Order Routing FIX Specifications
Order Book
Version 1.1

FUNDAMENTAL INTERACTIONS

2020 January

CONTENTS

CONTENTS

DISCLAIMER AND RIGHTS GRANTE

The information contained in this document describing FI implementation of the FIX protocol and any other information or documentation related to *FI Order Routing FIX Specifications* message form are provided "as is", and neither FI nor any of its affiliates makes any representation or warranty, express or implied, as to the contents of the *FI Order Routing FIX Specifications* and each such person specifically disclaims any warranty of originality, accuracy, completeness, merchantability, fitness for a particular purpose or that it is error-free. By using the *FI Order Routing FIX Specifications*, you are agreeing to assume the entire risk associated with its use.

The FI shall have no liability for damages of any kind arising in any manner out of or in connection with your use of, or your inability to use, the *FI Order Routing FIX Specifications*, whether direct, indirect, incidental, special or consequential arising under contract or otherwise, whether FI or any of its affiliates has been advised of, or otherwise might have anticipated the possibility of, such damages.

Please note that FI will require prior certification of any system designed to connect to its trading and market information as well as your participation from time to time in connection with the testing of changes or upgrades to *FI Order Routing FIX Specifications*.

The information contained in the *FI Order Routing FIX Specifications* is proprietary and confidential information belonging to FI and Fix Protocol Limited and/or their respective licensors or service providers, as applicable. Copyright and trade-mark rights and any other intellectual property in the *FI Order Routing FIX Specifications* belong to the FI, FIX Protocol Limited and/or its licensors or service providers, as applicable. Your permitted use of the *FI Order Routing FIX Specifications*, in whole or in part, is limited to the non-exclusive, nontransferable, revocable, non-assignable, personal right for you only to build a connection between your systems and FI trading system.

Copyright in the *FI Order Routing FIX Specifications* belongs to Fundamental Interactions Inc., 2018. All rights reserved.

Copyright in the FIX Protocol belongs to FIX Protocol Limited: www.fixprotocol.org. FIX Protocol content, documents, information and materials are used solely with permission of FIX Protocol Limited.

Contact Information:

Fundamental Interactions
147 West 26th Street, 3rd Floor
New York, NY 10001
support@fundamentalinteractions.com

1 Summary of Document Changes

Version	Date	Change
1.0	3/1/2018	First Draft

2 Introduction

2.1 Overview

The information in this FI FIX document describes the adaptation of the standard FIX 4.2 for vendors and subscribers to communicate with the FI quotation and execution platform. FIX 4.2 tags, as described in detail on the Financial Information Exchange Protocol Committee website, www.fixprotocol.org as well as custom tags are used extensively in this document and the reader should familiarize themselves with the latest updates to this release.

If an application message in Financial Information Exchange Protocol version 4.2, or previous FIX versions, is not included in this document, the message is ignored by FI.

2.1.1 Intended Audience

This document should be used by:

- Electronic Access Firms
- Market Maker Firms
- Service Bureaus
- Clearing Firms

2.2 The FI Platform

The operational components of the FI platform consist of two order matching algorithms, the first is a price/time matching algorithm with displayed orders, the second is a price/size matching algorithm with no displayed orders. The Market Participant ID (MPID) registered with FINRA for trading and clearing is "FI". FI Displayed Market (FI)

The FI is a venue for market participants to post orders and firm quotes in the FI market making book. Two-sided, one-sided or non-priced quotations are accepted and displayed in price/ time priority. The top of book (inside price best bid/ offer) is available in our FI Quote Level I and Level II market data. The FI top of book will display quotes as attributable representing an assigned firm MPIDs or under the MPID FI for pre-trade anonymity.

Orders are submitted to the system and the FI will maintain an electronic book through which orders can be displayed and matched. The order book matching algorithm uses price/time priority criteria for crossing the order and checks other available venues to assure best execution. All orders at the same price, and size level are filled per time priority.

2.2.1 Matching Algorithm Price/Size

Firms that will only provide liquidity to the orders may be submitted to the system designated as a price/size, they will be held in the book and ranked by price/size priority with no attribution associated with the order. The matching algorithm checks all available standing orders in the book and fills the order at the same price level per the execution algorithm priority associated with orders in the book using the same criteria.

2.2.2   FI Routing

The FI TRADE Route is a system that maintains an internal book of other available market centers and can route an incoming order to the corresponding venue to satisfy best execution obligations. Orders tagged as routable will be compared to the BBO and external venue BBO data and routed to the venue displaying the best price for execution. Subscribers have the option of identifying their quotes and orders as routable. Orders not tagged as routable will be displayed and crossed on the FI book. Routable orders can be either a Directed order where a venue is selected or Non-directed where the system will route to the venue with the best available price at the time.

2.2.3   Hours of Operation

The following table identifies the hours of operations. The FI operational hours will be 7:00 am to 6:00 pm ET. The table below also indicates when each matching service are available.

Market Centers	Sessions	Hours	Descriptions
FI	Pre-Market	XXXXXX	Accept orders from XXXX am to XXXX am
	Normal Market Hours	XXXXX	Trading is available

2.3   Supported Order Types

The FI supports a variety of order types to automate trading preference for subscribers to increase the probability of crossing other orders in the system. The FI support standard order types as well as more advanced types.

Order Type	Description
Directed Orders	A Directed Order is when instructions are given; the firm determines the routing destination. Orders can be directed to other exchanges, member firms, and or special-order types like a Smart Router that sends orders to external destinations.
Non-Directed Orders	A Non-directed order is when specific instructions are not submitted concerning the orders routing destination.
Limit Order	A limit order is an order to buy or sell a stock at a specific price or better. A buy limit order can only be executed at the limit price or lower, and a sell limit order can only be executed at the limit price or higher. A limit order can only be filled if the stock's market price reaches the limit price.
Market Order	Orders placed with a buy or sell a set number of shares at an undetermined price but it is executed by the order book at the best available price.
Reserve	The reserve order allows users to hide the full size of their order and thereby potentially limit its influence on prices. A reserve order is a limit order with a portion of the size displayed and with the reserve portion of the size not displayed. The reserve amount of the order replenishes the displayed order

Order Type	Description
	size as executions are received, up to the total order quantity. The reserve amount of the order will remain in the system and it will be used to replenish display size.
Hidden Order	Orders are hidden from the marketplace. A Hidden order shows no evidence of its existence in the market data.
Midpoint Peg	A pegged-to-midpoint order provides a means for traders to seek a price at the midpoint of the National Best Bid and Offer (BBO). The price automatically adjusts to peg the midpoint as the markets move.
Primary Peg	The primary peg order follows the best bid, when buying a security, and the best offer when selling a security. Pegged to the Best Bid and Best Offer on the same side of the market Buy orders are pegged to the bid, with or without an offset. Sell orders are pegged to the offer, with or without an offset.
Smart Router • Sweep Limit • Sweep Market	The **Sweep Limit** will always begin with the inside price level as the starting price. The Sweep Limit will continue until the limit price is reached or the order is no longer marketable or until the order is complete. The **Sweep Market** is the same as a Sweep Limit order that will keep working at the current inside price. It will exhaust the current inside price level before moving on to the next level. It will keep working until filled; the order expires, or is cancelled. It will not sit idle or it will never post since it is a market order.

3 Symbology

For inbound FIX message to FI, we accept both CMS and NASDAQ/B symbology. When using CMS format, we expect customer to send root symbol in tag 55 and CMS suffix in tag 65. When using NASDAQ/B symbology, we expect customer to send everything in tag 55.

Security Categorization	CMS Suffix	NASDAQ/B Integrated Platform Suffix
TEST symbol	TEST	~

4 Connecting to FI & FIX

4.1 Physical Connection

Connections to FI FIX are established through direct connections provided by established financial extranets or layer II connectivity providers or hosting facility cross-connects. FI staff will assign IP address and port numbers for connectivity to FI FIX through your communications provider.

4.2 Login Credentials and Connection Procedures

IP address, port number, SenderCompID and TargetCompID are required to establish a connection to FI and FIX. The ID assigned to each subscriber is used in the client message header as SenderCompID. The TargetCompID for each message submitted to FI FIX must contain the value "FI".

IP Address	Assigned by Staff	Validated during initial connection
Port	Assigned by Staff	Validated during initial connection
SenderCompID	Assigned by Staff	Validated upon TCP connectivity
TargetCompID	Always "FI"	Validated upon TCP connectivity

1. The client establishes a TCP connection to FI FIX through a proprietary or commercial FIX engine using the assigned destination IP address and port.

2. The incoming IP address and port are examined and connectivity is established upon successful validation. The connection is refused if the credentials do not pass validation.

3. The logon message is the first message FI FIX expects to receive after TCP connectivity. (See the format of the Logon message in section 3 below)

4. SenderCompID and TargetCompID received in the logon header message is examined and connectivity to the FI FIX gateway is established upon validation. The TCP connection is terminated if these credentials do not pass validation.

5. FI FIX responds with a Logon acknowledge message upon establishing a successful session.

5 FIX Messages

This section outlines the FIX messages, how they are supported, and to what extent the business data is translated within the FIX Gateway.

5.1 FIX messages supported

The following FIX messages are supported by the FIX Gateway:

Message Category	Message Name	Message Type	Message Direction	Message Function
Administrative	Heartbeat	O	Inbound Outbound	Monitors FIX gateway status during periods of inactivity.
	Logon	A	Inbound Outbound	Identifies and authenticates a user/member establishing a connection to the FIX gateway.
	Test Request	1	Inbound Outbound	Verifies communications line and other FIX gateway parameters.
	Resend Request	2	Inbound Outbound	Initiates a re-transmission of messages from the FIX gateway.
	Reject	3	Inbound Outbound	Rejects messages that cannot be processed by the FIX gateway.
	Sequence Reset (Gap Fill)	4	Inbound Outbound	Message has two modes: Sequence Reset – Gap Fill and Sequence Reset-Reset. Sequence Reset Gap Fill - used to fill or mark the gap Sequence Reset – Reset - used to force synchronization
	Logout	5	Inbound Outbound	Used to terminate a FIX session.
	New Order – Single	D	Inbound	Submits a market or limit priced bid or offer order for a security listed within a market. May contain time in force terms such as day, open, good til date.
	Execution Report	8	Outbound	
	Don't Know Trade	Q	Inbound	Rejects an execution report that was processed and sent by the FIX gateway.
	Order Cancel / Replace Request	G	Inbound	Request message to change the details of an existing order.

Message Category	Message Name	Message Type	Message Direction	Message Function
	Order Cancel Request	F	Inbound	Request to cancel an order.
	Order Cancel Reject	9	Outbound	Reject message for an Order Cancel / Replace Request or Order Cancel Request that cannot be processed by the FIX gateway.
	Order Status Request	H	Inbound	Request for querying the details of an order.
	Business Message Reject	j	Outbound	Rejects any message that cannot be processed by the FIX gateway and is cannot be rejected via another message.

5.2 Custom Fix Tags

FI FIX has defined the following list of FIX tags that extend the FIX 4.2 protocol.

Tag	Field Name	Req'd	Comments
43210	Order Destination	No	
43211	Execution Venue	No	
43212	Execution Contra Broker	No	
43214	Liquidity Indicator	No	
43226	Attributable	o	
43229	FractionBase	Y	If fraction is 100, qty field = 1 means, it is 0.01If fractionbase is

5.3 FIX Message Header & Trailer

The message header and message trailer prefix and suffix all FIX messages. They contain the common information to uniquely identify and route the messages. Please refer to the description of each supported message to determine the required header and footer tags.

5.3.1 Message Header

Tag	Field Name	Req'd	Comments
8	BeginString	Yes	"FIX.4.2"
9	BodyLength	Yes	(Always unencrypted, must be second field in message)

Tag	Field Name	Req'd	Comments
35	MsgType	Yes	(Always unencrypted, must be third field in message)
49	SenderCompID	Ye	Provided by FI system administrator, must be specified in all FIX messages to FI and it will be echoed back in TargetCompID in all FIX messages to customers.
56	TargetCompID	Yes	Provided by customer, always echoed back in SenderCompID in all FIX messages to customers.
115	OnBehalfOfCompID	No	Required for service bureau connection
34	MsgSeqNum	Yes	(Can be embedded within encrypted data section.)
43	PossDupFlag	No	Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request. (Can be embedded within encrypted data section.)
97	PossResend	No	Ignored by FI
52	SendingTime	Yes	Required
122	OrigSendingTime	No	Required for message resends. If data is not available set to same value as SendingTime (Can be embedded within encrypted data section.)

5.3.2   Message Trailer (All)

All messages are to contain the following required tags in the trailer.

Tag	Field Name	Req'd	Comments
10	CheckSum	Yes	(Always unencrypted, always last field in message)

5.4 Drop Copy Sessions

The FIX Gateway offers Drop Copy sessions which provide copies of Execution Report messages that were originally sent to other FIX sessions from the same firm. These Drop Copy sessions must be pre-configured by Market Operations, and no special logon is required. All Administrative messages are supported on a Drop Copy session, and retransmission functions as per a regular FIX session.

When a Drop Copy session copies out an Execution Report to a client, this message will be indicated as a copy with CopyMsgIndicator = Y, as well as the OnBehalfOfCompID field providing the CompID of the FIX session to which the message was originally sent.

FIX MESSAGES

Execution Report messages where ExecType = 8 (Rejected) will not be copied out by a Drop Copy session. Any attempt by a client to submit an Application message on a Drop Copy session will be rejected by the server.

5.5 Administrative Messages

The administrative messages are designed to meet the utility needs of the protocol. As a rule they contain no business information and consequently are handled internally within the FIX gateway. All administrative messages are supported.

Message	MsgType	Comments
Logon	A	This is sent after connection to identify and authenticate the customer and to establish a FIX session.
Heartbeat	0	Sent by FIX servers at predefined interval during login in tag 108.
Test Request	1	This message will be sent if data has not been received for a within the specified HeartBeat interval.
Resend Request	2	Notify the opposite party to resend messages that may have been missed.
Reject Message	3	Used in response to a message that could not be processed
Sequence Reset	4	Used to reset the FIX session sequence number
Logout	5	This is sent by the client to terminate the FIX session and perform a clean disconnect.

5.5.1 Heartbeat (MsgType = 0)

The heartbeat message should be sent if agreed upon HeartbeatInterval has elapsed since the last message sent. If any proceeding HeartbeatInterval a Heartbeat message need not be sent.

5.5.2 Logon (MsgType = A)

The logon message identifies and authenticates the user or member, and establishes a connection to the FIX Gateway.

The FIX gateway accepts Logon messages as per the FIX specification. Further, the FIX gateway supports the logon sequence required for session authentication.

After a successful logon as described in the specification the FIX gateway will:

1. Initiate retransmission processing via a resend request if the Logon sequence number is greater than the value expected

2. Initiate logout processing via a Logout message with an appropriate error message, then waits for a confirming Logout before disconnecting if the Logon sequence number is less than expected. If the confirming Logout has not been received within a short period of time the session will be disconnected.

3. Handle retransmission requests

4. Initiate a Logon using the SenderCompID in the message header.

5. Will forwarded to the FIX client messages that are waiting in the outbound queue

6. Begin regular message communication.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = A
108	HeartBtInt	Yes	Heartbeat interval in seconds
	Standard Trailer	Yes	

5.5.3 Test Request (MsgType = 1)

This message requests the return of a heartbeat message and verifies the communications line and other FIX parameters.

Inbound test request messages result in the appropriate heartbeat response.

If a Heartbeatinterval + 1 second have elapsed since the last message received, a Test Request should be issued. If another Heartbeatinterval + 1 second go by without receiving a message, the TCP connection should be dropped.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 1
112	TestReqID	Yes	Identifier included in Test Request message to be returned in resulting Heartbeat
	Standard Trailer	Yes	

5.5.4 Resend Request (MsgType = 2)

The resend request message initiates the retransmission of messages. The FIX client or Gateway may generate a resend request when a message sequence number gap is detected.

A Resend Request message should be processed even if it is received ahead of sequence. Only after resending the request range (all marked PossDup= "Y", including gap fills) should Resend Request issued in the opposite direction.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 2
7	BeginSeqNo	Yes	Message sequence number of first record in range to be resent
16	EndSeqNo	Yes	Message sequence number of last record in range to be resent. If request is for a single record BeginSeqNo = EndSeqNo. If request is for all messages subsequent to a particular message, EndSeqNo = 0

FIX MESSAGES

5.5.5 Reject (Msg Type = 3)

This message is used by the FIX Gateway to reject messages that violate session level rules and are unable to be processed. The gateway checks inbound messages for the presence of its required tags. It also validates the message type tag. In the case where the message type is missing (tag 35 on the inbound message), the reject message issues a value of "Unknown" in tag 58, as the FIX gateway is unaware of what the message is.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 3
45	RefSeqNum	Yes	MsgSeqNum of rejected message
58	Text	No	Where possible, message to explain reason for rejection

5.5.6 Sequence Reset (MsgType = 4)

This message is used to reset the incoming sequence number of the opposing side. This message supports two modes:

1. Sequence Reset-GapFill - GapFillFlag=Y

2. Sequence Reset-Reset - GapFillFlag=N (only used to recover from Disaster)

The GapFill can be used to mark a place of a message(s) or administration messages that are not being resent. To view the complete functionality of the Sequence Reset (Gap Fill) message refer to the FIX protocol.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 4
123	GapFillFlag	No	Y=Gap fill beginning at NewSeqNo N=NewSeqNo is ignored – manual recovery attempted
36	NewSeqNo	Yes	Next requested sequence number
	Standard Trailer	Yes	

5.5.7 Logout (MsgType = 5)

The Logout message initiates or confirms the termination of a FIX session.

The FIX gateway will receive and generate logout messages as required by the FIX Protocol. The gateway follows the prescribed sequence of messages for the proper termination of the session.

Messages received by the gateway after the client logs out are stored in a log file for transmission to the client once the client logs in again within the same trading day. The messages to be transmitted are dependent on the sequence number reconciliation that occurs on a logon handshake.

Upon receipt of a Logout message:

1.   A confirming logout message will be sent by the gateway to the client; then,

2.   The session will be disconnected.

The FIX gateway should never initiate a logoff except when a severe error has occurred.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 5
58	Text	No	Free format text string (Note: this field does not have a specified maximum length) If the Logout message has been sent by the the FIX gateway, then this field will contain the text "Session closed".
	Standard Trailer	Yes	

Note: Logout is not required.

5.6 APPLICATION MESSAGES – Customer to FI

5.6.1 New Order – Single (MsgType = D)

This message is used to submit an order to the trading system for processing.

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = D
11	ClOrdID	Yes	Unique identifier of the order. Must be unique for each session, max 32 chars.
1	Account	No	Optional identifier from customer, will be passed back in Execution Report Account mnemonic as agreed between broker and institution.
18	ExecInst	No	Can contain multiple instructions, space delimited. 'H' = Hidden 'M' = Midpoint Peg 'R' = Primary Peg For directed order to venue, accepts values specified in venue's spec, but not listed above.
110	MinQty	No	Minimum quantity of an order to be executed.

Tag	Field Name	Req'd	Comments
111	MaxFloor	No	The quantity to be displayed. Required for reserve orders. On orders specifies the qty to be displayed, on execution reports the currently displayed quantity.
55	Symbol	Yes	Ticker symbol. Common, "human understood" representation of the security bitcoinsUS Dollar – BTCUSD Etc.
65	SymbolSfx	No	See explanation in Symbology section
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities
43229	FractionBase	Y	If fraction is 100, qty field = 1 means, it is 0.01 If fractionbase is
40	OrdType	Yes	'1' = Market '2' = Limit 'P' = Peg Order *Pegged requires ExecInst 18=M or R
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.) (Intraday auction) '2' = At the Opening (OPG) - Opening auction '3' = IOC (Immediate-Or-Cancel) '5' = GTX (Expires at end of extended day) '6' = GTD (Expires at specified ExpireTime) '7' = At the Close - End of day auction
114	LocateReqd	No	Optional, processed for Sell Short or Sell Short Exempt N=Client affirms ability to borrow Y= Client does not affirm ability to borrow, results in a reject
126	ExpireTime	No	Required if TimeInForce = GTD GMT time
168	EffectiveTime	No	Specify the starting time of the order GMT time

Tag	Field Name	Req'd	Comments
211	PegOffset	No	Representing a price offset, which can be mathematically added to a "Price". The number of decimal places is two places.
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless If not present, will use default account value For directed order to venue, accepts values specified in venue's spec, but not listed above.
43210	Order Destination	No	FI specific tag. If present, indicate order is a directed order to venue. If not present, indicate order is staged in FI. Available value: 'ROUT' = Smart Router
43226	Attributable	o	FI specific tag. Specified if an order is to be entered as Attributable Market Maker Quote • Set to 'Y' • Default is 'N'
	Standard Trailer	Yes	

5.6.2   Order Cancel Request (MsgType = F)

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = F
41	OrigClOrdID	Yes	ClOrdID of the previous order
37	OrderID	No	Unique identifier of most recent order as assigned by broker.
11	ClOrdID	Yes	Unique ID of cancel request as assigned by the institution.
55	Symbol	Yes	
65	SymbolSfx	No	
54	Side	No	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt

Tag	Field Name	Req'd	Comments
38	OrderQty	No	
58	Text	No	
	Standard Trailer	Yes	

5.6.3 Order Cancel/Replace Request (a.k.a. Order Modification Request) (MsgType = G)

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = G
37	OrderID	No	Unique identifier of most recent order
41	OrigClOrdID	Yes	ClOrdID of the previous order
11	ClOrdID	Yes	Unique identifier of replacement order as assigned by institution.
1	Account	No	Account mnemonic as agreed between broker and institution.
18	ExecInst	No	Can contain multiple instructions, space delimited.
110	MinQty	N0	
111	MaxFloor	No	
55	Symbol	Yes	Must match original order
65	SymbolSfx	No	
54	Side	Yes	Must match original side.
38	OrderQty	Yes	
40	OrdType	Yes	
44	Price	No	Required for limit OrdTypes.
59	TimeInForce	No	Absence of this field indicates Day order
126	ExpireTime	No	Required if TimeInForce = GTD
168	EffectiveTime	No	Specify the starting time of the order GMT time
47	Capacity	No	
	Standard Trailer	Yes	

5.7 APPLICATION MESSAGES – FI to customer

5.7.1 3Execution Report (Drop Copy) (MsgType 8)

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 8
37	OrderID	Yes	FI system assigned order ID
11	ClOrdID	No	Copied from Customer's request
41	OrigClOrdID	No	Copied from Customer's request
17	ExecID	Yes	FI assigned execution ID
20	ExecTransType	Yes	
19	ExecRefID	No	Required for Cancel and Correct ExecTransType messages
150	ExecType	Yes	
39	OrdStatus	Yes	0=New 1= PartiallyFilled 2=Filled 3=DoneForDay 4=Canceled 5=Replaced 6=PendingCancel 7=Stopped 8=Rejected A=PendingNew C=Expired E=PendingReplace
1	Account	No	Copied from Customer's request
55	Symbol	Yes	Based on customer's input. If customer uses NASDAQ/B format in tag 55, then we send back same thing to customer
65	SymbolSfx	No	
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale (client affirms ability to borrow) '6' = ShortSale Exempt
38	OrderQty	Yes	
40	OrdType	No	'1' = Market '2' = Limit 'P' = Peg Order
44	Price	No	Price per share

FIX MESSAGES

Tag	Field Name	Req'd	Comments
211	PegDifference	No	Representing a price offset, which can be mathematically added to a "Price". The number of decimal places is two places.
59	TimeInForce	No	
126	ExpireTime	No	
18	ExecInst	No	Can contain multiple instructions, space delimited.
47	Capacity	No	
32	LastShares	Yes	Quantity of shares bought/sold on this (last) fill.
31	LastPx	Yes	Price of this (last) fill.
151	LeavesQty	Yes	Amount of shares open for further execution.
14	CumQty	Yes	Currently executed shares for chain of orders.
6	AvgPx	Yes	Calculated average price of all fills on this order.
43211	Execution Venue	No	FI specific tag. Specify where the trade happens, can be different from 43210, for example "FI" indicates a displayed market.
43212	Execution Contra Broker	No	FI specific tag. Indicate who your contra broker here is. If it is a internal cross, it will carry customer's own firm id
43214	Liquidity Indicator	No	If available from venue, carry venue's raw liquidity indicator. For Internal crossed trade, four possible values, 'P', provided liquidity 'T', took liquidity 'R', routed to external destination 'X', Routed to external venue and took liquidity
58	Text	No	Optional free style text message
	Standard Trailer	Yes	

5.7.2   Order Cancel Reject (MsgType =9)

Tag	Field Name	Req'd	Comments
35	Standard Header	Yes	MsgType = 9
37	OrderID	Yes	
11	ClOrdID	Yes	Unique order id assigned by institution to the cancel request or to the replacement order.

Tag	Field Name	Req'd	Comments
41	OrigClOrdID	Yes	ClOrdID which could not be canceled/replaced. ClOrdID of the previous order (NOT the initial order of the day) when canceling or replacing an order.
39	OrdStatus	Yes	OrdStatus value after this cancel reject is applied.
102	CxlRejReason	No	
58	Text	No	Optional explanation message
	Standard Trailer	Yes	

6 Appendix

6.1 Order Type Examples

6.1.1 Reserve Order

Reserve orders are orders having both a displayed quantity and a non-visible quantity that is replenished when the displayed quantity is fully executed.

- The incoming order will provide the Order Quantity (OrderQty) and the Display Quantity (MaxFloor).
- The reserve quantity is the difference between the Order Quantity and the Display Quantity.

Tag	Field Name	Req'd	Comments
55	Symbol	Yes	Ticker symbol.
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities
40	OrdType	Yes	'2' = Limit
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.) '5' = GTX (Expires at end of extended day)
111	MaxFloor	No	The quantity to be displayed. Required for reserve orders.
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless

6.1.2 Smart Router Order

The Sweep Limit will always begin with the inside price level as the starting price. The Sweep Limit will continue until the limit price is reached or the order is no longer marketable or until the order is complete.

The Sweep Market is the same as a Sweep Limit order that will keep working at the current inside price

The Sweep Limit/Market order can have a TIF of "IOC" and "Day."

Tag	Field Name	Req'd	Comments
110	MinQty	No	Minimum quantity of an order to be executed.
55	Symbol	Yes	Ticker symbol. Common, "human understood" representation of the security
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities
40	OrdType	Yes	'1' = Market '2' = Limit
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.) '3' = IOC (Immediate-Or-Cancel)
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless
43210	Order Destination	No	FI specific tag. 'ROUT' = DBOT Smart Router

6.1.3 Market Maker Quote

The market maker quote is entered either as one-sided or two side quotes. Each firm is allowing one designated quote per security and one quote on each side of the market. There is no auto quote refresh, so if a market maker quote is fully executed, then a new quote will be placed. Market maker quotes are entered and updated just like an order on FI, except that they will be reinstated the next day if they remain in the book at the end of the trading session.

Tag	Field Name	Req'd	Comments
43225	Market Maker Quote	No	DBOT specific tag. Specified if an order is to be entered as a quote. • Set to 'Y' • Default is 'N'

Tag	Field Name	Req'd	Comments
55	Symbol	Yes	Ticker symbol.
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities
40	OrdType	Yes	'2' = Limit
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.) '5' = GTX (Expires at end of extended day)
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless
43226	Attributable	No	FI specific tag. Specified if an order is to be entered as Attributable Market Maker Quote • Set to 'Y' • Default is 'N'

6.1.4 Market Maker Reserve Order

Market Maker Quote Reserve orders are orders having both a displayed quantity and a non- visible quantity that is replenished when the displayed quantity is fully executed.

- The incoming order will provide the Order Quantity (OrderQty) and the Display Quantity (MaxFloor).
- The reserve quantity is the difference between the Order Quantity and the Display Quantity.

6.1.4.1 Reserve Order Attributes

Tag	Field Name	Req'd	Comments
	Market Maker Quote	Yes	
55	Symbol	Yes	Ticker symbol.
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities

Tag	Field Name	Req'd	Comments
40	OrdType	Yes	'2' = Limit
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.) '5' = GTX (Expires at end of extended day)
111	MaxFloor	No	The quantity to be displayed. Required for reserve orders.
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless
43226	Attributable	No	FI specific tag. Specified if an order is to be entered as Attributable Market Maker Quote • Set to 'Y' • Default is 'N'

6.1.5   FI Primary Peg

6.1.5.1   *Primary Peg Order Attributes*

Tag	Field Name	Req'd	Comments
	Market Maker Quote	Yes	
55	Symbol	Yes	Ticker symbol.
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities
40	OrdType	Yes	'P' = Peg Order
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.)
111	MaxFloor	No	The quantity to be displayed. Required for reserve orders.
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless

APPENDIX

Tag	Field Name	Req'd	Comments
18	ExecInst	Yes	Can contain multiple instructions, space delimited. • 'R' for Primary Peg
211	PegOffset	No	Representing a price offset, which can be mathematically added to a "Price". The number of decimal places is two places.

6.1.6   FI Mid-Point Peg

6.1.6.1   Mid-Point Peg Order Attributes

Tag	Field Name	Req'd	Comments
	Market Maker Quote	Yes	
55	Symbol	Yes	Ticker symbol.
54	Side	Yes	'1' = Buy '2' = Sell '5' = ShortSale '6' = ShortSale Exempt
38	OrderQty	Yes	Number of shares ordered. This represents the number of shares for equities
40	OrdType	Yes	'P' = Peg Order
44	Price	No	Required for limit OrdTypes
59	TimeInForce	No	'0' = DAY (Expires at end of market day.)
47	Capacity	No	'P' = Principal 'A' = Agency 'R' = Riskless
18	ExecInst	Yes	Can contain multiple instructions, space delimited. • 'M' for midpoint.

Notes

FUNDAMENTAL INTERACTIONS

Sales & Development Office
147 W. 26th Street. 300
New York, NY 10001
Office: (212) 725-3509 | Corporate: 212-845-9077
sales@fundamentalinteractions.Com

Support Office

Hudson Street, Hoboken, NJ 07030
Support Phone: 888-851-1369
support@fundamentalinteractions.com

Development Office

Development Office
1500 District Avenue, 2nd Floor, Burlington,
MA 01803

Europe Development & Support Office

Kharkov, Ukraine
61000