Edge XPRS Specifications

(High Performance API)

Version 1.30

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Produced by:

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Chapter 1   About this Document

This document provides guidelines for accessing all of the Direct Edge Stock Exchange platforms.   It contains information regarding API connectivity and provides formats for submitting orders to the EDGX Exchange and EDGA Exchange.

1.1   Summary of Changes

A history of significant changes to this template is described in the table below.

Issue	Prepared By	Date	Changes
1.0	Bill Ciabattoni	Sept 22, 2009	First Version
1.1	Bill Ciabattoni	Oct 8, 2009	• Section 3.8: • Login Request – Increased Requested Sequence Number message length to 20 from 12. • Login Accepted - Increased Sequence Number message length to 20 from 12. • Section 5.4: • Reject reason code "P" added. • Added Super Aggressive and Aggressive options to Routing Instructions field.
1.2	Bill Ciabattoni	Jan 22, 2010	Change made to End of Session message in Sections 3.5, 3.7, and 3.8.
1.3	Bill Ciabattoni	Feb 12, 2010	Section 5.4: Corrected inaccurate offset values in "Replaced Message".
1.4	Bill Ciabattoni	March 25, 2010	Section 3.8: Removed "A message with zero length is a special end of session marker" from Sequenced and Un-Sequenced Data message descriptions. Section 5.4: Removed reference to fee schedule and added actual liquidity flags in the Liquidity Flag field for the Executed Order message description.
1.5	Bill Ciabattoni	April 16, 2010	Section 3.2: Updated to state "Authentication of the Login Request message only requires Username. The password will be ignored at this time." Section 4.1: Updated list of functionality supported and not supported by High Performance API. Section 5.4: Corrected Liquidity Flag field in Execution Message to Alpha-numeric. Added IOC to all Directed ISO strategy descriptions in Enter Order-Extended Format and Accepted Message- Extended Format.

1.6	Bill Ciabattoni	April 26, 2010	Section 5.4: Added "For all Directed ISO strategies Inter-market Sweep Eligibility must equal "Y" and Time in Force must equal "0" (IOC), or the order will be rejected" to Route Strategy description in Enter Order – Extended Format message.
1.7	Bill Ciabattoni	July 6, 2010	Section 5.4: Added new "Z" value to "Display" field in Accepted Message – Short and Extended Formats.
1.8	Bill Ciabattoni	Sept 1, 2010	• Auction process named Competition for Price Improvement^{SM} (CPI) • Dark Ping process named Comprehensive Liquidity Check^{SM} (CLC) • Section 5.4: o Updated description on Max Floor field to indicate the zero may be entered when not sending a Reserve Order. o Updated Discretionary Offset to indicate that sign will be ignored.
1.9	Bill Ciabattoni	Oct 1, 2010	• Sell Short Exempt added. Effective upon launch of new SS Circuit Breakers on November 10, 2010. • Directed ISO Strategy (ISBY) added for BATS "Y" Exchange. Effective upon launch of BYX.
1.10	Bill Ciabattoni	Jan 3, 2011	Section 5.4: • Added Anti-Internalization Modifier Message • Added AI Additional Info Message Please note that above changes will be live on EDGA on 1/10/2011 and EDGX on 1/18/2011.
1.11	Bill Ciabattoni	Jan 20, 2011	Section 5.4: • Added SWPA, SWPB, IOCM, and ICMT strategies to Extended Order Enter Message and Accepted Extended Order Message. • Added "SW" Liquidity Flag to Executed Order Message.
1.12	Bill Ciabattoni	Feb 1, 2011	Section 5.4: • Added "RT" and "RX" Liquidity Flags to Executed Order Message. • Updated description of "K" Liquidity Flag in Executed Order Message. • Updated description of "Z" Liquidity Flag in Executed Order Message.
1.13	Bill Ciabattoni	Feb 3, 2011	Section 5.4: • Added ROOC and ROBY strategies to Extended Order Enter Message and Accepted Extended Order Message. • Added 8, 9, BY, CL, and DM Liquidity Flags to Executed Order Message. • Added "D" value to Special Order Type field in for Midpoint Discretionary Order
1.14	Bill Ciabattoni	Feb 24, 2011	Section 5.4: • CPI removed from all routing strategies.
1.15	Bill Ciabattoni	Mar 29, 2011	Section 5.4:

			• ROUT, ROUD, ROUZ, ROUE, ROOC, and RDOT strategies updated to include Select CLCs and/or Low Cost venues as possible destinations.
1.16	Bill Ciabattoni	May 9, 2011	Section 5.4: • ROBB, ROCO, and SWPC strategies added to Extended Order Enter Message and Accepted Extended Order Message.
1.17	Bill Ciabattoni	June 28, 2011	• Updated Route Out Eligibility field in Order Enter and Extended Order Enter message to state that Post Only orders marked HideNotSlide or Hidden may be executed as a Taker if price improved on EDGX; Post Only instructions may not be included on Hidden orders or Odd Lot orders on EDGA; Post Only Discretionary orders executed in their discretionary range will be charged the Hidden order rate on EDGA. Live date August 1, 2011.
1.18	Bill Ciabattoni	July 12, 2011	• Updated Route Out Eligibility field in Order Enter and Extended Order Enter message descriptions to reflect changes for 15c3-5 compliance.
1.19	Bill Ciabattoni	July 22, 2011	• Updated Route Out Eligibility field in Order Enter and Extended Order Enter messages to state that Post Only may not be included on Discretionary Orders on EDGA. Live date August 1, 2011.
1.20	Bill Ciabattoni	Sept 29, 2011	• Added PI and RR Liquidity Flags in the Executed Order Message
1.21	Bill Ciabattoni	Jan 30, 2012	• Reject Message can now be sent in response to a Cancel Message. • Added new value "b" (Post to EDGX for orders originating on EDGA) to Route Out Eligibility field in Enter Order Message.
1.22	Bill Ciabattoni	Feb 29, 2012	• Added several new Liquidity Flags in the Executed Order Message
1.23	Bill Ciabattoni	Mar 20, 2012	• Added RMPT Routing Strategy to Enter Order Messages. • Added Post to Away Destinations to Route Out Eligibility field in Enter Order Messages.
1.24	Bill Ciabattoni	May 1, 2012	• Added BB Liquidity Flag in the Executed Order Message.
1.25	Bill Ciabattoni	June 26, 2012	• Added new value in Special Order Type field for Midpoint Discretionary Order. • Added RQ, DM, and DT Liquidity Flags to the Executed Order Message. • Added new "Displayed with Attribution" value to Displayed field. Expected live date is Sept 2012.
1.26	Bill Ciabattoni	June 28, 2012	• Added new Reject Reason Codes A, H, and I.
1.27	Bill Ciabattoni	Sept 4, 2012	• Added value in Special Order Type field for Route Peg Order. • Added "RP" liquidity flag for Route Peg Orders to Executed Order Message.

			• Removed Post to CHX option from Route Out Eligibility field.
			• Removed "RM" liquidity flag from Executed Order Message.
1.28	Bill Ciabattoni	Dec 6, 2012	• Added new Reject Reason Code R.
1.29	Bill Ciabattoni	April 15, 2013	• Added optional Extended Reject Message format
1.30	Bill Ciabattoni	June 10, 2013	• Added new value in Special Order Type field for NBBO Offset Peg (Market Maker Peg)
			• Updated "Replace Order" description to state that decrementing quantity will not generate a new timestamp.
			• Updated Liquidity Flag field to include ZA and ZR flags.

Chapter 2. Overview

2.1 Hours of Operation

EDGX and EDGA Exchanges

Session	Start Time	End Time
Begin Order Acceptance – Pre-Market Orders *(Pre-Market orders will be accepted but will not begin trading until 8:00 AM.)*	6:00 AM	8:00 AM
Begin Order Acceptance – Regular Session Orders *(Regular Session orders will be accepted but will not begin trading until 9:30 AM.)*	6:00 AM	9:30 AM
Pre-Market Session	8:00 AM	9:30 AM
Regular Trading Session	9:30 AM	4:00 PM
Post Market Session	4:00 PM	8:00 PM

MidPoint Match Dark Pool

Session	Start Time	End Time
Begin Order Acceptance *(MidPoint Match orders will be accepted but will not begin trading until 9:30 AM.)*	6:00 AM	9:30 AM
Regular Trading Session	9:30 AM	4:00 PM

2.2. Contact Information

Department	Email Address	Phone
Market Operations/FIX Support	decs@directedge.com	201-942-8220
Sales	sales@directedge.com	866-472-5267
Finance and Billing	billing@directedge.com	201-942-8247

2.3. Connectivity and Testing

New order routing connections must pass certification testing before they are permitted to enter the production marketplace. Please call 201-942-8220 for more information.

Chapter 3. Message Exchange Protocol

Direct Edge has developed a lightweight point-to-point protocol, built on top of TCP/IP sockets. It is identified as the Message Exchange Protocol (MEP). The MEP is used in systems when a server needs to deliver a logical stream of sequenced messages to a client application. MEP also supports the sending of unsequenced messages. Sequenced messages are recoverable after a socket disruption but unsequenced messages are not.

The MEP itself has no true business functionality. It is a session level protocol and transport built to carry higher-level application messages.

The MEP client and server communicate by exchanging a series of logical packages.

3.1 Packages

Each MEP logical package has:

- Two byte big-endian length that indicates the length of the rest of the packet (meaning the length of the payload plus the length of the packet type – which is 1)
- Single byte header which indicates the package type.
- Variable length payload.

3.2. Login

The MEP also includes a simple scheme that allows the server to authenticate the client upon login. Authentication of the Login Request message only requires Username. The password will be ignored at this time.

3.3. Package Sequence

A MEP connection begins with the client opening a TCP/IP socket to the server and sending a Login Request Package. If the Login Request is valid, the server responds with a Login Accepted Package and begins sending Sequenced Data Packages. The connection continues until the TCP/IP socket is broken.

Each Sequenced Data Package carries a single, higher-level protocol message.

Sequenced Data Packages do not contain an explicit sequence number; instead both client and server compute the sequence number locally by counting messages as they go. The sequence number of the first sequenced message in each session is always 1.

Typically, when initially logging into a server, the client will set the Requested Sequence Number field to 1 and leave the Requested Session field blank in the Login Request Package. The client will then inspect the Login Accepted Package to determine the currently active session. Starting at 1, the client begins incrementing its local sequence number each time a Sequenced Data Package is received. If the TCP/IP connection is ever broken, the client can then re-log into the server indicating the current session and its next expected sequence number.

Clients send messages <u>to</u> the server using Unsequenced Data Packages. Messages may be sent at any time after the Login Accepted Package is received. These messages may be

lost during TCP/IP socket connection failures. The higher level application protocol must handle this.

3.4. Heartbeats

MEP uses logical heartbeat packages to quickly detect link failures. The server must send a Server Heartbeat Package anytime more than 1 second has passed since the server last sent any data. This ensures that the client will receive data on a regular basis. If the client does not receive anything (neither data nor heartbeats) for an extended period of time, it can assume that the link is down and attempt to reconnect using a new TCP/IP socket.

Similarly, once logged in, the client must send a Client Heartbeat Package anytime more than 1 second has passed since the client last sent anything. If the server doesn't receive anything from the client for an extended period of time, it can close the existing socket and listen for a new connection. Direct Edge waits for 15 missed heartbeats (15 seconds) before it drops the connection.

3.5. End of Session

The server indicates that the current session has terminated by sending the End of Session message. This indicates that there will be no more messages contained in this session. The client will have to reconnect and re-login with a new Session ID to begin receiving messages for the next available session.

3.6. Data Types

The data types are:
  o Character and Alphanumeric data fields are standard ASCII bytes padded on the right with spaces.
  o Integer fields are binary in big-endian format.
  o Non applicable Alpha fields should be filled with spaces to match the proper field length.
  o Non applicable Integer fields should be filled with zeros to match the proper field length.

3.7. Summary of MEP Messages

The table below shows the origin and sequence of packages.

Message		Notes
From Client	From Server	
Login Request		The MEP client must send a Login Request Package immediately upon establishing a new TCP/IP socket connection to the server. The server can terminate an incoming TCP/IP socket if it does not receive a Login Request Package within a reasonable period of time (typically 30 seconds).
	Login Accepted	The MEP server sends a Login Accepted Package in response to receiving a valid Login Request from the client. This package will always be the first non-debug package sent by the server after a successful Login Request.

	Login Reject	The MEP server sends this package in response to an invalid Login Request Package from the client. The server closes the socket connection after sending the Login Reject Package. This is the only non-Debug Package sent by the server in the case of an unsuccessful login attempt.
Unsequenced Data		This package is a container that carries the higher level application messages from the client to the server. Up to 100 messages may be included in a single, unsequenced package. These messages are not sequenced and may be lost in the event of a socket failure. The higher-level protocol must be able to handle these lost messages in the case of a TCP/IP socket connection failure.
	Sequenced Data	This package is a container that carries the higher level application messages from the server to the client. The sequence number of each message is implied; the initial sequence number of the first Sequenced Data Package for a given TCP/IP connection is specified in the Login Accepted Package and the sequence number increments by 1 for each Sequenced Data Package transmitted. Since MEP logical packages are carried via TCP/IP sockets, the only way logical packages can be lost is in the event of a TCP/IP socket connection failure. In this case, the client can reconnect to the server and request the next expected sequence number and pick up where it left off.
Client Heartbeat		The client should send a Client Heartbeat Package anytime more than 1 second passes where no data has been sent to the server. The server can then assume that the link is lost if it does not receive anything for an extended period of time.
	Server Heartbeat	The server should send a Server Heartbeat Package anytime more than 1 second passes where no data has been sent to the client. The client can then assume that the link is lost if it does not receive anything for an extended period of time.
Debug		A Debug Package can be sent by either side of the MEP connection at anytime. Debug Packages should be ignored by both client and server application software.
	Debug	See above.
Logout Request		The client may send a Logout Request Package to request the connection be terminated. Upon receiving a Logout Request Package, the server will immediately terminate the connection and close the associated TCP/IP socket.
	End of Session	The server indicates that the current session has terminated by sending an End of Session message. This indicates that there will be no more messages contained in this session.

3.8. MEP Message Formats

Message	Field	Offset	Length	Value	Notes
Login Request	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"L"	
	Username	3	6	Alphanumeric	Username. Case insensitive.
	Password	9	10	Alphanumeric	Password. Case insensitive.
	Requested Session	19	10	Alphanumeric	Specifies the session or all blanks for the currently active session.

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Message	Field	Offset	Length	Value	Notes
	Requested Sequence Number	29	20	Numeric	Specifies the next sequence number in 0 to start receiving the most recently generated message. Note that this field is expressed in ASCII format. (Left padded with spaces)
Login Accepted	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"A"	
	Session	3	10	Alphanumeric	The session ID of the session that is now logged into.
	Sequence Number	13	20	Numeric	The sequence number of the next Sequenced Message to be sent. Note that this field is expressed in ASCII format. (Left padded with spaces)
Login Rejected	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"J"	
	Reject Reason Code	3	1	Alpha	Login Reject Codes Reason codes: "A" = Not Authorized. Invalid username and password combination. "S" = Session not available. The Requested Session in the Login Request Package was either invalid or not available.
Sequenced Data	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"S"	
	Message	3	N	All	Defined by a higher-level protocol. May contain a combination of ASCII and binary data.
Unsequenced Data	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"U"	
	Message	3	N	All	Defined by a higher-level protocol. May contain a combination of ASCII and binary data.
Server Heartbeat	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"H"	
Client Heartbeat	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"R"	

Message	Field	Offset	Length	Value	Notes
Logout Request	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"O"	
Debug	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	0	1	"+"	
	Text	1	N	Alphanumeric	Free form human readable text.
End of Session	Package Length	0	2	Integer	Number of bytes after this field until the next package
	Package Type	2	1	"Z"	

Direct Edge API Specifications for Equities

Chapter 4. Order Types Supported by the API

4.1. Enter Order –Short and Extended Format

The table below describes the order types and instructions that are available on the Enter Order - Short Format and the Enter Order – Extended Format messages.

Order Type/Instruction	Enter Order – Short Format	Enter Order - Extended Format
Market Orders	No	No
Limit Orders	Yes	Yes
Symbols with Suffixes	No	Yes
Full Routing Capabilities	No	Yes
IOC	Yes	Yes
FOK	Yes	Yes
Day	Yes	Yes
Good Till Time (GTT)	No	Yes
ISO	Yes	Yes
ISO Post Only	Yes	Yes
Hidden Orders	Yes	Yes
MidPoint Match (EDGX only)	Yes	Yes
Re-Pricing Options: • Hide Not Slide • Price Adjust • Single Re-Price • Cancel Back	Yes	Yes
Midpoint Pegged Orders (EDGA only)	Yes	Yes
Midpoint Discretionary Orders	Yes	Yes
Primary Pegged Orders	No	Yes
Market Pegged Orders	No	Yes
Pegged Discretionary Orders	No	Yes
Absolute Limit on Pegged Discretionary Orders	No	No
Minimum Execution Quantity – All Executions	No	Yes
Minimum Execution Quantity – First Execution Only	No	No

Reserve Orders	No	Yes
Random Replenish on Reserve Orders	No	No
Discretionary Orders	No	Yes

Direct Edge API Specifications for Equities

Chapter 5   Direct Edge Order API

Direct Edge Order API is a simple protocol that allows Direct Edge participants to enter orders, cancel existing orders, and receive executions.

5.1   API Architecture

The Direct Edge Order API protocol is composed of logical messages passed between the Direct Edge Order API host and the client application. The Message Exchange Protocol (MEP) is used for session management and transport. Each message type has a fixed message length. Messages may contain ASCII and binary data.

All messages sent from the Direct Edge Order API host to the client are sequenced and their delivery is ensured by the MEP.

Messages sent from the Direct Edge Order API client to the host are inherently non-guaranteed, even if they are carried by a lower level protocol that guarantees delivery (like TCP/IP sockets). Therefore, all host-bound messages are designed so that they can be re-sent for robust recovery from connection and application failures.

Each physical Direct Edge Order API host port is bound to a Direct Edge assigned logical Direct Edge Order API Account. On a given day, every order entered on Direct Edge Order API is uniquely identified by the combination of the logical Direct Edge Order API Account and the participant created Token field.

The Direct Edge Order API is designed to offer high performance under very demanding conditions. Performance can be increased further by batching multiple messages in a single, unsequenced MEP package. Up to 100 messages may be placed in a single unsequenced MEP package.

5.2   Data Types

All integer fields are expressed in unsigned, big-endian binary format.

All signed integer fields are expressed in two's complement, big-endian binary format.

Alpha fields are left-justified and padded on the right with spaces.

Prices are 4 byte integer fields. Prices contain 5 whole number digits followed by 5 decimal digits. For example, a price of $21.57 expressed in the API integer format would be 2157000. The maximum price allowable is through the API is $42949.67296.

Timestamp fields (8 bytes) are given in microseconds past midnight Eastern Time.

5.3   Supported Messages

Message		Notes
From Direct Edge	From Member	

	Enter Order (Short Format)	The Enter Order message lets you enter a new order into Direct Edge. Each new order must have a Token that is unique to the day and that logical Direct Edge API account. If you send a valid order, you should receive an Accepted Order message. If you send an Enter Order message with a previously used Token, the new order will be ignored.
	Enter Order (Extended Format)	The Enter Order Extended message lets you enter a new order into Direct Edge for a symbol having a suffix. It also allows the use of additional order types and instructions that are not available in the short format message. Each new order must have a Token that is unique to the day and that logical Direct Edge API account. If you send a valid order, you should receive an Accepted Order message. If you send an Enter Order message with a previously used Token, the new order will be ignored. Suffixes are entered into the Stock Suffix field in the record that has been added as the last field in this message.
Accepted Message (Short Format)		An Accepted message acknowledges the receipt and acceptance of a valid Enter Order message. The data fields from the Enter Order message are echoed back in the Accepted message. Note that the accepted values may differ from the entered values for some fields. You will always receive an Accepted message for an order before you get any Canceled Order messages or Executed Order messages for the order.
Accepted Message (Extended Format)		An Extended Accepted message acknowledges the receipt and acceptance of a valid Enter Order Extended message. The data fields from the Enter Order Extended message are echoed back in the Extended Accepted message. Note that the accepted values may differ from the entered values for some fields. You will always receive an Extended Accepted message for an order before you get any Canceled Order messages or Executed Order messages for the order.
Executed Order		An Executed Order message informs you that all or part of an order has been executed.

Rejected Message		A Rejected message may be sent in response to an Enter Order, Cancel, or Replace message if it cannot be accepted at this time. The reason for the rejection is given. No further actions are permitted on this order. The Token of a rejected order cannot be re-used.
	Cancel Order	The Cancel Order message is used to request that an order be canceled or reduced. In the Cancel Order message, you must specify the new "intended order size" for the order. The "intended order size" is the maximum number of shares that can be executed in total after any partial executions and the cancel are applied. To cancel the entire balance of an order, you would enter a Cancel Order message with a Shares field of zero. Note that the only acknowledgement to a Cancel Order message is the resulting Canceled Order message. Any superfluous Cancel Order messages will trigger a Reject Message with reason code = "I" (Order Not Found). This includes, non-active orders that have already been filled or canceled.
Canceled Message		A Canceled message informs you that an order has been reduced or canceled. This could be acknowledging a Cancel Order message or it could be the result of an order time out or automatic cancel. Note that a Canceled message does not necessarily mean the entire order is dead. Some portion of the order may still be alive.
Cancel Pending		A Cancel Pending message is sent in response to a Cancel Order request that cannot be immediately processed due to a route out. The cancel instructions will be applied to any unexecuted portion of the order when it returns from the away market destination. After receiving the Cancel Pending, you may still receive executions on the order. If the entire quantity is executed, you will not get a canceled message. If only part of the order is executed, you will receive a cancel message for the remaining balance.

	Replace Order	The Replace Order message allows you to alter the quantity and price of an existing order in a single message. Replacing an order with a larger quantity or new price will create a new timestamp for the order. Orders that are decremented to a smaller quantity will retain their timestamp. Any superfluous Replace Order messages will trigger a Reject Message with reason code = "I" (Order Not Found). This includes, non-active orders that have already been filled or canceled.
Replaced Message			A Replaced message informs you that a Cancel Replace message has been processed.
Replace Pending			A Replace Pending message is sent in response to a Replace Order request that cannot be processed due to a route out. The replace instructions will be applied to any unexecuted portion of the order when it returns from the away market destination. Important Note: When a replace is pending, no other order modifications can be made until it has been replaced or executed. All subsequent replace requests will be rejected until the first request is completed.
System Event			System Event messages signal events that affect the entire Direct Edge system.
Broken Trade			A Broken Trade message informs you that an execution has been broken. The trade is no longer good and will not clear. The reason for the break is given. You will always get an Executed Order message prior to getting a Broken Trade message for a given order/execution.
Price Correction			A Price Correction message informs you that an execution has been price-corrected. You will always get an Executed Order message prior to getting a Price Correction message for a given order/execution.
	Anti-Internalization Modifier		The Anti-Internalization Modifier can be included in the un-sequenced data package if the user wants to control AI instructions at the Order Level. The orders processed in this envelope will use the supplied Anti-Internalization Modifier from the envelope. Within the same envelope, members can include more than one Anti-Internalization Modifier that will impact all subsequent orders.

AI Additional Info Message		The AI Additional Information Message provides members with information about the order that was canceled due to Anti-Internalization instructions. This is an optional message that members can choose to receive or they can just receive the Canceled Message, or both messages. If the member chooses to receive both messages, the AI Additional Information Message will immediately follow the Canceled Message, there will be no messages sent in between.

5.4 Message Formats

Message	Name	Offset	Len	Value	Notes
Enter Order – Short Format (*from Member*)	Type	0	1	"O"	Identifies this message as an Enter Order – Short Format message type. The Short Format of this message allows for less order type features than the Extended Format message.
	Order Token	1	14	Alpha-numeric	This is a free-form, alpha-numeric field. You can enter any information you like. Token must be day-unique for each Direct Edge API account. Token is case sensitive, but mixing upper-case and lower-case Tokens is not recommended.
	Buy/Sell Indicator	15	1	Alpha	"B" = Buy order "S" = Sell order "T" = Sell Short – Client affirms ability to borrow securities. "E" = Sell Short Exempt – Client affirms ability to borrow. "X" = Sell Short/SS Exempt – Client does not affirm ability to borrow securities. (Results in rejection of the order.)
	Quantity	16	4	Integer	Total number of shares
	Symbol	20	6	Alpha	Stock Symbol
	Price	26	4	Integer	The limit price of the order. The price is a 5 digit whole number followed by a 5 decimal digits.
	Time in Force	30	1	Integer	The values for Time in Force are: 0 = Immediate or Cancel 1 = Day 2 = Fill or Kill
	Display	31	1	Alpha	"Y" = Displayed "N" = Hidden "A" = Displayed with Attribution* * Expected live date September 2012

Message	Name	Offset	Len	Value	Notes
	Special Order Type	32	1	Alpha	"M"= MidPoint Match EDGX/ MidPoint Peg EDGA "D" = Midpoint Discretionary Order – EDGA Only* "U" = Route Peg Order "N" = NBBO Offset Peg (Market Maker Peg) Re-Pricing Options: "S" = Hide Not Slide "P" = Price Adjust "R" = Single Re-Price "C" = Cancel Back (See Appendix B for details on Re-Pricing options.) *Midpoint Discretionary Orders require a "Y" in the Display field. <u>Enter a space for this field if not applicable.</u>
	Extended Hrs Eligible	33	1	Alpha	"R" = Regular Session Only "P" = Pre-Market and Regular Session Eligible "A" = Regular Session and Post-Market Eligible "B" = All Sessions Eligible
	Capacity	34	1	Alpha	"A" = Agency "P" = Principal "R" = Riskless Principal
	Route out Eligibility	35	1	Alpha	"Y" = Routable (ROUT strategy only)** "N" = Book Only*** "P" = Post-Only*&*** "S" = Super Aggressive - Cross or Lock (Order will be removed from book and routed to any quote that is crossing or locking the order) "X" = Aggressive - Cross only (Order will be removed from book and routed to any quote that is crossing) a = Post to EDGA (for orders originating from EDGX, ROUT, ROUX, ROUE only) b = Post to EDGX for orders originating on EDGA (for ROUT,

Message	Name	Offset	Len	Value	Notes
					ROUD, ROUE, ROUX, ROUZ, ROUQ, RDOT, RDOX, ROPA, ROBA, ROBX, ROBY, ROBB, ROCO, ROLF, INET, IOCT, IOCX, IOCM, ICMT only)
					c = Post to NYSE Arca (ROUT, ROUX, ROUE only)
					d = Post to NYSE (ROUT, ROUX, ROUE only)
					e = Post to NASDAQ (ROUT, ROUX, ROUE only)
					f = Post to NASDAQ OMX BX (ROUT, ROUX, ROUE only)
					g = Post to NASDAQ OMX PSX (ROUT, ROUX, ROUE only)
					h = Post to BATS BYX (ROUT, ROUX, ROUE only)
					i = Post to BATS BZX (ROUT, ROUX, ROUE only)
					j = Post to LavaFlow (ROUT, ROUX, ROUE only)
					k = Post to CBSX (ROUT, ROUX, ROUE only)
					l = Post to AMEX (ROUT, ROUX, ROUE only)
					n = Post to NSX (ROUT, ROUX, ROUE only)
					(*Use the Enter Order - Extended Format to enter routing strategies other than ROUT*)
					<u>Enter a space for this field if not applicable.</u>
					*Post Only orders marked HideNotSlide or Hidden may be executed as a Taker if price improved on EDGX. Post Only instructions may not be included on Hidden Orders, Discretionary Orders, or Odd Lot quantities on EDGA.
					**All routing strategies are subject to erroneous checks pursuant to 15c3-5 compliance.
					***Book Only and Post Only orders are not subject to erroneous checks pursuant to 15c3-5 compliance.
	Inter-market	36	1	Alpha	"Y" = ISO Eligible

Message	Name	Offset	Len	Value	Notes
	Sweep (ISO) Eligibility				"N" = Not ISO Eligible
Enter Order – Extended Format (*from Member*)	Type	0	1	"N"	Identifies this message as an Enter Order - Extended Format message type. This is an alternative to the Enter Order - Short Format message. It is to be used when additional order type functionality is needed that is not supported in the Short Format message.
	Order Token	1	14	Alpha-numeric	This is a free-form, alpha-numeric field. You can enter any information you like. Token must be day- unique for each Direct Edge API account. Token is case sensitive, but mixing upper-case and lower-case Tokens is not recommended.
	Buy/Sell Indicator	15	1	Alpha	"B" = Buy order "S" = Sell order "T" = Sell Short – Client affirms ability to borrow securities. "E" = Sell Short Exempt – Client affirms ability to borrow. "X" = Sell Short/SS Exempt – Client does not affirm ability to borrow securities. (Results in rejection of the order.)
	Quantity	16	4	Integer	Total number of shares entered
	Symbol	20	6	Alpha	Stock Symbol
	Price	26	4	Integer	The limit price of the order. The price is a 5 digit whole number followed by a 5 decimal digits.
	Time in Force	30	1	Integer	The values for Time in Force are: 0 = Immediate or Cancel 1 = Day 2 = Fill or Kill 3 = Good Till Time For Good Till Time, Expire Time must also be populated.

Message	Name	Offset	Len	Value	Notes
	Display	31	1	Alpha	"Y" = Displayed "N" = Hidden "A" = Displayed with Attribution* * Expected live date September 2012
	Special Order Type	32	1	Alpha	"M"= MidPoint Match EDGX/ MidPoint Peg EDGA "D" = Midpoint Discretionary Order – EDGA Only* "U" = Route Peg Order "N" = NBBO Offset Peg (Market Maker Peg) "X" = Primary Peg "Y" = Market Peg Re-Pricing Options: "S" = Hide Not Slide "P" = Price Adjust "R" = Single Re-Price "C" = Cancel Back (See Appendix B for details on Re-Pricing options.) *Midpoint Discretionary Orders require a "Y" in the Display field. Ignored for routable orders. Enter a space for this field if not applicable.
	Extended Hrs Eligible	33	1	Alpha	"R" = Regular Session Only "P" = Pre-Market and Regular Session Eligible "A" = Regular Session and Post-Market Eligible "B" = All Sessions Eligible
	Capacity	34	1	Alpha	"A" = Agency "P" = Principal "R" = Riskless Principal
	Route out Eligibility	35	1	Alpha	"Y" = Routable** "N" = Book Only*** "P" = Post Only*&*** "S" = Super Aggressive - Cross or Lock (Order will be removed from book and routed to any quote that is crossing or locking the order)

Message	Name	Offset	Len	Value	Notes
					"X" = Aggressive - Cross only (Order will be removed from book and routed to any quote that is crossing)
					a = Post to EDGA (for orders originating from EDGX, ROUT, ROUX, ROUE only)
					b = Post to EDGX for orders originating on EDGA (for ROUT, ROUD, ROUE, ROUX, ROUZ, ROUQ, RDOT, RDOX, ROPA, ROBA, ROBX, ROBY, ROBB, ROCO, ROLF, INET, IOCT, IOCX, IOCM, ICMT only)
					c = Post to NYSE Arca (ROUT, ROUX, ROUE only)
					d = Post to NYSE (ROUT, ROUX, ROUE only)
					e = Post to NASDAQ (ROUT, ROUX, ROUE only)
					f = Post to NASDAQ OMX BX (ROUT, ROUX, ROUE only)
					g = Post to NASDAQ OMX PSX (ROUT, ROUX, ROUE only)
					h = Post to BATS BYX (ROUT, ROUX, ROUE only)
					i = Post to BATS BZX (ROUT, ROUX, ROUE only)
					j = Post to LavaFlow (ROUT, ROUX, ROUE only)
					k = Post to CBSX (ROUT, ROUX, ROUE only)
					l = Post to AMEX (ROUT, ROUX, ROUE only)
					n = Post to NSX (ROUT, ROUX, ROUE only)
					Enter a space for this field if not applicable.
					*Post Only orders marked HideNotSlide or Hidden may be executed as a Taker if price improved on EDGX. Post Only instructions may not be included on Hidden Orders, Discretionary Orders, or Odd Lot quantities on EDGA.
					**All routing strategies are subject to erroneous checks pursuant to 15c3-5 compliance.

Message	Name	Offset	Len	Value	Notes
					***Book Only and Post Only orders are not subject to erroneous checks pursuant to 15c3-5 compliance.
	Inter-market Sweep (ISO) Eligibility	36	1	Alpha	"Y" = ISO Eligible "N" = Not ISO Eligible
	Routing Delivery Method	37	1	Alpha	"I" = Route to Improve "F" = Route to Fill "C" = Route to Comply *Route to Improve*: Ability to receive price improvement will take priority over speed of execution. *Route to Fill*: Speed of execution will take priority over potential price improvement. *Route to Comply:* If quantity showing at away markets are not enough to fill order in its entirety, ISO orders will be sent to clear better priced quotations and the balance of the order will be posted on the Direct Edge book. Ignored for non-routable orders. Enter a space for this field if not applicable.
	Route Strategy	38	2	Integer	1 = ROUT (Book + Low Cost/CLC + Street (Default if not specified)) 2 = ROUD (Book + Select CLC) 3 = ROUE (Book + Low Cost/Select CLC + Street) 4 = ROUX (Book + Street) 5 = ROUZ (Book + Low Cost/CLC) 6 = ROUQ (Book +Select Fast CLCs) 7= RDOT (Book + Low Cost/CLC + DOT) 8 = RDOX (Book + DOT) 9 = ROPA (Book + IOC ARCA)

Message	Name	Offset	Len	Value	Notes
					10 = ROBA (Book + IOC BATS)
					11 = ROBX (Book + IOC Nasdaq BX)
					12 = INET (Book + Nasdaq)
					13 = IOCT (EDGA/X Book + CLC+ Other EDGA/X Book)
					14 = IOCX (EDGA/X Book + Other EDGA/X Book)
					15 = ISAM (Directed IOC ISO routed to AMEX)
					16 = ISPA (Directed IOC ISO routed to ARCA)
					17 = ISBA (Directed IOC ISO routed to BATS)
					18 = ISBX (Directed IOC ISO routed to Nasdaq BX)
					19 = ISCB (Directed IOC ISO routed to CBSX)
					20 = ISCX (Directed IOC ISO routed to CHSX)
					21 = ISCN (Directed IOC ISO routed to NSX)
					22 = ISGA (Directed IOC ISO routed to EDGA)
					23 = ISGX (Directed IOC ISO routed to EDGX)
					24 = ISLF (Directed IOC ISO routed to LavaFlow)
					25 = ISNQ (Directed IOC ISO routed to Nasdaq)
					26 = ISNY (Directed IOC ISO routed to NYSE)
					27 = ISPX (Directed IOC ISO routed to PHLX)
					29 = ROUC (Book + CLC + Nasdaq BX + DOT + Posted to EDGX)
					30 = ROLF (Book + LavaFlow)
					31 = ISBY (Directed IOC ISO routed to BYX)
					32 = SWPA (IOC ISO Sweep of All Protected Mkts)
					33= SWPB (IOC ISO Sweep of All Protected Mkts)*
					34 = IOCM (EDGA Book + IOC MPM to EDGX)

Message	Name	Offset	Len	Value	Notes
					35 = ICMT (EDGA Book + CLC+ IOC MPM to EDGX)
					36= ROOC (Listing Mkt Open + Book + Low Cost/CLC + Street + Listing Mkt Close)**
					37 = ROBY (Book + IOC BYX)
					38 = ROBB (EDGA Book + IOC Nasdaq BX + IOC BYX)***
					39 = ROCO (EDGA Book + IOC Nasdaq BX + IOC BYX + CLC + EDGX MPM)***
					40 = SWPC (IOC ISO Sweep of All Protected Markets and Post Remainder)
					42 = RMPT (Book + EDGX MPM + CLC Midpoint + Street Midpoint)****
					Please note:
					CLC = Comprehensive Liquidity Check
					For all Directed ISO strategies Inter-market Sweep Eligibility must equal "Y" and Time in Force must equal "0" (IOC), or the order will be rejected.
					* SWPB orders will be canceled immediately if the order quantity is not enough to clear all protected quotes at or better than the specified price on the order.
					** Book Only version of ROOC will not access CLC and Street.
					***Available on EDGA Only.
					****RMPT is for EDGA only and must be used in conjunction with Midpoint Peg Order type.
	Minimum Quantity	40	4	Integer	Minimum execution quantity on hidden or IOC order. (Applies to all executions.)
	Max Floor	44	4	Integer	Displayed quantity of a reserve order. This field is optional. Use 0 (zero) when not sending a Reserve Order.

Message	Name	Offset	Len	Value	Notes
					Please note: MaxFloor=0 does NOT indicate a Hidden Order in the High Performance API as it does in the Direct Edge FIX API.
	Peg Difference	48	1	Signed Integer	Valid Values -99 thru +99 cents
	Discretionary Offset	49	1	Signed Integer	Valid Values -99 thru 99 cents Sign may be entered but will be ignored. Regardless of sign, offset will always be added to Buys and subtracted from Sells in relation to the limit price of the order.
	Expire Time	50	8	Integer	Expire time for GTT orders represented in Timestamp format.
	Symbol Suffix	58	6	Alpha	See Appendix A for Symbology details.
Accepted Message - Short Format (*from Direct Edge*)	Message Type	0	1	"A"	Accepted Message – Short Format identifier.
	Timestamp	1	8	Integer	Timestamp
	Token	9	14	Alpha-numeric	The order Token field as entered.
	Buy/Sell Indicator	23	1	Alpha	Buy/sell indicator as entered: "B" = Buy order "S" = Sell order "T" = Sell Short – Client affirms ability to borrow securities. "E" = Sell Short Exempt – Client affirms ability to borrow. "X" = Sell Short/SS Exempt – Client does not affirm ability to borrow securities. (Results in rejection of the order.)
	Quantity	24	4	Integer	Total number of shares accepted.
	Symbol	28	6	Alpha	Stock symbol as entered.
	Price	34	4	Integer	The accepted limit price of the order. Note that the accepted price could potentially be different than the entered price if the order was re-priced by Direct Edge on entry. The accepted price

Message	Name	Offset	Len	Value	Notes
					will always be better than or equal to the entered.
	Time in Force	38	1	Integer	The values for Time in Force are: 0 = Immediate or Cancel 1 = Day 2 = Fill or Kill
	Display	39	1	Alpha	"Y" = Displayed "N" = Hidden "A" = Displayed with Attribution* "Z" = Initial Display Price Differs from Original Order Price ("Z" value applies to Hide not Slide and Price Adjust orders only.) * Expected live date September 2012
	Special Order Type	40	1	Alpha	"M"= MidPoint Match EDGX/ MidPoint Peg EDGA "D" = Midpoint Discretionary Order – EDGA Only "U" = Route Peg Order "N" = NBBO Offset Peg Re-Pricing Options: "S" = Hide Not Slide "P" = Price Adjust "R" = Single Re-Price "C" = Cancel Back (See Appendix B for details on Re-Pricing options.) Ignored for routable orders.
	Extended Hrs Eligible	41	1	Alpha	"R" = Regular Session Only "P" = Pre-Market and Regular Session Eligible "A" = Regular Session and Post-Market Eligible "B" = All Sessions Eligible
	Order Reference Number	42	8	Integer	The day-unique Order Reference Number assigned by Direct Edge to this order.
	Capacity	50	1	Alpha	The capacity specified on the order: "A" = Agency

Message	Name	Offset	Len	Value	Notes
					"P" = Principal "R" = Riskless Principal
	Route out Eligibility	51	1	Alpha	"Y" = Routable "N" = Book Only "P" = Post-Only "S" = Super Aggressive - Cross or Lock "X" = Aggressive - Cross only "b"=Post to EDGX for orders originating on EDGA
	Inter-market Sweep (ISO) Eligibility	52	1	Alpha	"Y" = ISO Eligible "N" = Not ISO Eligible
Accepted Message - Extended Format (*from Direct Edge*)	Message Type	0	1	"P"	Accept Order Message Extended Format identifier.
	Timestamp	1	8	Integer	Timestamp
	Token	9	14	Alpha-numeric	The order Token field as entered.
	Buy/Sell Indicator	23	1	Alpha	Buy/sell indicator as entered: "B" = Buy order "S" = Sell order "T" = Sell Short – Client affirms ability to borrow securities. "E" = Sell Short Exempt – Client affirms ability to borrow. "X" = Sell Short/SS Exempt – Client does not affirm ability to borrow securities. (Results in rejection of the order.)
	Quantity	24	4	Integer	Total number of shares accepted.
	Symbol	28	6	Alpha	Stock symbol as entered.
	Price	34	4	Integer	The accepted limit price of the order. Note that the accepted price could potentially be different than the entered price if the order was re-priced by Direct Edge on entry. The accepted price will always be better than or equal to the entered.
	Time in Force	38	1	Integer	The values for Time in Force are: 0 = Immediate or Cancel 1 = Day 2 = Fill or Kill 3 = Good Till Time

Message	Name	Offset	Len	Value	Notes
	Display	39	1	Alpha	"Y" = Displayed "N" = Hidden "A" = Displayed with Attribution* "Z" = Initial Display Price Differs from Original Order Price ("Z" value applies to Hide not Slide and Price Adjust orders only.) * Expected live date September 2012
	Special Order Type	40	1	Alpha	"M"= MidPoint Match EDGX/ MidPoint Peg EDGA "D" = Midpoint Discretionary Order – EDGA Only "N" = NBBO Offset Peg "U" = Route Peg Order "X" = Primary Peg "Y" = Market Peg Re-Pricing Options: "S" = Hide Not Slide "P" = Price Adjust "R" = Single Re-Price "C" = Cancel Back (See Appendix B for details on Re-Pricing options.) Ignored for routable orders.
	Extended Hrs Eligible	41	1	Alpha	"R" = Regular Session Only "P" = Pre-Market and Regular Session Eligible "A" = Regular Session and Post-Market Eligible "B" = All Sessions Eligible
	Order Reference Number	42	8	Integer	The day-unique Order Reference Number assigned by Direct Edge to this order.
	Capacity	50	1	Alpha	The capacity specified on the order: "A" = Agency "P" = Principal "R" = Riskless Principal
	Route out Eligibility	51	1	Alpha	"Y" = Eligible "N" = Book Only "P" = Post-Only "S" = Super Aggressive -

Message	Name	Offset	Len	Value	Notes
					Cross or Lock
					"X" = Aggressive - Cross only
					a = Post to EDGA (for orders originating from EDGX, ROUT, ROUX, ROUE only)
					b = Post to EDGX for orders originating on EDGA (for ROUT, ROUD, ROUE, ROUX, ROUZ, ROUQ, RDOT, RDOX, ROPA, ROBA, ROBX, ROBY, ROBB, ROCO, ROLF, INET, IOCT, IOCX, IOCM, ICMT only)
					c = Post to NYSE Arca (ROUT, ROUX, ROUE only)
					d = Post to NYSE (ROUT, ROUX, ROUE only)
					e = Post to NASDAQ (ROUT, ROUX, ROUE only)
					f = Post to NASDAQ OMX BX (ROUT, ROUX, ROUE only)
					g = Post to NASDAQ OMX PSX (ROUT, ROUX, ROUE only)
					h = Post to BATS BYX (ROUT, ROUX, ROUE only)
					i = Post to BATS BZX (ROUT, ROUX, ROUE only)
					j = Post to LavaFlow (ROUT, ROUX, ROUE only)
					k = Post to CBSX (ROUT, ROUX, ROUE only)
					l = Post to AMEX (ROUT, ROUX, ROUE only)
					n = Post to NSX (ROUT, ROUX, ROUE only)
	Inter-market Sweep (ISO) Eligibility	52	1	Alpha	"Y" = ISO Eligible "N" = Not ISO Eligible
	Routing Delivery Method	53	1	Alpha	"I" = Route to Improve "F" = Route to Fill "C" = Route to Comply
	Route Strategy	54	2	Integer	1 = ROUT (Book + Low Cost/CLC + Street (Default if not specified)) 2 = ROUD (Book + Select CLC) 3 = ROUE (Book + Low Cost/Select CLC + Street)

Message	Name	Offset	Len	Value	Notes
					4 = ROUX (Book + Street)
					5 = ROUZ (Book + Low Cost/CLC)
					6 = ROUQ (Book +Select Fast CLCs)
					7= RDOT (Book + Low Cost/CLC + DOT)
					8 = RDOX (Book + DOT)
					9 = ROPA (Book + IOC ARCA)
					10 = ROBA (Book + IOC BATS)
					11 = ROBX (Book + IOC Nasdaq BX)
					12 = INET (Book + Nasdaq)
					13 = IOCT (EDGA/X Book + CLC+ Other EDGA/X Book)
					14 = IOCX (EDGA/X Book + Other EDGA/X Book)
					15 = ISAM (Directed IOC ISO routed to AMEX)
					16 = ISPA (Directed IOC ISO routed to ARCA)
					17 = ISBA (Directed IOC ISO routed to BATS)
					18 = ISBX (Directed IOC ISO routed to Nasdaq BX)
					19 = ISCB (Directed IOC ISO routed to CBSX)
					20 = ISCX (Directed IOC ISO routed to CHSX)
					21 = ISCN (Directed IOC ISO routed to NSX)
					22 = ISGA (Directed IOC ISO routed to EDGA)
					23 = ISGX (Directed IOC ISO routed to EDGX)
					24 = ISLF (Directed IOC ISO routed to LavaFlow)
					25 = ISNQ (Directed IOC ISO routed to Nasdaq)
					26 = ISNY (Directed IOC ISO routed to NYSE)
					27 = ISPX (Directed IOC ISO routed to PHLX)
					28 = ISTR (Directed IOC ISO routed to TRAC)
					29 = ROUC (Book + CLC +

Message	Name	Offset	Len	Value	Notes
					Nasdaq BX + DOT + Posted to EDGX)
					30 = ROLF (Book + LavaFlow)
					31 = ISBY (Directed IOC ISO routed to BYX)
					32 = SWPA (IOC ISO Sweep of All Protected Mkts)
					33= SWPB (IOC ISO Sweep of All Protected Mkts)*
					34 = IOCM (EDGA Book + IOC MPM to EDGX)
					35 = ICMT (EDGA Book + CLC+ IOC MPM to EDGX)
					36= ROOC (Listing Mkt Open + Book + Low Cost/CLC + Street + Listing Mkt Close)**
					37 = ROBY (Book + IOC BYX)
					38 = ROBB (EDGA Book + IOC Nasdaq BX + IOC BYX)***
					39 = ROCO (EDGA Book + IOC Nasdaq BX + IOC BYX + CLC + EDGX MPM)***
					40 = SWPC (IOC ISO Sweep of All Protected Markets and Post Remainder)
					42 = RMPT (Book + EDGX MPM + CLC Midpoint + Street Midpoint)****
					Please note:
					CLC = Comprehensive Liquidity Check
					For all Directed ISO strategies Inter-market Sweep Eligibility must equal "Y" and Time in Force must equal "0" (IOC), or the order will be rejected.
					* SWPB orders will be canceled immediately if the order quantity is not enough to clear all protected quotes at or better than the specified price on the order.
					** Book Only version of ROOC will not access CLC and Street.
					***Available on EDGA Only.
					****RMPT is for EDGA only and

Message	Name	Offset	Len	Value	Notes
					must be used in conjunction with Midpoint Peg Order type.
	Minimum Quantity	56	4	Integer	Minimum execution quantity on hidden or IOC order. (Applies to all executions.)
	Max Floor	60	4	Integer	Displayed quantity of a reserve order.
	Peg Difference	64	1	Signed Integer	Valid Values -99 thru +99 cents
	Discretionary Offset	65	1	Signed Integer	Valid Values -99 thru +99 cents Offset will always be in relation to the limit price of the order.
	Expire Time	66	8	Integer	Expire time for GTT orders represented in Timestamp format.
	Symbol Suffix	74	6	Alpha	See Appendix A for Direct Edge Symbology details.
Executed Order (*from Direct Edge*)	Message Type	0	1	"E"	Order Executed message.
	Timestamp	1	8	Integer	Timestamp
	Order Token	9	14	Alpha-numeric	The Order Token as entered.
	Executed Quantity	23	4	Integer	Incremental number of shares executed.
	Execution Price	27	4	Integer	The price at which these shares were executed.
	Liquidity Flag	31	5	Alpha-numeric	Liquidity Flag from Execution Liquidity flags can be from one to five characters in length. This field will be left justified and padded with spaces.

Flag	Description
A	Routed to Nasdaq, Adds Liquidity
B	Add liquidity to our Book (Tape B)
C	Routed to Nasdaq BX (Tapes A & C), Removes Liquidity
D	Routed or Re-routed to NYSE, Removes Liquidity
EA	Customer Internalization – Added Liquidity
ER	Customer Internalization – Removed Liquidity

Direct Edge API Specifications for Equities

Message	Name	Offset	Len	Value	Notes	
					F	Routed to NYSE, Adds Liquidity
					G	Routed to ARCA (Tapes A & C), Removes Liquidity
					HA	Hidden Order Adds Liquidity
					HR	Hidden Order Removes Liquidity (EDGA only)
					I	Routed to EDGA (for EDGX orders) or to EDGX (for EDGA orders)
					J	Routed to Nasdaq, Removes Liquidity
					K	Routed to BATS using ROBA Order Type (EDGA + BATS) or Routed to Nasdaq PSX using ROUC Order Type
					L	Routed to Nasdaq using INET Order Type, Removes Liquidity (Tapes A & C)
					M	Add Liquidity on LavaFlow
					N	Remove Liquidity from our Book (Tape C)
					O	Listing Market Opening Cross
					P	Add Liquidity on EDGX via an EDGA originated ROUC Order Type
					Q	Routed using ROUQ or ROUC Order Types
					R	Re-routed by Exchange
					S	Directed ISO Order
					T	Routed using ROUD/ROUE Order Type
					U	Remove Liquidity from LavaFlow
					V	Add Liquidity to our Book (Tape A)
					W	Remove Liquidity from our Book (Tape A)
					X	Routed
					Y	Add Liquidity to our Book (Tape C)
					Z	Routed using ROUZ Order Type or Executed in CLC process using ICMT Order Type
					2	Routed to Nasdaq using INET Order Type, Removes Liquidity (Tape B)
					3	Add Liquidity – Pre & Post Market (Tapes A &

Message	Name	Offset	Len	Value	Notes	
						C)
					4	Add Liquidity – Pre & Post Market (Tape B)
					5	Customer Internalization – Pre & Post Market
					6	Remove Liquidity – Pre & Post Market (All Tapes)
					7	Routed – Pre & Post Market
					8	Routed to AMEX, Adds Liquidity
					9	Routed to ARCA, Adds Liquidity (Tapes A & C)
					10	Routed to ARCA , Adds Liquidity (Tape B)
					AA	Midpoint Match Cross (same MPID)
					BB	Remove Liquidity from our Book (Tape B)
					BY	Routed to BYX using ROBY or ROUC Order Type
					CL	Listing Market Close, excluding NYSE ARCA
					CR	Liquidity Remover via CLC Eligible Routing Strategy (EDGA only)
					DM	Non-Displayed Orders – Adds Liquidity using MDO
					DT	Non-Displayed Orders – Removes Liquidity using MDO
					MM	Midpoint Match Maker
					MT	Midpoint Match Taker
					OO	Direct Edge Opening
					PA	Midpoint Routing Strategy (RMPT), Adds Liquidity
					PI	Removed Liquidity from Midpoint Match on EDGX
					PR	Liquidity Remover via CLC Only Routing Strategy (EDGA only)
					PT	Midpoint Routing Strategy (RMPT), Removes Liquidity
					PX	Midpoint Routing Strategy (RMPT), Routed Out
					RB	Routed to Nasdaq BX, Adds Liquidity
					RC	Routed to NSX, Adds Liquidity
					RP	Added Liquidity using Route PegOrder
					RQ	Routed using ROUQ
					RR	Routed to EDGA (for

Message	Name	Offset	Len	Value	Notes
					EDGX orders) or to EDGX (for EDGA orders) using IOCT or IOCX
				RS	Routed to Nasdaq PSX, Adds Liquidity
				RT	Routed using ROUT Order Type (EDGA Only)
				RW	Routed to CBSX, Adds Liquidity
				RX	Routed using ROUX Order Type (EDGA Only)
				RY	Routed to BATS BYX, Adds Liquidity
				RZ	Routed to BATS BZX, Adds Liquidity
				SW	Routed using SWPA/SWPB (All mkts except NYSE)
				XR	Liquidity Remover via Non -CLC Eligible Routing Strategy (EDGA only)
				ZA	Retail Order, Adds Liquidity
				ZR	Retail Order, Removes Liquidity
	Match Number	36	8	Integer	Assigned by Direct Edge to each match executed. Each match consists of one buy and one sell. The matching buy and sell executions do not share the same match number.
Rejected Message (*from Direct Edge*)	Message Type	0	1	"J"	Rejected Order, Cancel or Replace message.
	Timestamp	1	8	Integer	Timestamp
	Order Token	9	14	Alpha-numeric	This is the order Token field as transmitted with the order when entered.
	Reason	23	1	Alpha	This is the reason the message was rejected. Clients should anticipate additions to this list and thus support all capital letters of the English alphabet. "A" = Order characteristics not supported in current trading session "B" = Number of orders in the bulk order message exceeded threshold "C" = Exchange closed "D" = Invalid Display Type

Message	Name	Offset	Len	Value	Notes
					"E" = Exchange option
					"F" = Halted
					"H" = Cannot execute in current trading state
					"I" = Order Not Found
					"L" = Firm not authorized for clearing (invalid firm)
					"O" = Other
					"P" = Order already in a pending cancel or replace state
					"Q" = Invalid quantity
					"R" = Risk Control Reject
					"S" = Invalid stock
					"T" = Test Mode
					"U" = Order has an invalid or unsupported characteristic
					"V" = Order is rejected because maximum order rate is exceeded.
					"X" = Invalid price
Extended Rejected Message* (*from Direct Edge*) *Optional - Please contact DE FIX Support to activate Extended Rejected Msg in place of standard Rejected Msg	Message Type	0	1	"L"	Rejected Order, Cancel or Replace message.
	Timestamp	1	8	Integer	Timestamp
	Order Token	9	14	Alpha-numeric	This is the order Token field as transmitted with the order when entered.
	Reason	23	1	Alpha	This is the reason the message was rejected. Clients should anticipate additions to this list and thus support all capital letters of the English alphabet. "A" = Order characteristics not supported in current trading session "B" = Number of orders in the bulk order message exceeded threshold "C" = Exchange closed "D" = Invalid Display Type "E" = Exchange option "F" = Halted "H" = Cannot execute in current trading state "I" = Order Not Found "L" = Firm not authorized for clearing (invalid firm) "O" = Other "P" = Order already in a pending cancel or

Message	Name	Offset	Len	Value	Notes
					replace state "Q" = Invalid quantity "R" = Risk Control Reject "S" = Invalid stock "T" = Test Mode "U" = Order has an invalid or unsupported characteristic "V" = Order is rejected because maximum order rate is exceeded. "X" = Invalid price
	InResponseTo	24	1	Alpha	"O" = New Order "X" = Cancel "U" = Replace
Cancel Order (*from Member*)	Type	0	1	"X"	Cancel Order message.
	Order Token	1	14	Alpha-numeric	The Order Token as originally transmitted in an Enter Order message.
	Quantity	15	4	Integer	This is the new intended order size. This limits the maximum number of shares that can potentially be executed in total after the cancel is applied. Entering a zero here will cancel any remaining open shares on this order.
Canceled Message (*from Direct Edge*)	Message Type	0	1	"C"	Canceled Order message.
	Timestamp	1	8	Integer	Timestamp
	Order Token	9	14	Alpha-numeric	The order Token field as entered.
	Decremented Quantity	23	4	Integer	The number of shares just decremented from the order. This number is incremental, not cumulative.
	Reason	27	1	Alpha	The reason the order was reduced or canceled. Clients should anticipate additions to this list and thus support all capital letters of the English alphabet. "U"= User requested cancel. Sent in response to a Cancel Request message. "I" = Immediate or Cancel order. This order was originally sent with a timeout of zero and no further matches were

Message	Name	Offset	Len	Value	Notes
					available on the book so the remaining unexecuted shares were immediately canceled. "T"=Timeout. The Time In Force for this order has expired. "S"=This order was manually canceled or reduced by Direct Edge. This is usually in response to a participant request via telephone. "D"=This order cannot be executed because of a regulatory restriction (e.g. short sale or trade through restrictions). "A" =This order cannot be posted because it will result in a locked or crossed market. "B" = Order was canceled due to Anti-Internalization settings.
Cancel Pending (*from Direct Edge*)	Message Type	0	1	"I"	Cancel Pending message
	Timestamp	1	8	Integer	See Data Types above.
	Order Token	9	14	Alpha-numeric	Order Token for the order that is cancel pending.
Replace Order (*from Member*)	Message Type	0	1	"U"	Replace Order message
	Existing Order Token	1	14	Alpha-numeric	This must be filled out with the exact Order Token sent on the Enter Order Message or last Replace Order Message.
	Replacement Order Token	15	14	Alpha-numeric	Client ID for the order. Token should be day-unique for each API account.
	Quantity	29	4	Integer	Total quantity of order including any previously executed shares.
	Price	33	4	Integer	Price of replacement order. The price is a 5 digit whole number followed by a 5 decimal digits.
Replaced Message (*from Direct*	Message Type	0	1	"R"	Replaced Message Identifier
	Timestamp	1	8	Integer	Timestamp
	Replacement Order Token	9	14	Alpha-numeric	The Replacement Order Token field as entered.

Message	Name	Offset	Len	Value	Notes
Edge)	Buy/Sell Indicator	23	1	Alpha	Buy/Sell indicator as entered on the original order in the chain.
	Quantity	24	4	Integer	Total number of shares outstanding.
	Symbol	28	6	Alpha	Stock symbol as entered on the original.
	Price	34	4	Integer	The accepted price of the replacement order. Please note that the accepted price could potentially be different than the entered price if the order was re-priced by Direct Edge on entry. The accepted price will always be better than or equal to the entered price.
	Order Reference Number	38	8	Integer	The day-unique Order Reference Number assigned by Direct Edge.
	Capacity	46	1	Alpha	Capacity of original order.
	Previous Order Token	47	14	Alpha-numeric	The Order Token of the order that was replaced.
Pending Replace	Message Type	0	1	"D"	Pending Replace message
	Timestamp	1	8	Integer	Timestamp
(*from Direct Edge*)	Order Token	9	14	Alpha-numeric	Order Token for the order that is Pending Replace.
System Event	Message Type	0	1	"S"	System Event message identifier.
(*from Direct Edge*)	Timestamp	1	8	Integer	Timestamp
	Event Code	9	1	Alpha	Event Codes "S" = Start of Day. This is always the first message each day. It indicates that Direct Edge is open and ready to start accepting orders. "E" = End of Day. This indicates that Direct Edge is now closed and will not accept any new orders in this session. There will not be any more executions during this session; however it is still possible to receive Broken Trade messages and Canceled Order

Message	Name	Offset	Len	Value	Notes
					messages.
Broken Trade	Message Type	0	1	"B"	Broken Trade message.
	Timestamp	1	8	Integer	Timestamp.
(*from Direct Edge*)	Order Token	9	14	Alpha-numeric	The order Token field as entered.
	Match Number	23	8	Integer	Match Number as transmitted in a preceding Executed Order message.
	Reason	31	1	Alpha	The reason the trade was broken. Clients should anticipate additions to this list and thus support all capital letters of the English alphabet. "S"=The trade was manually broken by Direct Edge.
Price Correction	Message Type	0	1	"K"	Price Correction message.
	Timestamp	1	8	Integer	Timestamp.
(*from Direct Edge*)	Order Token	9	14	Alpha-numeric	The order Token field as entered.
	Match Number	23	8	Integer	Match Number as transmitted in a preceding Executed Order message.
	New Execution Price	31	4	Integer	The corrected price of the execution.
	Reason	35	1	Alpha	The reason the trade was corrected. "S"=The trade was manually price-corrected by Direct Edge.
Anti-Internalization Modifier	Type	0	1	"F"	Identifies this message as an Anti-Internalization Modifier.
	AI Method	1	1	Alpha	"A" = Cancel Newest "B" = Cancel Oldest "C" = Cancel Both "D" = Cancel Smallest "E" = Decrement Larger and Cancel Smaller (Order Qty and Leaves reduced)* "F" = Decrement Larger and Cancel Smaller (Leaves reduced)* *If the larger order has a Minimum Execution Qty specified, both orders will be fully canceled.
(*from Member*)	AI Identifier	2	1	Alpha	"A" = MPID "B" = Member ID "C" = MPID and AI Group ID
	AI Group ID	3	2	Alpha-	Two Character ID Chosen by

Message	Name	Offset	Len	Value	Notes
				numeric	Member.
					Orders must match on <u>both</u> MPID and AI Group ID to be prevented from trading.
					Enter spaces in this field if not applicable.
AI Additional Info Message (*from Direct Edge*)	Message Type	0	1	"G"	AI Additional Info Message
	Timestamp	1	8	Integer	Timestamp
	Order Token	9	14	Alpha-numeric	The Order Token as entered.
	Quantity	23	4	Integer	Number of shares prevented from trading.
	Price	27	4	Integer	The price at which these shares would have executed.
	Canceled Order State	31	1	Alpha	"I" = Inbound "P" = Posted Shows if the canceled order was incoming or resting on book at time of cancellation.
	Contra Member ID	32	6	Alpha-numeric	Member ID on the contra order that caused the cancellation.
	Contra Token/ClOrderID	38	20	Alpha-numeric	Token or ClOrderID of contra order that caused the cancellation.
	AI Method	58	1	Alpha	"A" = Cancel Newest "B" = Cancel Oldest "C" = Cancel Both "D" = Cancel Smallest "E" = Decrement Larger and Cancel Smaller (Order Qty and Leaves Qty reduced) "F" = Decrement Larger and Cancel Smaller (Leaves Qty reduced only) AI Method used to cancel the order. This may be different from the AI Method specified on the order being canceled.
	AI Identifier	59	1	Alpha	"A" = MPID "B" = Member ID "C" = MPID and AI Group ID AI Identifier used to match on.
	AI Group ID	60	2	Alpha-numeric	Two Character ID Chosen by Member. Spaces will be entered in this

Message	Name	Offset	Len	Value	Notes
					field if not applicable.

Direct Edge API Specifications for Equities

Chapter 6   Appendices

6.1   Appendix A: Direct Edge Symbology

For Tape A and B securities, Direct Edge supports the use of CMS symbol suffixes.   To enter an order for a symbol with a suffix, API users must use the Enter Order - Extended Format.

Tape C securities do not require use of suffixes.

The table below describes all Direct Edge supported suffixes for Tape A and B securities.

Symbol Type	SIAC Suffix (Not Supported)	Comstock Suffix (Not Supported)	CMS / Direct Edge Supported Suffix
Class A (Class B-T and V-Z also allowed)	/A	.A	A
Class A When Issued	/Aw	.A*	AWI
Preferred	p	-	PR
Preferred Class A	pA	-A	PRA
Preferred Class A When Issued	pAw	-A*	PRAWI
Preferred When Distributed	p/WD	-W or WD	PRWD
Preferred When Issued	pw	-*	PRWI
Rights	r	.R or .RT	RT
Rights When Issued	rw	.R* or .RT*	RTWI
Units	/U	.U	U
Warrants	/WS	.WS or +	WS
Warrants Class A	/WS/A	.WS.A or +A	WSA
Warrant When Issued	/WSw	.WS* or +*	WSWI
When Distributed	/WD	.W or .WD	WD
When Issued	w	*	WI

6.2   Appendix B: Lock/Cross Re-Pricing Options

Under Reg NMS, exchanges must avoid posting orders that intentionally lock or cross other protected market center quotes. To comply with this provision of the rule, Direct Edge offers four alternatives for non-routable orders:

- *Hide not Slide* – If at the time of entry an order locks or crosses an away market quotation, the order will be hidden and ranked at the locking price, but will be displayed one penny away from the locking price. The displayed price will be adjusted to the ranked price as soon as market conditions permit.

- *Price Adjust* – If at the time of entry an order locks or crosses an away market quotation, the order will be displayed and ranked one penny away from the locking price. If market conditions allow the order to be displayed at the original locking price, it will be moved to that price.

- *Single Re-Price* – If at the time of entry an order locks or crosses an away market quotation, the order will be displayed and ranked one penny away from the locking price. This is a onetime re-pricing of the order.

- *Cancel Back* – If at the time of entry an order locks or crosses an away market quotation, the order will be immediately canceled back to the member.