMMDD-HH:MM:SS.sss format. ExpireTime (126) should be in UTC and in the YYYYMMDD-HH:MM:SS format.

All dates (i.e. ExpireDate (432), FutSettlDate (64)) should be in the YYYYMMDD format and specified in the local date for the FIX server (i.e. not in UTC).

4 Connectivity

4.1 CompIDs

The CompID of each FIX client must be registered with NEO before FIX communications can begin. A single FIX client may have multiple connections to the FIX server (i.e. multiple FIX sessions, each with its own CompID).

The CompID of the FIX server will be provided with the FIX Session Bundle information by NEO Exchange Operations. The messages sent to the FIX server should contain the CompID assigned to the FIX client in the field SenderCompID (49) and the CompID of the market in the field TargetCompID (56). The messages sent from the FIX server to the FIX client will contain the CompID of the market in the field SenderCompID (49) and the CompID assigned to the FIX client in the field TargetCompID (56).

4.1.1 Passwords

Each new CompID will be assigned a password on registration. FIX clients should specify the assigned password using the field Password (554) in the Logon message. The acceptance of a login request indicates that the password has been accepted. The password will, if accepted, be effective for subsequent logins. A CompID will be locked following *<3>* unsuccessful login attempts.

4.2 Production & GTE IP Addresses and Ports

The IP address of each FIX client must be registered with NEO before FIX communications can begin. The IP addresses and ports of the Production and GTE FIX servers are contained in the NEO Exchange Connectivity Guide.

NEO will assign each registered FIX client to one primary IP address and port and one secondary IP address and port.

4.3 Failover and Recovery

The system has been designed with fault tolerance and disaster recovery technology that ensures that trading should continue in the unlikely event of a process or site outage.

If the FIX client is unexpectedly disconnected from the FIX server, it should attempt to re-connect to primary site within a few seconds. The FIX client should only attempt to connect to the secondary IP address and port if so requested by NEO.

5 FIX Connections and Sessions

5.1   Establishing a FIX Connection

FIX connections and sessions between the FIX client and FIX server are maintained as specified in the FIX protocol.

Each FIX client will use the assigned IP address and port to establish a TCP/IP session with the FIX server. The FIX client will initiate a FIX session at the start of each trading day by sending the Logon message. The FIX client will identify itself using the SenderCompID (49) field.

The FIX server will validate the CompID, password and IP address of the FIX client. Once the FIX client is authenticated, the FIX server will respond with a Logon message.

The FIX server will break the TCP/IP connection if messages are received before the exchange of Logons.

If a logon attempt fails authentication, the FIX server will break the TCP/IP connection with the FIX client without sending a Logout or Reject. As the logon attempt failed, the FIX server will not increment the next inbound message sequence number expected from the FIX client.

5.2   Maintaining a FIX Session

5.2.1   Message Sequence Numbers

As outlined in the FIX protocol, the FIX client and FIX server will each maintain a separate and independent set of incoming and outgoing message sequence numbers. Sequence numbers should be initialized to 1 (one) at the start of the FIX session and be incremented throughout the session.

Monitoring sequence numbers will enable parties to identify and react to missed messages and to gracefully synchronize applications when reconnecting during a FIX session.

If any message sent by the FIX client contains a sequence number that is less than what is expected and the PossDupFlag (43) is not set to "Y", the FIX server will send a Logout

message and terminate the FIX connection. The Logout will contain the next expected sequence number in the Text (58) field.

A FIX session will not continue to the next trading day. The FIX server will initialize its sequence numbers at the start of each day. The FIX client is expected to employ the same logic.

5.2.2　Heartbeats

The FIX client and FIX server will use the Heartbeat message to exercise the communication line during periods of inactivity and to verify that the interfaces at each end are available. The heartbeat interval will be the HeartBtInt (108) specified in the FIX client's Logon message.

The FIX server will send a Heartbeat anytime it has not transmitted a message for the heartbeat interval. The FIX client is expected to employ the same logic.

If the FIX server detects inactivity for a period longer than the heartbeat interval plus a reasonable transmission time, it will send a Test Request message to force a Heartbeat from the FIX client. If a response to the Test Request is not received by a reasonable transmission time, the FIX server will send a Logout and break the TCP/IP connection. The FIX client is expected to employ similar logic if inactivity is detected on the part of the FIX server.

5.2.3　Increasing Expected Sequence Number

The FIX client or FIX server may use the Sequence Reset message in Gap Fill mode if it wishes to increase the expected incoming sequence number of the other party.

The FIX client or FIX server may also use the Sequence Reset message in Sequence Reset mode if it wishes to increase the expected incoming sequence number of the other party. The MsgSeqNum (34) in the header of such a message will be ignored. The Sequence Reset mode should only be used to recover from an emergency situation. It should not be relied upon as a regular practice.

5.3　Terminating a FIX Connection

The FIX client is expected to terminate each FIX connection at the end of each trading day before the FIX server shuts down. The FIX client will terminate a connection by sending the Logout message. The FIX server will respond with a Logout to confirm the termination.

All open TCP/IP connections will be terminated by the FIX server when it shuts down (a Logout will not be sent). Under exceptional circumstances the FIX server may initiate the termination of a connection during the trading day by sending the Logout message.

The FIX server will terminate the TCP/IP connection (a Logout will not be sent) if the number of messages that are buffered for a FIX client exceeds *<1,000>*.

If, during the exchange of Logout messages, the FIX client or FIX server detects a sequence gap, it should send a Resend Request.

5.4　Re-Establishing a FIX Session

If a FIX connection is terminated during the trading day it may be re-established via an exchange of Logon messages. Once the FIX session is re-established, the message sequence numbers will continue from the last message successfully transmitted prior to the termination.

When the FIX client sends a logon and if the FIX gateway receives a higher sequence number than expected, the FIX gateway should send a Resend Request. The FIX client should respond to the Resend Request to make sure both the FIX client and FIX server are in sync.

5.4.1　Resetting Sequence Numbers: Starting a New FIX Session

5.4.1.1　Reset Initiated by the FIX client

If the FIX client requires both parties to initialize (i.e. reset to 1) sequence numbers, it may use the ResetSeqNumFlag (141) field of the Logon message. The FIX server will respond with a Logon with the ResetSeqNumFlag (141) field set to "Y" to confirm the initialization of sequence numbers. In such cases, if the MsgSeqNo (34) of the Logon message is not reset to 1, the FIX server will break the TCP/IP connection after sending a Logout. Such a message will include an indication of the rejection in the Text(58) field.

A FIX client may also manually inform market operations that it would like the FIX server to initialize its sequence numbers prior to the FIX client's next login attempt.

These features are intended to help a FIX client manage an emergency situation. Initializing sequence numbers on a re-login should not be relied upon as a regular practice.

5.4.1.2　Reset Initiated by the FIX server

The system has been designed with fault tolerance and disaster recovery technology that should ensure that the FIX server retains its incoming and outgoing message sequence numbers for each FIX client in the unlikely event of an outage.

However, FIX clients are required to support a manual request by NEO to initialize sequence numbers prior to the next login attempt.

6 Recovery

6.1 Resend Requests

The FIX client may use the Resend Request message to recover any lost messages. As outlined in the FIX protocol, this message may be used in one of three modes:

(i) To request a single message. The BeginSeqNo (7) and EndSeqNo (16) should be the same.

(ii) To request a specific range of messages. The BeginSeqNo (7) should be the first message of the range and the EndSeqNo (16) should be the last of the range.

(iii) To request all messages after a particular message. The BeginSeqNo (7) should be the sequence number immediately after that of the last processed message and the EndSeqNo (16) should be zero (0).

The FIX server caches the last *<2,000>* messages transmitted to each CompID. FIX clients are unable to use a Resend Request to recover messages not in the FIX server's cache. If the FIX client requests for a range of messages that have sequence numbers falling outside the cache size, a Sequence Reset message in Gap Fill mode will be sent for the missing messages and will send the available messages as per the request after that.

6.2 Possible Duplicates

The FIX server handles possible duplicates according to the FIX protocol. The FIX client and FIX server will use the PossDupFlag (43) field to indicate that a message may have been previously transmitted with the same MsgSeqNum (34).

6.3 Possible Resends

The FIX server does not handle possible resends for FIX client-initiated messages and ignores the value in the PossResend (97) field of such messages.

The FIX server may, in the circumstances outlined in Section 6.4, use the PossResend (97) field to indicate that an Execution Report may have already been sent under a different MsgSeqNum (34). The FIX client should validate the ExecID (17) of such a message against those of Execution Reports already received during the current trading day.

If an Execution Report with same ExecID (17) had been processed, the resent message should be ignored. If the same ExecID (17) had not been processed, the Execution Report should be processed.

6.4   Transmission of Missed Messages

The Execution Reports and Order Cancel Reject messages generated during a period when a FIX client is disconnected from the FIX server will be sent to the FIX client when it next reconnects. In the unlikely event the disconnection was due to an outage of the FIX server, all such messages will include a PossResend (97) of "Y".

7 Message Formats

This section provides details on the header and trailer, the seven administrative messages and three application messages utilized by the FIX server. FIX client-initiated messages not included in this section are rejected by the FIX server via a Reject or Business Message Reject.

7.1   Variations from the FIX Protocol

(i)   The Logon message includes the field Password (554) introduced in FIX 4.3.

(ii)   The ExecRestatementReason (378) field of the Execution Report message includes the values "Market Option" (8) which was introduced in version 4.3 of the protocol. It also includes custom value "Triggered" (18) (reserved for future use).

(iii)   The OrdRejReason (103) field of the Execution Report message includes the value "Other" (99) which was introduced in version 4.4 of the protocol.

(iv)   The CxlRejReason (102) field of the Order Cancel Reject message includes the value "Other" (99) which was introduced in version 4.4 of the protocol.

(v)   The TIF (59) field of the Execution Report message includes the value "RHO" (R).

(vi)   The OrderStatus (39) field in the Execution Report message has the value "5" (replaced) which was introduced in FIX 4.2 of the protocol.

(vii)   The ExecInst (18) field in the Execution Report message includes the custom value "i" (Imbalance Only) introduced in FIX 4.4 of the protocol and a custom value of 100 which represents Re-Price (Resting only orders).

(viii)   The HandlInst (21) field in the Execution Report message has the custom values "5" (Protect and Cancel) and "6" (Protect and Cancel).

(ix)   The FutSettDate (64) field in the Execution Report message has the custom value "11" (Non-Net).

(x)   The Execution Report message have the custom fields PegOffsetType (836) (reserved for future use) and StopDepth (1090) (reserved for future use) added in FIX 4.4.

(xi)   The Execution Report message has custom fields between tag ranges of 6750 – 20015.

(xii)   Tags BidPx (132) and OfferPx (133) have been added to the Execution Report.

(xiii) The [Execution Report](#) has the custom field AggressorIndicator (1057) which was introduced in version 4.4 of the protocol.

7.2   Supported Message Types

7.2.1   Administrative Messages

All administrative messages may be initiated by either the FIX client or the FIX server.

Message	MsgType	Usage
Logon	A	Allows the FIX client and FIX server to establish a FIX session.
Logout	5	Allows the FIX client and FIX server to terminate a FIX session.
Heartbeat	0	Allows the FIX client and FIX server to exercise the communication line during periods of inactivity and verify that the interfaces at each end are available.
Test Request	1	Allows the FIX client or FIX server to request a response from the other party if inactivity is detected.
Resend Request	2	Allows for the recovery of messages lost during a malfunction of the communications layers.
Reject	3	Used to reject a message that does not comply with FIX.
Sequence Reset	4	Allows the FIX client or FIX server to increase the expected incoming sequence number of the other party.

7.2.2   Application Messages

7.2.3   FIX Server-Initiated

Message	MsgType	Usage
Execution Report	8	Indicates one of the following: (i) Order accepted (ii) Order rejected (iii) Order executed (iv) Order cancelled (v) Order Restatement (vi) Order cancelled/replaced (vii) Trade cancellation or correction

Tag	Field Name	Req	Description
	Order Cancel Reject	9	Indicates that an order cancel request or order cancel/replace request has been rejected.

7.3   Message Header and Trailer

7.3.1   Message Header

Tag	Field Name	Req	Description
8	BeginString	Y	Should contain the string FIX.4.2
9	BodyLength	Y	Number of characters after this field up to and including the delimiter immediately preceding the CheckSum.
35	MsgType	Y	Message type.
49	SenderCompID	Y	CompID of the party sending the message.
56	TargetCompID	Y	CompID of the party the message is sent to.
34	MsgSeqNum	Y	Sequence number of the message.
43	PossDupFlag	N	Whether the message was previously transmitted under the same MsgSeqNum (34). Absence of this field is interpreted as Original Transmission (N).

Value	Meaning
Y	Possible Duplicate
N	Original Transmission

Tag	Field Name	Req	Description
97	PossResend	N	Whether the message was previously transmitted under a different MsgSeqNum (34). Absence of this field is interpreted as Original Transmission (N).

Value	Meaning
Y	Possible Resend
N	Original Transmission

Tag	Field Name	Req	Description
52	SendingTime	Y	Time the message was transmitted.

Tag	Field Name	Req	Description
115	OnBehalfOf CompID	N	Required for FIX server-initiated application messages. This will be the CompID of the connection that originated the order referenced in the message being drop copied.
122	OrigSendingTime	N	Time the message was originally transmitted. If the original time is not available, this should be the same value as SendingTime (52). Required if PossDupFlag (43) is Possible Duplicate (Y).

7.3.2　Message Trailer

Tag	Field Name	Req	Description
10	CheckSum	Y	

7.4　Administrative Messages

7.4.1　Logon

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	A = Logon
Message Body			
98	EncryptMethod	Y	Method of encryption. **Value　Meaning** 0　None
108	HeartBtInt	Y	Indicates the heartbeat interval in seconds.
141	ResetSeqNum Flag	N	Indicates whether the FIX client and FIX server should reset sequence numbers. Absence of this field is interpreted as Do Not Reset Sequence Numbers (N). **Value　Meaning** Y　Reset Sequence Numbers N　Do Not Reset Sequence Numbers

Tag	Field Name	Req	Description
554	Password	N	Password assigned to the CompID. Required if the message is generated by the FIX client.
Standard Trailer			

7.4.2   Logout

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	5 = Logout
Message Body			
58	Text	N	The reason for the logout.
Standard Trailer			

7.4.3   Heartbeat

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	0 = Heartbeat
Message Body			
112	TestReqID	N	Required if the heartbeat is a response to a Test Request. The value in this field should echo the TestReqID (112) received in the Test Request.
Standard Trailer			

7.4.4   Test Request

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	1 = Test Request
Message Body			
112	TestReqID	Y	Identifier for the request.
Standard Trailer			

7.4.5　Resend Request

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	2 = Resend Request
Message Body			
7	BeginSeqNo	Y	Sequence number of first message in range.
16	EndSeqNo	Y	Sequence number of last message in range.
Standard Trailer			

7.4.6　Reject

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	3 = Reject
Message Body			
45	RefSeqNum	Y	MsgSeqNum (34) of the rejected message.
372	RefMsgType	N	MsgType (35) of the rejected message.
371	RefTagID	N	If a message is rejected due to an issue with a particular field its tag number will be indicated.
373	SessionReject Reason	N	Code specifying the reason for the reject. Please refer to Section 8.1 for a list of reject codes.
58	Text	N	Text Specifying the reason for the rejection.
Standard Trailer			

7.4.7　Sequence Reset

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	4 = Sequence Reset
Message Body			
36	NewSeqNo	Y	Sequence number of the next message to be transmitted.

Tag	Field Name	Req	Description
123	GapFillFlag	N	Mode in which the message is being used. Absence of this field is interpreted as Sequence Reset (N).

Value	Meaning
Y	Gap Fill
N	Sequence Reset

Standard Trailer

7.5 Application Messages (FIX Server-Initiated)

7.5.1 Execution Report

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	8 = Execution Report
Message Body			
1	Account	N	Trading account specified by the trader.
6	AvgPx	Y	Average price of all fills for the order.
11	ClOrdID	Y	FIX client specified identifier of the order. For Quote executions, this will be the corresponding QuoteMsgID (1166).
14	CumQty	Y	Total cumulative quantity filled.
17	ExecID	Y	FIX server specified identifier of the message.

18	ExecInst	N	Space separated field indicating specific instructions to be carried out on the order due to various events.

Value	Meaning
R	National Best (Reserved for future use)
6	Resting Only
M	Mid-point
i	Imbalance Only
100	Re-Price (Resting only orders)
x	Minimum Price Improvement

19	ExecRefID	N	Reference to the execution being cancelled or corrected. Required if ExecTransType (20) is Cancel (1) or Correct (2).

20	ExecTransType	Y	The Execution Transaction type.

Value	Meaning
0	New
1	Cancel
2	Correct
3	Status
5	Auto Execution

21	HandlInst	Y	Handling instructions for the order.

Value	Meaning
1	Directed Action Order (DAO)
5	Protect and Cancel
6	Protect and Reprice

23	IOIID	N	(Reserved for future use)
			Field indicates the order is in response to an Indication of Interest message sent by NEO for participation in a Size Up Auction. This value must equal the IOIID sent by NEO in the Indication of Interest Message.
30	LastMkt	N	For trades will be set to NEO MIC Code, "NEOE".
31	LastPx	N	Price of this fill. Will be "0" if ExecType (150) is not Partially Filled (1) or Filled (2). Required if ExecTransType is not Status (3).
32	LastShares	N	Quantity executed in this fill. Will be "0" if ExecType (150) is not Partially Filled (1) or Filled (2). Required if ExecTransType is not Status (3).
37	OrderID	Y	FIX server specified identifier of the order.
38	OrderQty	Y	Total order quantity.
39	OrdStatus	Y	Current status of the order.

For field 39 (OrdStatus):

Value	Meaning
0	New
1	Partially Filled
2	Filled
4	Cancelled
5	Replaced
8	Rejected

40	OrdType	Y	Type of the order.

	Value	Meaning
	1	Market
	2	Limit
	3	Stop (Reserved for future use)
	4	Stop Limit (Reserved for future use)
	P	Pegged

41	OrigClOrdID	N	ClOrdID (11), of the order which has been amended or cancelled. Stamped only in the immediate ER generated to convey a solicited amendment/cancellation[2].
44	Price	N	Value submitted with the order.
54	Side	Y	Side of the order.

	Value	Meaning
	1	Buy
	2	Sell
	5	Sell Short
	8	Cross
	9	Cross Short

55	Symbol	Y	Identifier of the instrument.
58	Text	N	Text specifying the reason for the rejection or cancellation.
59	TimeInForce	N	Value submitted with the order.
60	TransactTime	Y	Time of the execution.

---

[2] Any subsequent ERs sent regarding any executions, expirations etc. of the order will not be stamped the OrigClOrdID(41).

63	SettlmntTyp	N	Indicates settlement period.

			Value	Meaning
			1	Cash
			2	Next Day
			6	Future
			11	Non-Net

64	FutSettDate	N	Specific date of trade settlement. Date should be specified in YYYYMMDD format.
75	TradeDate	N	Indicates date of trade referenced in this message in YYYYMMDD format. Absence of this field indicates current day (expressed in local time at place of trade). This field will be used to indicate a T+1 trade for NEO Connect trades.
99	StopPx	N	(Reserved for future use) Stop price. Required if OrderType (40) is Stop (3) or Stop Limit (4)
100	ExDestination	N	Indicates to which NEO trading book the order should be directed and indicates the NEO trading book in which the order will be anchored for Derived orders.

			Value	Meaning
			L	NEO-L
			N	NEO-N
			D	NEO-D
			C	Cross
			S	SST

103	OrdRejReason	N	Code specifying the reason for the reject. Please refer to Section 8.1 for a list of reject codes. Required if ExecType (150) is Rejected (8).

110	MinQty	N	User defined minimum match volume restriction which must be satisfied by contra order(s) before it can be traded.
111	MaxFloor	N	User defined disclosed quantity.
126	ExpireTime	N	Time the order expires which must be a time during the current trading day. Required if TimeInForce (59) is GTD (6) and ExpireDate (432) is not specified.
132	BidPx	N	For hidden orders in NEO-L, NEO-D, NEO-N and price improving orders in NEO-N, this field will contain the NBB at the time of the trade.
133	OfferPx	N	For hidden orders in NEO-L, NEO-D, NEO-N and price improving orders in NEO-N, this field will contain the NBO at the time of the trade.
150	ExecType	Y	Reason the execution report was generated.
151	LeavesQty	Y	Quantity available for further execution. Will be "0" if OrdStatus (39) is Filled (2), Cancelled (4), or Rejected (8).
198	SecondaryOrderID	N	The public order ID for displayed orders.

For field 150 (ExecType):

Value	Meaning
0	New
1	Partially Filled
2	Filled
4	Cancelled
5	Replaced
8	Rejected
D	Restated

211	PegDifference	N	(Reserved for future use)
			Defines trailing Offset added to trailing stop/stop limit orders or tick increment offset for a pegged order. Only positive values will be accepted.

336	TradingSessionID	N	The Trading Session for the trade.

Value	Meaning
0	Opening
1	Post Open
2	Closing
3	Extended Trading
4	Midpoint (Reserved for future use)
5	SizeUp (Reserved for future use)
6	Cross
7	Post Halt

375	ContraBroker	N	For trades, indicates the broker on the contra side of the trade.

378	ExecRestatementReason	N	Indicates reason why an order is restated.

Value	Meaning
0	Corporate Action
1	Renewal / Restatement
3	Repricing of Order
8	Market Option
18	Triggered (Reserved for future use)

432	ExpireDate	N	Date the order expires. Required if TimeInForce (59) is GTD (6) and ExpireTime (126) is not specified. Date displayed in YYYYMMDD format.

836	PegOffsetType	N	(Reserved for future use) Identifies the Peg Offset type.

			Value	**Meaning**
			2	Ticks

1090	StopDepth	N	(Reserved for future use) Identifies the user defined tick increment at which the triggered Stop order will stop executing.

1057	AggressorIndicator	N	For trades, indicates if the order was the aggressor or not (Active or Passive side of the trade indicator).

			Value	**Meaning**
			Y	Yes
			N	No

1138	DisplayQty	N	The quantity that is displayed.

1724	OrderOrigination	N	Type of client entity sending an order to the Broker Dealer.

			Value	**Meaning**
			5	Order received from a direct access client (DEA)
			6	Order received from a foreign dealer equivalent (FDE)
			7	Order received from an order execution only service (OEO)

2883	RoutingArragementIndicator	N	**Value**	**Meaning**
			0	No routing arrangement in place
			1	Routing arrangement in place

6750	AccountType	N	Type of trading account.

			Value	Meaning
			NC	Non Client
			CL	Client
			ST	Equities Specialist
			IN	Inventory
			OF	Options firm account
			OT	Options market maker
			BU	Bundled
			MC	Multiple Clients

6751	UserID	Y	Owner of the order.

6754	BasketTrade	N	Identifies an order as part of a basket trade.

			Value	Meaning
			Y	Yes
			N	No

6755	ProgramTrade	N	A marker to indicate that the order is part of a specialized basket trade comprised of Index securities to offset an options or futures position.

			Value	Meaning
			Y	Yes
			N	No

6757	Jitney	N	Marker identifying the order as being executed on behalf of another member. 3 digit numeric assigned member firm number.

6761	Anonymous	N	Marker identifying the order as anonymous or attributed.
			Value **Meaning**
			Y Yes
			N No
6763	RegulationID	N	Identification marker for UMIR-specific designation to orders and trades.
			Value **Meaning**
			IA Insider Account
			NA Not Applicable
			SS Significant Shareholder
6773	CrossType	N	The type of cross.
			Value **Meaning**
			N National
			I Internal
			V VWAP
			C Contingent
			X Non NEO Cross (Reserved for future use)
			B Basis
			D Derivative
6774	BrokerNumber	N	The broker number of the client.
6776	PrincipalTrade	N	Indicates a cross between a client and another account type for a same member match.
			Value **Meaning**
			N No
			Y Yes

6783	NonResident	N	Indicator for Non-Resident.
			Value **Meaning**
			Y Yes
			N No
6791	ByPass	N	Identifies an order as eligible to match against displayed volume only.
			Value **Meaning**
			Y Yes
			N No
6792	NCIB	N	Identifies Normal Course Issuer Bid.
			Value **Meaning**
			Y Yes
			N No
7713	SelfTradePrevention	N	A marker which identifies the orders eligibility to trade with orders originating from the same member firm.
			Value **Meaning**
			T Trade No Print
7714	SelfTradeKey	N	User defined identifier.
7729	ShortMarkingExempt	N	Marker for "Short-Marking Exempt" order designation.
			Value **Meaning**
			0 SME (Non Cross Order)
			1 Buy Cross SME
			2 Sell Cross SME
			3 Both Buy and Sell Cross SME

7732	MatchingPriority	N	Indicates the type of priority used to match an order in a trade.

Value	Meaning
1	Broker Preferencing
100	Market Maker (Note: this value will only be sent to Market Makers)

8025	CustomerAccount	N	Account Number for clients not eligible to obtain an LEI.
8026	AlgorithmID	N	Unique identifier for a client automatically generating orders on a predetermined basis.
8027	CustomerLEI	N	LEI for clients of the Broker Dealer eligible to obtain an LEI including LEI of the foreign dealer equivalent (FDE).
8028	BrokerLEI	N	Non-Participating Organization (PO) IIROC Dealer Member (Correspondent Broker).
8020	DisplayRange	N	(Reserved for future use) Echo value indicated on order entry.

20000	VisibilityType	N	Visibility type of order.

Value	Meaning
1	Transparent
2	Hidden

20009	LastOrderBook	N	For trades, indicates which NEO trading book the trade occurred in.

Value	Meaning
L	NEO-L
N	NEO-N
D	NEO-D
C	Cross
S	SST

20001	MAQMatchType	N	Type of MAQ volume execution restriction for orders entered with a MAQ.

Value	Meaning
1	Single contra order size
2	Multiple contra order match (Reserved for future use)

20002	DeriveInto	N	(Reserved for future use) Indicates which NEO trading book(s) a Derived order was derived.

Value	Meaning
1	NEO-N
2	NEO-D
3	NEO-D and NEO-N

20004	ParticipantType	N	(Reserved for future use) Indicates the Participant Type sending a Dark order.

Value	Meaning
1	Retail
2	Non-Retail

20005	MatchingStateParticipation	N	Indicates which order flow type a Passive Dark order will interact with. Passive Dark orders have a Time In Force of Day or RHO. Active Orders have a Time in Force of IOC or FOK.

Value	Meaning
1	Active Orders Only
2	Passive Orders Only
3	Both Active and Passive Orders

Tag	Field Name	Req	Description
20006	SizeUp	N	(Reserved for future use) Indicates interest to participate in a SizeUp Auction event. Allowed for resting Dark orders only.
			Value **Meaning**
			Y Yes
			N No
20007	PriceImprovementOnly	N	(Reserved for future use) Indicates the type of interaction the order desires to receive with regards to price improvement. Only allowed on IOC or FOK active orders. Cannot be set to 'Y' if the Bypass flag is set.
			Value **Meaning**
			Y Yes
			N No
20010	SelfTrade	N	Indicator of a Self Trade.
			Value **Meaning**
			Y Yes
			N No
20008	FreeFormText	N	Pass-through Free text field.
20011	ContraParticipantType	N	(Reserved for future use) Indicates the Participant Type a Passive order will trade within the Continuous Matching State.
			Value **Meaning**
			1 All
			2 Retail Only
Standard Trailer			

7.5.2 Order Cancel Reject

Tag	Field Name	Req	Description

Standard Header				
35	MsgType	Y	9 = Order Cancel Reject	
Message Body				
11	ClOrdID	Y	ClOrdID (11) that was submitted with the order cancel or cancel/replace request being rejected.	
37	OrderID	Y	FIX server specified identifier of the order for which the cancel or cancel/replace was submitted. Will be "NONE" if the order is unknown.	

39	OrdStatus	Y	Current status of the order. Will be Rejected (8) if the order is unknown or the request cannot be processed.

Value	Meaning
0	New
1	Partially Filled
2	Filled
4	Cancelled
5	Replaced
8	Rejected

41	OrigClOrdID	N	OrigClOrdID (41), if any, that was submitted with the order cancel or cancel/replace request being rejected.
58	Text	N	Text specifying the reason for the rejection.
60	TransactTime	Y	Time the reject was generated.
102	CxlRejReason	Y	Code specifying the reason for the rejection. Please refer to Section 8.1 for a list of reject codes.
6751	UserID	Y	Owner of the order specified in the Order Cancel request.

Tag	Field Name	Req	Description
434	CxlRej ResponseTo	Y	Type of request being rejected.

Value	Meaning
1	Order Cancel Request
2	Order Cancel/Replace Request

Standard Trailer

7.5.3 Business Message Reject

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	j = Business Message Reject
Message Body			
45	RefSeqNum	Y	MsgSeqNum (34) of the rejected message.
372	RefMsgType	Y	MsgType (35) of the rejected message.
371	RefTagID	N	If a message is rejected due to an issue with a particular field, its tag number will be indicated.
380	BusinessReject Reason	Y	Code specifying the reason for the rejection. Please refer to Section 8.4 for a list of reject codes.
58	Text	N	Text specifying the reason for the rejection.
Standard Trailer			

8 Reject Codes

8.1 Reject

Session Reject Reason	Meaning
1	Required tag missing[3]
2	Tag not defined for this message type[4]
4	Tag specified without a value
5	Value is incorrect (out of range) for this tag
6	Incorrect data format for value
9	CompID problem
10	SendingTime accuracy problem
11	Invalid MsgType[5]
13	Tag appears more than once
14	Tag specified out of required order
15	Repeating group fields out of order
16	Incorrect NumInGroup count for repeating group
99	Other

8.2 Execution Report

OrdRej Reason	Meaning
2	Exchange closed
5	Unknown order

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[3] This reject reason is sent when all the required tags for the message are not present in a message that is recognized by the gateway.

[4] Delete this reject reason if the configuration to reject unknown fields in application messages is disabled.

[5] This reject reason is sent when a message that is not defined in the FIX data dictionary is received by the gateway.

16	Price exceeds current price band
99	Other

8.3   Order Cancel Reject

CxlRej Reason	Meaning
1	Order not found (too late to cancel or unknown order)
8	Price exceeds current price band
99	Other

8.4   Business Message Reject

Business Reject Reason	Meaning
0	Other
3	Unsupported message type[6]
4	Application not available
30	Session not in sync

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[6] This reject reason is sent when the received message is not defined as a valid message for the Drop Trading Gateway.