

Direct Edge Portalsm

FIX Application Programming Interface (API) Specification

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The most recent version of this API may be obtained on the Direct Edge ECNSM Website:

<http://www.directedgeecn.com>

The Direct Edge ECN uses the FIX 4.2 protocol:

<http://www.fixprotocol.org>

The ECN website contains a complete overview of ECN Certification process. Direct Edge ECNSM Certification Procedures are available online in the same section as the Direct Edge ECNSM Portal API.

1.0 Data

1.1 General Criteria – Used in ALL FIX Messages

1. EDGA/ EDGX are insensitive to the client's field orderings, except where dictated by the FIX Standard Header and Standard Trailer (see next Section).
2. EDGA / EDGX will order the FIX fields within the message in ascending order, except for the header and trailer.

1.2 Message Types

The Following FIX messages are understood by the system

- 0 = HeartBeat
- 1 = TestRequest
- 2 = ResendRequest
- 3 = Reject
- 4 = SequenceReset
- 5 = Logout
- 8 = ExecutionReport
- 9 = OrderCancelReject
- A = Logon
- D = NewOrderSingle
- F = OrderCancelRequest
- G = OrderCancelReplaceRequest
- H = OrderStatusRequest

1.3 Data Types – Used in All FIX Messages

Type	Format	Example
Int	Integer	99999
Float	Numeric digits with optional decimal point and sign character. Accommodate at least 15 significant digits. Price restrictions are: Minimum Price Variant of 0.01 or 0.0001 (See RegNMS pricing). Quotes are rounded down or up for buys and sells respectively to the NASDAQ MPV of 0.01. Maximum Price is 99999.00. Minimum Price is 0.01 or 0.0001 (See RegNMS Pricing)	-2000.000000 -2000 -2000.
Qty	Quantity: see float (0 < Qty < 2,147,483,647)	
Price	Price: see float (0 < Price < 99,999.00)	
Price Offset	Price Offset: see float	
Amt	Amount: see float	
Char	Single Character.	
Boolean	Single Character 'Y' or 'N'	
String	Case Sensitive Alphanumeric characters with no terminating character	EDGA / EDGX ZXZZT
UTC Date/Time	GMT Date/Time: YYYYMMDD-HH:MM:SS GMT Date/Time: YYYYMMDD-HH:MM:SS.sss	20011231-22:30:00 20011231-22:30:00.015
UTC Date	GMT Date: YYYYMMDD	20011231
UTC Time	GMT Time: HH:MM:SS	22:30:00

2.0 General FIX Message Structure

The Standard Header and Standard Trailer are required on all FIX messages. MsgType (FIX 35) is part of the header. These fields are REQUIRED to be in this order on the header and trailer.

2.1 Standard Header

TAG	FieldName	Contents	Comments
8	BeginString	FIX.4.2(.X)	Protocol Version, X is the ECN version number. The ".X" portion is optional and may be altered. Only on the "FIX.4.2" string should be depended upon.
9	BodyLength	99999	Length of Message Body
35	MsgType	Accepted Message Types	0 = HeartBeat 1 = TestRequest 2 = ResendRequest 3 = Reject 4 = SequenceReset 5 = Logout 8 = ExecutionReport 9 = OrderCancelReject A = Logon D = NewOrderSingle F = OrderCancelRequest G = OrderCancelReplaceRequest H = OrderStatusRequest
49	SenderCompID	MMID, EDGA / EDGX	Sender Company ID (MMID of message sender)
56	TargetCompID	EDGA / EDGX, MMID	Target Company ID (MMID of message receiver)
34	MsgSeqNum		Message Sequence Number (Resets to 1 at the start of each trading day)
115*	OnBehalfOfCompID	MMID	"On Behalf Of" Company MMID (required from Service Bureau Client. MMID of original client)
128*	DeliverToCompID	MMID	"Deliver To" Company MMID (sent by DIRECT EDGE to Service Bureau, MMID of original client)
50*	SenderSubID	MMID1	Sender Sub ID (required from client only on Logon Messages)
57*	TargetSubID	MMID1	Target Sub ID (sent by DIRECT EDGE on Logon Response Messages)
43*	PossDupFlag		Indicates possible retransmission of this seq num. 43=N is the default if field is omitted, and 43=N should not be sent on all messages.
97*	PossResend		Indicates possible retransmission of msg under a New sequence number. 97=N is the default if filed is omitted, and 97=N should not be sent on all messages.
52	SendingTime		GMT Date/Time Message was sent

2.2 Standard Trailer

TAG	FieldName	Contents	Comments
10	Checksum		Integer byte count of message length without the CheckSum field

* = Optional.

3.0 Administrative Messages

3.1 Logon - From Client

TAG	FieldName	Contents	Comments
35	MsgType	A	(Contained in header)
95	RawDataLength	String[20]	Length of RawData
96	RawData	Password	Password for username SenderSubID
98	EncryptMethod	0	None
108	HeartBtInt		Client Heartbeat Interval (In seconds)

3.2 Logon - Response From Direct Edge ECNsm

TAG	FieldName	Contents	Comments
35	MsgType	A	(Contained in header)
98	EncryptMethod	0	None
108	HeartBtInt	60	DIRECT EDGE ECN Heartbeat Interval is 60 seconds. Clients should use a 60 second Heartbeat Interval.

3.3 HeartBeat - From Direct Edge ECNsm and Client

TAG	FieldName	Contents	Comments
35	MsgType	0	(Contained in header)
112*	TestReqID		Required in response to a Test Request

3.4 TestRequest - From Direct Edge ECNsm and Client

TAG	FieldName	Contents	Comments
35	MsgType	1	(Contained in header)
112	TestReqID		Auto-Generated Request ID

* = Optional.

3.5 Resend - From Direct Edge ECNsm and Client

TAG	FieldName	Contents	Comments
35	MsgType	2	(Contained in header)
7	BeginSeqNo		
16	EndSeqNo		0 means +infinity

3.6 Reject - From Direct Edge ECNsm and Client

TAG	FieldName	Contents	Comments
35	MsgType	3	(Contained in header)
45	RefSeqNum		MsgSeqNo of Rejected Message
371*	RefTagID		
372*	RefMsgType		
373*	SessionRejectReason		
58*	Text		

3.7 SequenceReset/GapFill - From Direct Edge ECNsm and Client

TAG	FieldName	Contents	Comments
35	MsgType	4	(Contained in header)
36	NewSeqNo		Next expected Sequence Number
123*	GapFillFlag	'Y' or 'N' ('Y' is required)	The use of 'Y' is required for common resequencing. 'N' is not recommended, and should only be used in emergency situations that require manual intervention. 'N' causes the SeqNo of the SequenceReset message to be ignored, creating a high possibility of message loss.

3.8 Logout - From Direct Edge ECNsm and Client

TAG	FieldName	Contents	Comments
35	MsgType	5	(Contained in header)
58*	Text		Indicates reason for logout

* = Optional.

4.0 Order Entry Messages

4.1 New Order Single - From Client

TAG	FieldName	Contents	Comments
35	MsgType	D	(Contained in header)
11	ClOrdID	Client ID	Client Order ID Alphanumeric and Unique within a trading day. ':' character can not be used. Validation is case insensitive, so reusing an ID differing in case only will cause a rejection. ClOrdID is case sensitive, so the same case must be used to cancel an order. 20 chars maximum length.
1*	Account	Account ID	Sent by client, and returned to client on all Execution reports for this order. 20 chars maximum length.
21	HandInst	1	Private AutoEx
38	OrderQty		# of shares
210*	MaxShow	>=0	Maximum number of shares to display on Level 2. The remaining shares are hidden. MaxShow must be a round lot.
111*	MaxFloor	>=0	Maximum number of shares to display on Level 2. The remaining shares are hidden. MaxFloor must be a round lot. (Will be returned in the MaxShow field on Execution Reports)
110*	MinQty		Minimum trade quantity. Can only be sent on non-routable hidden orders (MaxShow=0, MaxFloor=0, DisplayInstruction=N) or non-routable IOC orders. MinQty must be >0 and <=OrderQty
44	Price		See Data Types for Maximum Precision
54	Side		1 = Buy 2 = Sell 5 = Sell Short (customer confirms affirmative determination)
55	Symbol		Valid Ticker Symbol. Spaces and special characters are not accepted. 5 chars maximum length.
65*	SymbolSfx		Symbol Suffix for NYSE Listed Securities in CMS format. 5 chars maximum length.
9215*	LiqProvOnly	Single character	Liquidity Provider Flag. N = Add or Remove Liquidity (Default If Unspecified) Y = Add Liquidity only S = Super Aggressive Cross Lock. Order will be removed from the book and routed out to any market participant's quote crossing or locking the order. X = Super Aggressive Cross. Order will be removed from the book and routed out to any market participant's quote crossing the order.
40	OrdType		1 = Market (Market orders supported only during market hours or NOOP) 2 = Limit P = Pegged
59*	TimeInForce		0 = Day, Good through normal Market Hours. (Limit Order Activates at 9:30 ET, Times Out at 16:00 ET) (Default if Unspecified) 1 = GTC, Good from pre market through after Market Hours session, until EDGA / EDGX closes. (Non-Holiday: 08:00 - 20:00 ET, then Timeout) 3 = Immediate Or Cancel 6 = GTD / GTT, Good Till Date / Time (Date/Time must be specified in field 126)
126*	ExpireTime	GMT Date / Time of Order Expiration	The Date and Time of order expiration. Conditionally Required if TimeInForce = GTD / GTT. Valid FIX UTC Date/Time field should have today's date and a time within trading hours.
47*	Rule80A	Single Character	This is Used for Specifying Order Capacity. A = Agency (Default if Unspecified) P = Principal R = Riskless Principal
18*	ExecInst	Single Character Execution Instruction	n = Non-routable orders will not "auto peg" if order would cross/lock the market f = ISO Order (Intermarket Sweep Order, must be Limit or Market Order) o = NOOP eligible (Nasdaq or NYSE Opening Cross). Market or Limit order must be sent by 09:27:59 ET, otherwise the NOOP instruction will be ignored - all other order terms will remain in effect. For pegged orders: P = Market Peg (Pegged to Opposite Side), R = Primary Peg (Pegged to Same Side), M = Mid-price Peg (midprice of inside quote) h = Hide Not Slide eligible; if locking or crossing the NBBO, order will be adjusted to post as follows: <ul style="list-style-type: none"> • Hidden orders will be booked at the locking price. • Displayed orders will be displayed at a compliant price (1 tick worse than the NBBO) and also be booked as hidden at the locking price.
198*	SecondaryOrderID	Secondary OrderID	Sent by client, and returned to client on all Execution reports for this order. 12 chars maximum length.
60*	TransactTime		Time Order was Initiated
76*	ExecBroker	Four character	- External Routing is supported on EDGA and EDGX.

TAG	FieldName	Contents	Comments
		Routing Strategy	<p>- NYSE, AMEX, and OTC orders are routable by default with ROUT. EDGA = Order will execute internally within EDGA only. (For EDGA only) EDGX = Order will execute internally within EDGX only. (For EDGX only) ROUC = Sweeps book, IOI and non-IOI destinations, BX, DOT then reposts to EDGX; Must have a Limit price or order will reject. Cost Effective routing strategy ROUD = Marketable orders are routed to non-IOI dark destinations but will not be routed to displayed liquidity ROUE = Marketable orders are eligible to be routed externally to all destinations except IOI destinations. ROUT = Marketable orders are eligible to be routed externally to all destinations. ROUX = Marketable orders are eligible to be routed to displayed external liquidity but will not be routed to any IOI destinations. ROUZ = Marketable orders will be routed to IOI destinations but will not be routed to displayed liquidity. ROUQ = Marketable orders will be routed to IOI destinations for a shortened time period but will not be routed to displayed liquidity. RDOT = Order is DOT routing eligible. Will be eligible to be routed to all destinations. (Listed only) RDOX = Order is DOT routing eligible. Will not be eligible to be routed to any IOI destinations. Will not route externally via DOT. (Listed only) ROPA = Sweep book and Route to NYSE ARCA as IOC ROBA = Sweep book and Route to BATS as IOC ROBX = Sweep book and Route to Nasdaq BX as IOC ROIS = Sweep book and Route to ISE as IOC ROLF = Sweep book and Routes to FLOW as IOC or DAY (depending on original order's TIF) INET = Post on INET book (Order rejected if AddLiquidity=Y or OrdType=P) IOCT = Orders are eligible to be routed to IOI destinations and then to EDGA (for EDGX orders) or to EDGX (for EDGA orders). Order must be a Limit IOC. IOCX = Orders are eligible to be routed to EDGA (for orders entered on EDGX) or to EDGX (for orders entered on EDGA). Order must be a Limit IOC. - Directed IOC ISO orders must have Execlnst=f and TIF=IOC. ISAM = IOC ISO order routed to AMEX as ISO ISPA = IOC ISO order routed to ARCA as ISO ISBA = IOC ISO order routed to BATS as ISO ISBX = IOC ISO order routed to Nasdaq BX as ISO ISCB = IOC ISO order routed to CBOE as ISO ISCX = IOC ISO order routed to CHSX as ISO ISCN = IOC ISO order routed to NSX as ISO ISGA = IOC ISO order routed to EDGA as ISO ISGX = IOC ISO order routed to EDGX as ISO ISIS = IOC ISO order routed to ISE as ISO ISLF = IOC ISO order routed to LavaFlow as ISO ISNQ = IOC ISO order routed to Nasdaq as ISO ISNY = IOC ISO order routed to NYSE as ISO ISPX = IOC ISO order routed to PHLX as ISO ISTR = IOC ISO order routed to TRAC as ISO</p>
211*	PegDifference		Difference (signed) added to "base" peg price. Added to Market Offer on Peg Market Buys and Peg Primary Sells. Added to Market Bid on Peg Primary Buys and Peg Market Sells. Default value is 0.00
9140*	DisplayInstruction	Single Character	Y=Display (Default If Unspecified) N=Hidden. Equivalent to MaxShow=0 or MaxFloor=0. Field is not returned on Execution Reports. Cancel Replace of this field not supported.
114*	LocateReqd	Single Character	N=Client does not request stock location. (Default If Unspecified) Y=Client requests ECN to locate stock. All orders with LocateReqd=Y will be rejected by the ECN, regardless of Side.

* = Optional.

4.2 Execution Report – GENERIC EXECUTION REPORT From Direct Edge ECNSM

All possible fields that could be sent to the Client in an Execution Report. Not all fields are sent on all messages. Extra fields on all FIX messages should be ignored. The presence of fields beyond this API should not cause message rejects. New fields may be added to the API, and unnecessary fields may be removed from the API.

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs.
37	OrderID	ECN OrderId	Exchange Generated OrderID In response to a Cancel Request: OrderID of the Original order 20 chars maximum length.
41	OrigClOrdID	ClOrdId	In response to a Cancel Request: Original ClOrdID of the Initial Order. See "4.1 New Order Single" for specs, ClOrdID field.
17	ExecID	ECN Execution ID	21 chars maximum length. "None" on an Execution Report for a new order.
20	ExecTransType	Execution Report Type	0 = New 1 = Cancel 3 = Status
150	ExecType	Execution Type	0 = New 1 = Partial Fill 2 = Fill 3 = Done For Day 4 = Canceled 5 = Replace 6 = Pending Cancel 8 = Rejected A = Pending New C = Expired E = Pending Replace
39	OrdStatus	Current Order Status	0 = New 1 = Partially Filled 2 = Filled 3 = Done For Day 4 = Canceled 5 = Replaced 6 = Pending Cancel 8 = Rejected A = Pending New C = Expired E = Pending Replace
103	OrdRejReason	Order Reject Reason	0 = BrokerOption 1 = UnknownSymbol 2 = ExchangeClosed 3 = OrderExceedsLimit 4 = TooLateToEnter 5 = UnknownOrder 6 = DuplicateOrder 8 = StaleOrder
1*	Account	Account ID	Sent by client, and returned to client on all Execution reports for this order. See "4.1 New Order Single" for specs.
55	Symbol		See "4.1 New Order Single" for specs.
65*	SymbolSfx		See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
38	OrderQty		Order Quantity
210	MaxShow		See "4.1 New Order Single" for specs. MaxFloor and DisplayInstruction are not returned.
110*	MinQty		See "4.1 New Order Single" for specs.
40	OrdType		1 = Market 2 = Limit P = Pegged
44	Price		Limit Price specified For Hidden orders made ExecInst[18] = h the original booked (locking) price is returned. For Displayed orders made ExecInst[18] = h displayed (compliant) price is returned
59	TimelnForce		See "4.1 New Order Single" for specs.
126	ExpireTime	GMT Date / Time of Order Expiration	See "4.1 New Order Single" for specs.
151	LeavesQty		0 for canceled, done for day, expired or rejected. Otherwise it is OrderQty-CumQty
14	CumQty		Total Quantity Filled

TAG	FieldName	Contents	Comments
6	AvgPx	0.0	Average Execution Price for all executions on the order and previous cancel replaced orders. Sent for all ExecType and OrderStatuses. 0.0 when ExecType=NEW and OrderStatus=NEW.
31	LastPx	ExePrice	Executed Price
32	LastShares	ExeQty	Executed Shares or Cancelled Shares
9882	AddLiq	Single character Liquidity Flag	V – Execution added liquidity (Tape A) B – Execution added liquidity (Tape B) Y – Execution added liquidity (Tape C) P – Execution added liquidity to EDGX using ROUC strategy W – Execution removed liquidity (Tape A) N – Execution removed liquidity (Tape B / C) X – Route to External Venue (Tape A / B / C) I – Routed to EDGA (for EDGX orders) or to EDGX (for EDGA orders) Z – Route to an IOI destination (Tape A / B / C, ROUZ ExecBroker only) D – Listed Route removing liquidity from NYSE DOT (Tape A) R – Re-Routed via Routing Destination (Tape A / B / C) F – Listed Route adding liquidity to NYSE DOT (Tape A) E – Internal Match (Tape A / B / C, Add and Remove MMIDs are the same) H – Execution added/removed liquidity from Hidden order (Tape A / B / C, EDGA only) A – Execution added liquidity to INET book (Tape A / B / C) S – Execution for an ISO order routed externally as ISO (Tape A / B / C) O – Routed to the Nasdaq Opening Cross (Tape C) Q - Routed using ROUQ strategy (IOI ELP only; All Tapes); Or, using ROUC strategy for executions at 'inexpensive' destinations T – Routed to a non-IOI dark destination J – Routed to Nasdaq (Tape A & C only) L – Routed to Nasdaq using INET strategy (Tape A & C Only) 2 – Routed to Nasdaq using INET strategy (Tape B Only) K – Routed to BATS using ROBA strategy C – Routed to Nasdaq BX (Tape A & C only) G – Routed to Arca (Tapes A & C only), Removes liquidity M – Routed to LavaFlow, Added Liquidity U – Routed to LavaFlow, Removes Liquidity 3 – Added, Tapes A & C during Pre/Post Market session(s) 4 – Added, Tape B during Pre/Post Market session(s) 5 – Internal Match during Pre/Post session(s) 6 – Removed, All Tapes during Pre/Post Market session(s) 7 – Routed (All Tapes) during Pre/Post Market session(s)
9215	LiqProvOnly	Single Char	See "4.1 New Order Single" for specs.
382	NoContraBrokers	1	
375	ContraBroker	Contra MMID	
437	ContraTradeQty		Same as LastShares
438	ContraTradeTime		Same as transact time
47	Rule80A	Single Character	This is Used for Specifying Order Capacity. A = Agency (Default if Unspecified) P = Principal R = Riskless Principal
18*	ExecInst	Single Character Execution Instruction	Optional field. See "4.1 New Order Single" for specs.
211*	PegDifference		Optional field. See "4.1 New Order Single" for specs.
58	Text		Rejection reason
198*	SecondaryOrderID	Secondary OrderID	Sent by client, and returned to client on all Execution reports for this order. 12 chars maximum length.
60	TransactTime		Time Order was Initiated
76*	ExecBroker	Four character Routing Strategy	Routing strategy sent on New Order is returned. Will be returned for any orders that route by default. See "4.1 New Order Single" for specs.

* = Optional.

4.3 Execution Report - New Order or Cancel/Replace - From Direct Edge ECNSM

Generated As a result of a New Order Placement or Cancel/Replace Request Placement

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs.
37	OrderID	ECN OrderId	See "4.2 Execution Report" for specs.
17	ExecID	"None"	See "4.2 Execution Report" for specs.
20	ExecTransType	0	0 = New
150	ExecType	0	0 = New 5 = Replace 8 = Rejected C = Expired E = Pending Replace
39	OrdStatus	Current Order Status	0 = New 5 = Replaced 8 = Rejected C = Expired E = Pending Replace
103*	OrdRejReason	Rejection Reason	0 = BrokerOption 1 = UnknownSymbol 2 = ExchangeClosed 3 = OrderExceedsLimit 4 = TooLateToEnter 5 = UnknownOrder 6 = DuplicateOrder 8 = StaleOrder
1*	Account	Account ID	See "4.1 New Order Single" for specs.
55	Symbol		See "4.1 New Order Single" for specs.
65*	SymbolSfx		See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
38	OrderQty		Order Quantity
210*	MaxShow		See "4.1 New Order Single" for specs. MaxFloor and DisplayInstruction are not returned.
110*	MinQty		See "4.1 New Order Single" for specs.
40	OrdType		1 = Market 2 = Limit P = Pegged
44	Price		Limit Price specified For Hidden orders made ExecInst[18] = h the original booked (locking) price is returned. For Displayed orders made ExecInst[18] = h displayed (compliant) price is returned
59*	TimelnForce		See "4.2 Execution Report" for specs.
126*	ExpireTime	GMT Date / Time of Order Expiration	See "4.2 Execution Report" for specs.
151	LeavesQty		0 for canceled, expired, or rejected
14	CumQty		Total Quantity Filled
6	AvgPx	0.0	See "4.2 Execution Report" for specs.
31	LastPx	ExePrice	Executed Price
32	LastShares	ExeQty	Executed Shares
9215*	LiqProvOnly	Single Char	See "4.1 New Order Single" for specs.
47*	Rule80A	Single Character	This is Used for Specifying Order Capacity. A = Agency (Default if Unspecified) P = Principal R = Riskless Principal
18*	ExecInst	Single Character Execution Instruction	Optional field. See "4.1 New Order Single" for specs.
211*	PegDifference		Optional field. See "4.1 New Order Single" for specs.
58*	Text		Textual description - rejection reason
198*	SecondaryOrderID	Secondary OrderID	Sent by client, and returned to client on all Execution reports for this order. 12 chars maximum length.
60	TransactTime		GMT Date/Time of Execution
76*	ExecBroker	Four character Routing Strategy	Routing strategy sent on New Order is returned. Will be returned for any orders that route by default. See "4.1 New Order Single" for specs.

* = Optional.

4.4 Execution Report - Filling Status From Direct Edge ECNSM

TAG	FieldName	Contents	Comments
35	MsgType	8	(Contained in header)
11	ClOrdID	Client ID	See "4.1 New Order Single" for specs. In response to a Cancel Request: ClOrdID of the Cancel Request In response to a Manual EDGA / EDGX Cancel: ClOrdID of the Original order
37	OrderID	ECN OrderId	See "4.2 Execution Report" for specs.
41*	OrigClOrdID	ClOrdID of Order	See "4.2 Execution Report" for specs.
17	ExecID	ECN Execution ID	See "4.2 Execution Report" for specs.
20	ExecTransType	0	0 = New
150	ExecType	Execution Type	0 = New 1 = Partial Fill 2 = Fill 3 = Done For Day 4 = Canceled 5 = Replace 6 = Pending Cancel 8 = Rejected A = Pending New C = Expired E = Pending Replace
39	OrdStatus	Current Order Status	1 = Partially Filled 2 = Filled 3 = Done For Day 4 = Canceled 5 = Replaced C = Expired E = Pending Replace
1*	Account	Account ID	Sent by client, and returned to client on all Execution reports for this order. 20 chars maximum length.
55	Symbol		See "4.1 New Order Single" for specs.
65*	SymbolSfx		See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
38	OrderQty		Order Quantity
210*	MaxShow		See "4.1 New Order Single" for specs. MaxFloor and DisplayInstruction are not returned.
110*	MinQty		See "4.1 New Order Single" for specs.
40	OrdType		1 = Market 2 = Limit P = Pegged
44	Price		Limit Price specified For Hidden orders made ExecInst[18] = h the original booked (locking) price is returned. For Displayed orders made ExecInst[18] = h displayed (compliant) price is returned
59	TimeInForce		See "4.2 Execution Report" for specs.
126*	ExpireTime	GMT Date / Time of Order Expiration	See "4.2 Execution Report" for specs.
151	LeavesQty		0 for canceled, expired, or rejected
14	CumQty		Total Quantity Filled
6	AvgPx	0.0	See "4.2 Execution Report" for specs.
31	LastPx	ExePrice	Last exec price
32	LastShares	ExeQty	Last Execution Quantity
9882	AddLiq	Single Char	See "4.2 Execution Report" for specs.
9215*	LiqProvOnly	Single Char	See "4.1 New Order Single" for specs.
382	NoContraBrokers	1	
375	ContraBroker	Contra MMID	
437	ContraTradeQty		Same as LastShares
438	ContraTradeTime		Same as transact time
47	Rule80A	Single Character	This is Used for Specifying Order Capacity. A = Agency (Default if Unspecified) P = Principal R = Riskless Principal
18*	ExecInst	Single Character Execution Instruction	Optional field. See "4.1 New Order Single" for specs.
211*	PegDifference		Optional field. See "4.1 New Order Single" for specs.
58	Text		Rejection reason

TAG	FieldName	Contents	Comments
198*	SecondaryOrderID	Secondary OrderID	Sent by client, and returned to client on all Execution reports for this order. 12 chars maximum length.
60	TransactTime		GMT Date/Time of Execution

* = Optional.

4.5 Execution Report - Order Status from Direct Edge ECNsm

Order Status Request no longer supported.

5.0 Order Cancel Messages

5.1 Order Cancel – From Client

TAG	FieldName	Contents	Comments
35	MsgType	F	(Contained in header)
11	ClOrdID	Client ID	Client Order ID of the Cancel Request. Must be unique amongst all ClOrdID for the trading day. 20 chars maximum length.
41	OrigClOrdID		Original Client Order ID of the Initial Order. Must be unique within a trading day. 20 chars maximum length.
55	Symbol		Required for Confirmation. Must match the original order. See "4.1 New Order Single" for specs.
65*	SymbolSfx		Required for Confirmation. Must match the original order. See "4.1 New Order Single" for specs.
54	Side		See "4.1 New Order Single" for specs.
18*	ExecInst	Single Character Execution Instruction	Optional field. See "4.1 New Order Single" for specs.
60*	TransactTime		GMT Date/Time Order was initiated

5.2 Order Cancel Replace Request – From Client

See the C/R logic explanation in section 7.5

C/R of ExecInst (or any other field not listed below) is not supported.

TAG	FieldName	Contents	Comments
35	MsgType	G	(Contained in header)
11	ClOrdID	Client ID	See "5.1 Order Cancel" for specs.
41	OrigClOrdID		See "5.1 Order Cancel" for specs.
21	HandlInst	1	Required. Private AutoEx
38	OrderQty		Total Order Quantity desired, including the part already executed. Price or OrderQty is required.
210*	MaxShow	>=0	Maximum number of shares to display on Level 2. The remaining shares are hidden. Can be altered, but OrderQty is also required.
111*	MaxFloor	>=0	Maximum number of shares to display on Level 2. The remaining shares are hidden. (Will be returned in the MaxShow field on Execution Reports)
211*	PegDifference		Can be altered, but Price is also required. See "4.1 New Order Single" for specs.
44	Price		New Limit Price. Price or OrderQty is required.
55	Symbol		Required for Confirmation. Must match the original order. See "4.1 New Order Single" for specs.
65*	SymbolSfx		Required for Confirmation. Must match the original order. See "4.1 New Order Single" for specs.
40	OrdType		Required for Confirmation. Limit may be changed to market. See "4.1 New Order Single" for specs.
54	Side		Required for Confirmation. Can be altered using C/R, but OrderQty is also required.
18*	ExecInst	Single Character Execution Instruction	Optional field. See "4.1 New Order Single" for specs.
60*	TransactTime		GMT Date/Time Order was initiated

* = Optional.

5.3 Order Cancel Reject - From Direct Edge ECNsm

TAG	FieldName	Contents	Comments
35	MsgType	9	(Contained in header)
11	ClOrdID		See "5.1 Order Cancel" for specs.
37	OrderID	ECN OrderID	Exchange Generated OrderID If Cxl Reject reason = Unknown Order then populated with "None"

TAG	FieldName	Contents	Comments
			20 chars maximum length.
41	OrigClOrdID		See "5.1 Order Cancel" for specs.
55	Symbol		See "4.1 New Order Single" for specs.
65*	SymbolSfx		See "4.1 New Order Single" for specs.
434	CxlRejResponseTo	Reject Response to	1 = Order Cancel Request 2 = Order Cancel/Replace Request
102*	CxlRejReason	Predefined Reason	0 = Too Late 1 = Unknown Order
18*	ExecInst	Single Character Execution Instruction	Optional field, returned if sent by client. See "4.1 New Order Single" for specs.
58*	Text		Textual description

* = Optional.

6.0 Operational Sequence

6.1 Logon Process

1. The client establishes a TCP connection to the Direct Edge ECNsm at port 21000.
2. The client should send a FIX-Login Message that includes their MMID in the SenderCompID field, EDGA / EDGX in the TargetCompID field, Login (as Assigned by Direct Edge ECNsm) in the SenderSubID field, their password in the RawData field, and the Length of their password in the RawDataLength field.
3. Direct Edge ECNsm will Respond immediately with a confirming Login Message if the client Authenticates. If the Client fails to Authenticate a Logout Message will be sent with a Text field indicating the Reason the Client was rejected and the Connection will be terminated immediately by Direct Edge ECNsm.
DIRECT EDGE will also Reject Incoming Logins with MsgSeqNum less than expected: This means that if there had been a previously established and terminated FIX connection and the client tries to re-establish a connection, it must do so with a MsgSeqNum > than the last MsgSeqNum that it had sent out. (Sequence Numbers return to 1 at the start of each day.)
4. At this point both the Client and server should synchronize. If the MsgSeqNum of the Logon Message Sent to Direct Edge ECNsm matches the next expected number for this client, a Test Request is Immediately Sent Out with a Generated TestReqID. If the MsgSeqNum of the Logon Message was greater than expected, Direct Edge ECNsm will send a Sequence Resend Request for the missed messages. If the Client Sends a Resend Request, their request is processed and then the TestRequest is sent.
5. Direct Edge ECNsm will send any executions that occurred while the client was not connected to the system. (This will occur as soon as a heartbeat with the generated TestReqID is received)

6.2 Regular FIX Communications

Whenever a message cannot be understood a Reject Message is sent with a description of the problem in the Text Field. (I.e. Invalid Checksum or Missing Field)

If Direct Edge ECNsm sends 10 Reject or Resend Messages In a row, a Logout Message is sent and the connection is terminated. If Direct Edge ECNsm receives 10 Reject or Resend Requests in a row, a Logout Message will be sent and the connection will be terminated.

Notes about Gap Fills:

Whenever a gap is detected Direct Edge ECNsm will disregard the most recently received message and issue a Resend Request from the MsgSeqNum Direct Edge ECNsm was expecting to infinity (0 in FIX 4.2).

When DIRECT EDGE receives a ResendRequest, it processes the requests and sends the response all at once.

Notes about Execution Reports

For All Execution Reports AvgPx will be calculated based on all fills on the order back to it's original 35=D message, including all cancel replaced orders.

Notes about StatusRequest Responses:

The Result of Issuing a status request for any filled or partially filled order will be a retransmission a single execution report.

Notes about Order Rejection Reasons

Orders could be rejected for the following reasons (among others):

1. The System has been instructed to block all new orders
2. The Order would Cross or Lock the Market
3. The System is unavailable
4. The Price is not specified or is invalid
5. The Order Type is not supported
6. The Side is invalid
7. The HandlInst must be 1
8. An Unsupported TIF value or a missing Date/Time if the TIF was GTD / GTT
9. The Symbol is invalid
10. Order Id has already been specified (duplicate)

6.3 Logout Process

A client that wishes to terminate their FIX connection should send a Logout message to Direct Edge ECNsm. Direct Edge ECNsm will first try to synchronize if it is missing any messages and then it will send a confirming Logout. At this point the client should terminate the connection – If the client does not terminate the connection within 10 minutes of receiving the confirming logout, or sends any other type of message to Direct Edge ECNsm, Direct Edge ECNsm will terminate the connection.

When the Direct Edge ECNsm System comes down for maintenance, once daily after market close, Direct Edge ECNsm will initiate the Logout process: A Logout message will be sent and the client will be given 10 minutes to resynchronize and send a

confirming Logout message. The connection will be terminated when a confirming logout has been received, or if 10 minutes or more has passed.

6.4 Order Placement

Sending a limit order:

- Set a non-zero price in the price field and set OrdType = 2.
- Set the TimeInForce field to DAY, GTC, IOC, or GTD / GTT.
- Set ExecBroker (or strategy) to ROUT / ROUX / ROUZ / RDOT for external routing.

Sending a market order:

- Omit the price field or set it to 0 and set OrdType = 1.
- The TimeInForce field is not necessary.
- Set ExecBroker (or strategy) to ROUT / ROUX / ROUZ / RDOT for external routing.

Sending a pegged order:

- Set a peg limit price in the price field. This will be highest bid price or lowest offer price pegging limit. Peg difference can be set to 200,000.00 for buys and 0.01 for sells to allow unlimited pegging.
- Set ExecInst to either 'P' (market), 'R' (primary), or 'M' (midpoint). Market will peg orders to the opposite side, Primary to the same side, and Midpoint will use the Market Midpoint.
- Set PegDifference to be the offset from the market price. The value is added to the market price to determine the order price. It can be positive or negative. Default is 0, which is no offset.

Sending a listed limit order to DOT:

- Set a non-zero price in the price field and set OrdType = 2.
- Set the TimeInForce field to DAY, GTC, IOC, or GTD / GTT.
- Set ExecBroker (or strategy) to RDOT for external routing.

6.5 Cancel / Replace Logic

OrderQty in a C/R request should be the total quantity desired on the order including any previously executed quantity. The OrderQty or the Price is required on all Cancel Replace requests. If Price is out of range, an Order Cancel Reject will be sent.

The response to a C/R request is a Pending Replace Execution Report with ExecType=PendingReplace and OrdStatus=PendingReplace. The Pending Replace Execution Report will have all the order information from the original order, including Price, OrderQty, LastShares, and CumQty. Once the order is replaced, a Replacement Execution Report will be sent with the replacement information taking into account the already executed quantity. If the OrderQty <= CumQty, the CumQty is used on the Execution Reports returning to the client, with OrdStatus = Filled, ExecType = Replace.

If an execution is pending when a C/R request is received, the C/R request will be queued and the responses can be returned in two different methods. The difference occurs when the C/R request is attempting to lower the quantity below what is already executed or pending execution. In method type 0, the resulting replacement execution report returns an Orderstatus of cancelled. In method type 1, the replacement report has a status of replaced, followed by another cancel execution report for the replaced order. Both methods return CumQty and OrderQty equal to the executed quantity if this is greater than the C/R request quantity.

6.6 NYSE and AMEX Listed Symbol Suffixes

Class A through Z symbols are supported. The ECN uses CMS symbol suffixes.

Symbol Type	SIAC Suffix	CMS / ECN Suffix	Comstock Suffix
Called	/CL	CL	.L or .CL
Class A	/A	A	.A
Class A Called	/A/CL	ACL	.AL or .A.CL
Class A When Issued	/Aw	AWI	.A*
Preferred	p	PR	-
Preferred Called	p/CL	PRCL	-L or -CL
Preferred Class A	pA	PRA	-A
Preferred Class A Called	pA/CL	PRACL	-A.CL
Preferred Class A When Issued	pAw	PRAWI	-A*
Preferred Warrants	p/WS	PRW	-WS or -+
Preferred When Distributed	p/WD	PRWD	-W or -WD
Preferred When Issued	pw	PRWI	-*
Partial Paid	/PP	PP	.PP
Convertible Called	/CV/CL	CVCL	.VL or .CV.CL
Rights	r	RT	.R or .RT
Rights When Issued	rw	RTWI	.R* or .RT*
Units	/U	U	.U
Warrants	/WS	WS	.WS or +
Warrants Class A	/WS/A	WSA	.WS.A or +A
Warrant When Issued	/WSw	WSWI	.WS* or +*
When Distributed	/WD	WD	.W or .WD
When Issued	w	WI	*

7.0 Revision Changes

- 2006-02-21: Edits for order routing
 - New tag#76 in New order message
 - Added val 'X' to tag# 9882 on execution message
- 2006-05-05: Added max show to cancel/replace message
 - Added ROUX for tag#76 to exclude IOI locations on routable orders
 - Max show size = 0 is allowed for new order (hidden)
 - Pegged orders added
 - Field 211 for peg difference
 - Field 18 has peg values
- 2006-07-10: Added field value for tag 9882
 - ROUZ route strategy means internal book and IOI only
- 2006-08-30: Added SymbolSfx field 65
 - This field is used for NYSE Listed symbol suffixes
- 2006-09-25: Added NYSE symbol suffix table
 - The table details the CMS suffix format
- 2006-10-24: Added Listed values for AddLiquidity flag
- 2006-11-02: Added MaxFloor field in NewOrderSingle and OrderCancelReplace
- 2006-11-06: Updated explanations
 - ExecBroker and AddLiquidity fields explained in detail for Listed routing.
 - CxlRejectResponseTo has additional value for Cancel/Replace.
- 2006-11-20: Updated DisplayInst description.
- 2006-11-28: LiqProvOnly tag changed
 - New value "S" for Super Aggressive Cross orders.
- 2006-11-29: Updated NYSE symbol suffix table to include Comstock values
- 2006-12-12: Added Mid-price peg as a valid value to ExecInst field (field 18)
- 2007-01-01: AddLiquidity tag updated, ExecBroker explained
 - New value 'E' for AddLiquidity flag, designating an internal match
 - ExecBroker field returned by default on NYSE/AMEX execution reports.
- 2007-02-01: RegNMS ISO orders: Added ExecInst=f on New Order Single
- 2007-02-12: NonPegged Marketable Limits: Added ExecInst=n on New Order Single
- 2007-03-22: Added 9215=X: Super Aggressive Cross only
- 2007-04-10: Added 9882=H in Execution Report
- 2007-05-14: Added 9882 values S and A in Execution Report.
 - Added ExecBroker routing strategies for ISO orders.
- 2007-05-23: Added ISNQ ExecBroker routing strategy for ISO orders.
- 2007-07-13: Textual description changes. No new tags added.
- 2007-07-23: RDOX added to ExecBroker routing strategies
- 2007-09-11 v2.20: Added 9882=P for ARCA executions
- 2007-09-19 v2.21: Added ExecInst=o for NOOP orders
- 2007-09-21 v2.22: ExecInst=n prevents "auto-pegging"
- 2007-09-25 v2.23: AddLiquidity 9882=F added, 9882=D modified
- 2007-10-10 v2.24: AddLiquidity 9882=R added
- 2007-10-11 v2.25: AddLiquidity 9882=O added
- 2007-10-16 v2.26: MinQty added to NewOrderSingle
- 2007-10-30 v2.27: AddLiquidity 9882=B added
- 2007-12-20 v2.28: AddLiquidity 9882 flags added: L,Q,V,W
- 2008-02-19 v2.29: GTC description changed
- 2008-02-26 v2.30: ExecBroker = IOCT,IOCX added to New Order Single
- 2008-03-27 v2.31: 9882=R definition changes on Execution Reports
- 2008-05-14 v2.32: ISDA removed from ExecBroker on New Order Single
- 2008-05-28 v2.33: MinQty description altered, see New Order Single
- 2008-07-10 v2.34: OrderStatus request removed. AvgPx field filled.
- 2008-09-11 v2.35: Clarified FIX headers.
- 2008-10-29 v2.36: Updated definition of UTC Date/Time field to optionally include milliseconds
 - Added ExecBroker routing strategies ROUD, ROUE, and ISBA
 - Updated ExecBroker ISBX routing strategy description
 - Added 9882 value of T in Execution Report

2008-11-26 v2.37: AddLiquidity 9882=I description corrected

2009-04-01 v2.37: Removed Rule80A=F

Added values 9882 = J, K, C, and G in Execution Report
Exec Broker = ROPA, ROBA, ROBX, ROIS added to New Order Single
IOCT description amended

2009-04-02 v.2.38:

- Amended ExecBroker (ROPA, ROBA, ROBX and ROIS) descriptions.
- Corrected Liquidity Flags "X" to include All Tape Types and "I" to reflect executions on EDGA (for EDGX orders) and EDGX (for EDGA orders)

2009-04-22 v.2.39:

- Updated ExecInst instruction to include "h" value for Hide not Slide feature.
- Updated Price[44] description to accommodate Hide Not Slide functionality.

2009-06-01 v.2.40:

- Updated Tag 9882 [AddLiq] Comments field to reflect new Liquidity flags associated with new pricing changes

2009-06-30 v.2.41:

- Updated Tag 76 [ExecBroker] to include new Routing strategy description, "ROUQ"
- Updated Tag 9882 [AddLiq] Comments field to reflect new Liquidity flag "Q" for IOI ELP executions using the ROUQ routing strategy

2009-07-23 v.2.42:

- Updated Tag 76 [ExecBroker] for new Routing Strategies: ROUC
- Updated Tag 9882 [AddLiq] Comments field to reflect new Liquidity flags associated with new Routing Strategies

2009-08-12 v.2.43:

- Updated Tag 76 [ExecBroker] for new Routing Strategies: ROLF
- Updated Tag 9882 [AddLiq] Comments field to reflect new Liquidity flags associated with new ROLF Strategies and removed "L" flag to accommodate NYSE elimination of odd lot pricing

2009-09-25 v.2.44:

- Updated Tag 9882 [AddLiq] Comments field to reflect new Liquidity flags ("L") and ("2") associated with new INET tier program

2009-10-07 v.2.45:

- Updated Tag 9882 [AddLiq] Comments field to reflect new Liquidity flags ("3"), ("4"), ("5"), ("6") and ("7") for executions during Pre/Post Market trading sessions

2009-11-11 v.2.46:

- Updated ExecutionReport fields: FIX 18 and FIX 211 are returned to clients. OrderStatus Execution Report removed, no longer supported.