Belzberg Technologies FIX Specification

Version 1.0.0.5

Belzberg Technologies Incorporated - Confidential

August 4, 2010

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Overview

This specification will outline Belzberg Technologies order routing message format. The FIX 4.1 protocol will enable clients to route orders, cancellations, and order modifications into Belzberg Technologies Exchange Gateway. The messaging protocol specifies the format of messages that two or more computers use to exchange order information. It is the responsibility of each party of the information exchange to conform to the specified messaging structure.

Clients who have used these specifications and intend to route orders to Belzberg Technologies require their systems to be fully certified with the Belzberg Gateway to ensure compatibility and functionality. A complete process has been defined to ensure a streamlined integration.

About Belzberg Technologies Inc.

Belzberg Technologies Inc. is a provider of technology-based brokerage services, trading equities and options through its wholly owned, self clearing broker-dealer, Electronic Brokerage Systems. Electronic Brokerage Systems is a member of most North American stock exchanges, options exchanges and clearing organizations, including the NYSE, NASDAQ, CBOE, NSCC and OCC.

Using Belzberg's suite of integrated trading tools and network connectivity, Belzberg's customers have direct access to all North American equities and options markets. The firm's client-base includes over 200 leading U.S and international brokerage houses and financial institutions.

The Company, through its software-based solutions, handles a large percentage of the total trading volume on the Toronto Stock Exchange (TSX) and a substantial volume on, the New York Stock Exchange (NYSE) and the six US options exchanges. Belzberg's ability to provide FIX clients with speedy certification allows institutional clients to integrate their proprietary platforms into the Belzberg network, including order management and back office systems, with extreme efficiency.

Belzberg Technologies is listed on the Toronto Stock Exchange (Ticker-BLZ).

Release Notes

Version 1.0.5

Version	Description
Version 1.0.5	Updated technical support phone numbers.
Version 1.0.4	Added MaturityDay (205) and LegMaturityDay (611) tags in preparation for OSI requirements.
Version 1.0.3	ALGO, ALG1, ALG2 specs were added.
Version 1.0.2	Added Attributes Matrix.
Version 1.0.1	Added Multi legged
Version 1.0.0	Version 1.0 of the Belzberg Fix 4.1 protocol. The document will evolve over time as new products, processes, and solutions are integrated into the Belzberg Gateway.

Support

Trading & Operations Support

Trading and operation support is available during normal trading hours from any of our 5 regional offices. Clients may contract our technical support team to enquire about the status of their orders, to confirm exchange connectivity, report poor market data quality, or to ask about the functionality of Belzberg Technologies Trading suite.

Contact Details

Toronto Technical Support:	+1 416-360-3000	support@belzberg.com
New York Technical Support	+1 646-201-5000	
Chicago Technical Support	+1 312-986-6212	
Montreal Technical Support	+1 514-380-8560	

Fix Certification Support

For fix inbound certification enquires, please email fix@belzberg.com

Networking Connectivity

Direct Connections, Internet VPN or third party connections (such as Radianz) can be used to gain network connectivity to Belzberg Technologies trading network. Belzberg will ensure that our clients are able to connect from known IP addresses on ports that are required for both production and test.

Test & Certification Connections

All clients wishing to send message flow through Belzberg's extensive network of trading destinations must complete a full Belzberg Fix certification for each exchange or destination they want a connection too.

All FIX clients must demonstrate that their application is capable of handling all the mandatory test scenarios outlined in the document – Belzberg Equities Certification or Belzberg Options Certification.

Generally our FIX certification testing environments are available through an Internet or client VPN connection. But using a third party connection is also available upon request.

Belzberg Certification Environment

Belzberg uses a manual certification process, which will require co-ordination with one of our certification team members. Please contact fix@belzberg.com and one of our fix specialists will be in contact with you to schedule testing time.

Certification Test Connection:

IP Address: 66.100.21.70

Port Number: 700

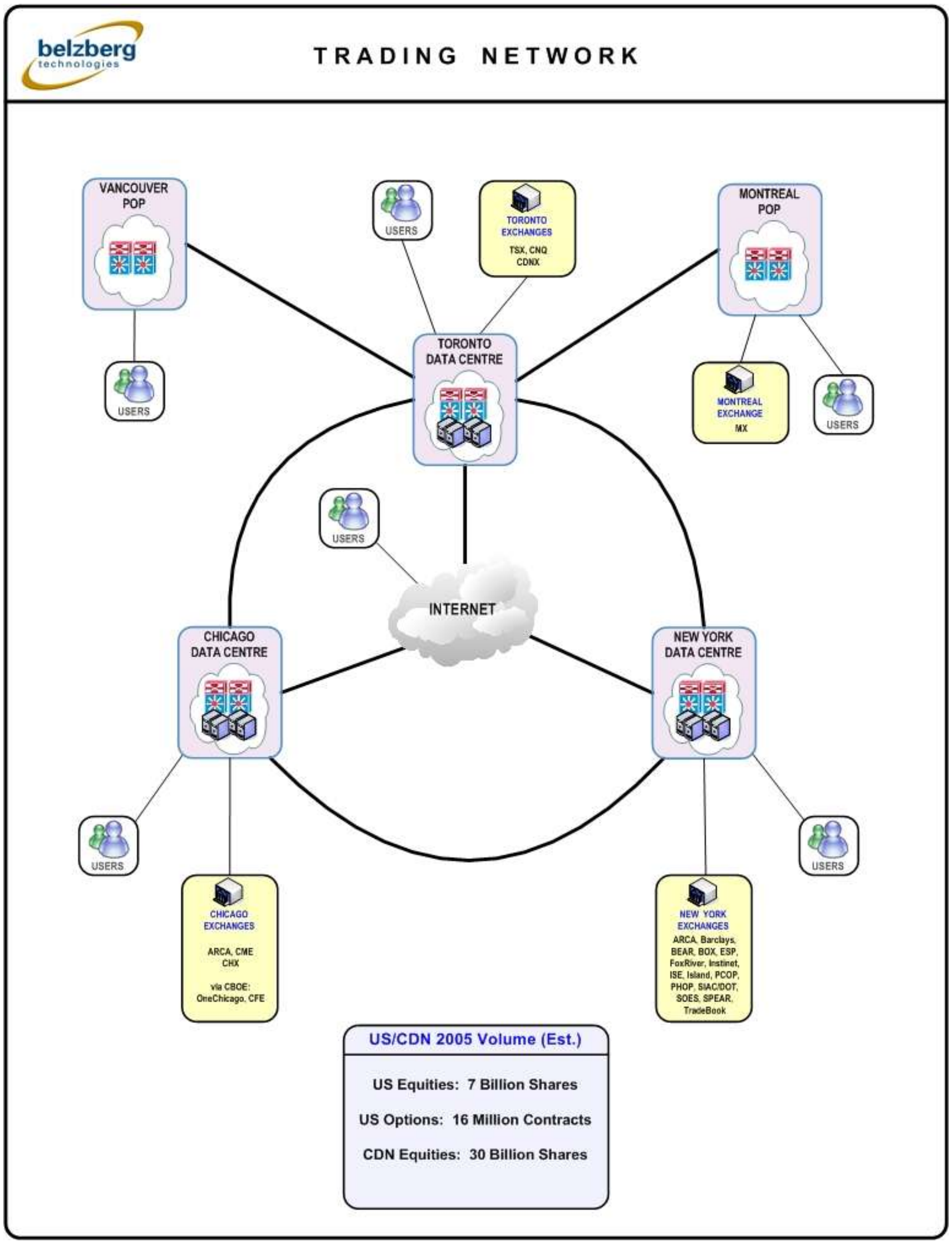
TargetCompID and SenderCompID: will be assigned upon initial request to certify with us.

Once a test connection is established and certification has been completed, clients may connect to the test environment at any time to complete any internal testing. If manual intervention is required please contact fix@belzberg.com for assistance.

Production Order-Routing Connections

Production order routing will be provided over secure networks only. Unencrypted Internet connections will not be supported.

A client will be assigned an IP Address, port and Sender Comp ID once testing and certification is complete.



FIX Message Specifications

The following are the FIX 4.1-specified messages.

The  icon denotes important information for the developer. These icons may denote areas where Belzberg has strayed from the FIX 4.1 protocol.

FIX Message Format

Each FIX message begins with a Message Header and ends with a Message Trailer.

Message Header

The Standard Message Header is required to be at the beginning of each and every message. The tags found in the message header should not be found anywhere else other than inside the message header section of each message.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>8</td><td>BeginString</td><td>Y</td><td>Must be "FIX.4.1" in unencrypted text format. This is always the first field in any FIX message.</td></tr>
<tr><td>9</td><td>BodyLength</td><td>Y</td><td>This must always be the second field in any message and must be unencrypted.</td></tr>
<tr><td>35</td><td>MsgType</td><td>Y</td><td>This field defines the FIX message type. It must be the third field in any FIX message and must be unencrypted.
<table>
<tr><th>Value</th><th>Message Type</th><th>Supported</th></tr>
<tr><td>0</td><td>Heartbeat</td><td>Y</td></tr>
<tr><td>1</td><td>Test Request</td><td>Y</td></tr>
<tr><td>2</td><td>Resend Request</td><td>Y</td></tr>
<tr><td>3</td><td>Reject</td><td>Y</td></tr>
<tr><td>4</td><td>Sequence Reset</td><td>Y</td></tr>
<tr><td>5</td><td>Logout</td><td>Y</td></tr>
<tr><td>8</td><td>Execution Report</td><td>Y</td></tr>
<tr><td>9</td><td>Order Cancel Reject</td><td>Y</td></tr>
<tr><td>A</td><td>Logon</td><td>Y</td></tr>
<tr><td>D</td><td>Order – Single</td><td>Y</td></tr>
<tr><td>F</td><td>Order Cancel Request</td><td>Y</td></tr>
<tr><td>G</td><td>Order Cancel/Replace Request</td><td>Y</td></tr>
</table>
</td></tr>
<tr><td>49</td><td>SenderCompID</td><td>Y</td><td>The assigned sending computer identifier. Must be unencrypted.</td></tr>
<tr><td>56</td><td>TargetCompID</td><td>Y</td><td>The assigned target computer ID. Must be unencrypted.</td></tr>
<tr><td>34</td><td>MsgSeqNum</td><td>Y</td><td>Integer message sequence number. Sequence numbers are used to guarantee the receipt and proper processing of all messages.</td></tr>
<tr><td>43</td><td>PossDupFlag</td><td>N</td><td>Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request.</td></tr>
<tr><td>97</td><td>PossResend</td><td>N</td><td>Indicates that message may contain information that has been sent under another sequence number.
Valid Values:
<table>
<tr><th>Value</th><th>Description</th></tr>
</table>
</td></tr>
</table>

Tag	Field Name	Required	Comments
			Y – Possible resend N – Original transmission Required when message ***may*** be duplicate of another message sent under a different sequence number. This value can be embedded within encrypted data section.
52	SendingTime	Y	Time of message transmission (always expressed in UTC (Universal Time Coordinated, also known as "GMT").
50	SenderSubID	N	
24	TargetSubID	N	

Message Trailer

The Standard Message Trailer is required to be at the end of each and every message. The tags found in the message trailer should not be found anywhere else other than inside the message trailer section of each message.

Tag	Field Name	Required	Supported	Comments
10	CheckSum	Y	Y	Three byte, simple checksum. ALWAYS LAST FIELD IN MESSAGE; i.e. serves, with the trailing <SOH>, as the end-of-message delimiter. Always defined as three characters. (Always unencrypted) The standard CheckSum Calculation as described in the FIX Protocol Specification.

Logon

The Logon Message is always the first message in any FIX conversation. The initiator (you) should send a Logon Message at the beginning of any FIX conversation. This will be replied to by the FIX acceptor with a corresponding Logon message.

Implementation Tip: Do not send any other messages until you receive a Logon message from the FIX engine.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td>Message Header</td><td>Y</td><td>MsgType = A</td></tr>
<tr><td>98</td><td>EncryptMethod</td><td>Y</td><td>Method of encryption. Valid values:<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>None / other</td></tr></table>
This field is always unencrypted in the FIX message.
Encryption method 0 (none) is currently supported.</td></tr>
<tr><td>108</td><td>HeartBtInt</td><td>Y</td><td>The Heartbeat interval specified in number of seconds. All parties to a FIX connection must to utilize the same heartbeat interval to be in compliance with the FIX specifications.</td></tr>
<tr><td></td><td>Message Trailer</td><td>Y</td><td></td></tr>
</table>

Sample Message

Logon

8=FIX.4.1 9=62 35=A 34=1 49=TEST-FIX1 52=20080610-11:15:10 56=BLZ **98=0** **108=60** 10=045

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Logout

A Logout message is a request to terminate a FIX conversation. Either side can initiate a logout.

Important Tip: When initiating a logout, it is best to wait until the other side sends a corresponding logout before terminating the connection. Failure to do so may result in lost messages.

Tag	Field Name	Required	Supported	Comments
	Message Header	Y	Y	MsgType = 5
	Message Trailer	Y	Y	

Sample Message

Logout

8=FIX.4.0   9=52   35=5   34=685   49=TEST-FIX1   52=20080610-22:20:00   56=BLZ   10=115

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Test Request

The test request message forces a heartbeat from the opposing application. The test request message checks sequence numbers and verifies communication line status. The opposite application responds to the test request with a Heartbeat containing the TestReqID.

Tag	Field Name	Required	Supported	Comments
	Message Header	Y	Y	MsgType = 1
112	TestReqID	Y	Y	Identifier included in Test Request message to be returned in resulting Heartbeat
	Message Trailer	Y	Y	

Sample Message

Test Request

8=FIX.4.0   9=113   35=1   49=BLZ   56=BLZ-FIX1   34=501   50=TO-BTE-INB01   57=BLZ-FIX1   43=N   52=20080711-18:34:44   **112=LOGONTESTREQ 14:34:44**   10=049

Sample Message Legend
Green tags are header information

Bold blue tags are message body
Red tags are message trailer information

Resend Request

Tag	Field Name	Required	Supported	Comments
	Message Header	Y	Y	MsgType = 2
7	BeginSeqNo	Y	Y	The message sequence number of first message in range to be resent.
16	EndSeqNo	Y	Y	The message sequence number of last message in range to be resent. If request is for a single message BeginSeqNo = EndSeqNo. If request is for all messages subsequent to a particular message, EndSeqNo = "0" (representing infinity).
	Message Trailer	Y	Y	

Sample Message

Resend Request

8=FIX.4.1 9=103 35=2 49=BLZ 56=BLZ-FIX1 34=502 50=TO-BTE-INB01 57=BLZ-FIX1 43=N 52=20080711-18:35:44 **7=476 16=999999** 10=003

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Sequence Reset

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Supported</th><th>Comments</th></tr>
<tr><td></td><td>Message Header</td><td>Y</td><td>Y</td><td>MsgType = 4</td></tr>
<tr><td>123</td><td>GapFillFlag</td><td>N</td><td>Y</td><td>Indicates that the Sequence Reset message is replacing administrative or application messages that will not be resent.
Valid values:<table><tr><th>Value</th><th>Description</th></tr><tr><td>Y</td><td>Gap Fill message, MsgSeqNum field valid</td></tr><tr><td>N</td><td>Sequence Reset, ignore MsgSeqNum</td></tr></table></td></tr>
<tr><td>36</td><td>NewSeqNo</td><td>Y</td><td>Y</td><td>New sequence number.</td></tr>
<tr><td></td><td>Message Trailer</td><td>Y</td><td></td><td></td></tr>
</table>

Sample Message

Sequence Reset

8=FIX.4.1 9=0093 35=4 34=476 49=BLZ-FIX1 56=BLZ 43=N 52=20080711-18:35:45 122=20080711-18:35:45 **123=Y 36=478** 10=016

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Single Orders

New Order - Single

The New Single Order message is used by institutions wishing to electronically submit securities (Equities, Options or Futures) to Belzberg for execution on our wide array of destinations.

In response to a new single order message, Belzberg will send a range of execution reports all outlined in this document.

Important Tip: Malformed New Single Order messages will be rejected using a session level reject (35=3). Any message will be considered to be malformed if it is missing a required or conditionally required tag or fails to pass a check digit or size checks.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td><u>Message Header</u></td><td>Y</td><td>MsgType = D</td></tr>
<tr><td>11</td><td>ClOrdID</td><td>Y</td><td>Unique order identifier assigned by the client. Must be unique within a given trading day.</td></tr>
<tr><td>1</td><td>Account</td><td>Y</td><td>The assigned clearing account for this transaction.</td></tr>
<tr><td>109</td><td>ClientID</td><td>N</td><td>Used for firm identification in third party transactions.</td></tr>
<tr><td>21</td><td>HandlInst</td><td>Y</td><td>Always 1 (automated execution)</td></tr>
<tr><td>18</td><td>ExecInst</td><td>N</td><td>Instructions for order handling on exchange trading floor. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>E</td><td>Do Not Increase – DNI</td></tr>
<tr><td>F</td><td>Do Not Reduce - DNR</td></tr>
<tr><td>G</td><td>All or None - AON</td></tr>
<tr><td>1</td><td>Not Held</td></tr>
<tr><td>f</td><td>Intermarket Sweep Order (ISO)</td></tr>
<tr><td>g</td><td>Out Routing (AMEX Only). To effectively create a hit or take order. Set TIF to IOC.</td></tr>
<tr><td>O</td><td>Open Peg</td></tr>
<tr><td>P</td><td>Market Peg</td></tr>
<tr><td>R</td><td>Primary Peg</td></tr>
<tr><td>M</td><td>Mid Peg</td></tr>
<tr><td>0</td><td>Post on Offer (Omega Only)</td></tr>
<tr><td>9</td><td>Post on Bid (Omega Only)</td></tr>
<tr><td>6</td><td>PNP – Post no preference (ARCA Only)</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>59</td><td>TimeInForce</td><td>Y</td><td>Specifies how long the order remains in effect. Absence of this field is interpreted as DAY.
Absence of this field indicates Day order
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Day</td></tr><tr><td>1</td><td>Good Till Cancel (GTC)</td></tr><tr><td>2</td><td>At the Open (OPG)</td></tr><tr><td>3</td><td>Immediate or Cancel (OC)</td></tr><tr><td>4</td><td>Fill or Kill (FOK)</td></tr><tr><td>5</td><td>Good Till Crossing (GTX)</td></tr><tr><td>6</td><td>Good Till Date (GTD)</td></tr></table></td></tr>
<tr><td>126</td><td>ExpireTime</td><td>Conditionally</td><td>Date of order expiration. All orders will expire at end of trading hours on day of expiry. Format: YYYYMMDD</td></tr>
<tr><td>63</td><td>SettlmntTyp</td><td>N</td><td>Indicates order settlement period. Absence of this field is interpreted as Regular.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Regular</td></tr><tr><td>1</td><td>Cash</td></tr><tr><td>E</td><td>Cash Today</td></tr><tr><td>C</td><td>Delayed Delivery</td></tr><tr><td>A</td><td>Non Net</td></tr></table></td></tr>
<tr><td>64</td><td>FutSettDate</td><td>N</td><td>Used in conjunction with 63=C. Format: YYMMDD</td></tr>
<tr><td>55</td><td>Symbol</td><td>Y</td><td>The exchange-supported instrument code.
For Options: Requires the option root.
Note: For OSI initiative Belzberg will require the options underlyer instead of option root.</td></tr>
<tr><td>65</td><td>SymbolSfx</td><td>N</td><td>Additional information about the security (e.g. preferred, warrants, etc.). Absence of this field indicates common.</td></tr>
<tr><td>211</td><td>PegDifference</td><td>N</td><td>Price difference for a pegged order.</td></tr>
</table>

Tag	Field Name	Required	Comments	
100	ExDestination	Y	**Exchange Code**	**Description**
			CDN Equities	
			TSES	Toronto Stock Exchange
			CDNX	Toronto Venture Exchange
			PURE	Pure Trading
			CHIX	Chi-X
			ALPH	Alpha Trading
			OMEG	Omega Trading
			BEST	Belzberg Smart Order Router
			TRIC/TRLQ	Triact
			ITS	ITS Trading
			CNQ	CNQ
			US Equities	
			NYSE	New York Stock Exchange
			AMEX	American Stock Exchange
			ARCA	ARCAEx
			NSDQ	Nasdaq
			CBSX	CBOE Stock Exchange
			ISES	ISE Stock Exchange
			INST	Instinet
			ISLA	Island
			BATS	BATS Trading
			CHX	Chicago Stock Exchange
			CTDL	Citadel Trading
			EDGA/EDGX	Edge Trading
			KSEC	Knight Securities
			STNG	Sting Trading
			TRAC	TrackECN
			LAVA	Lava Trading
			WEDN	Weeden Trading
			Options	
			CBOE	Chicago Board of Options Exchange
			ISE	International Securities Exchange
			ARCO	Arca Options Exchange
			PHOP	Philadelphia Options Exchange
			AMOP	AMEX Options
			NSDO	Nasdaq Options
			BOX	Boston Options Exchange
			MEOP	Montreal Options Exchange
			BATO	BATS Options Trading
			Futures	
			MEFU	Montreal Futures Exchange
			CFE	CBOE Futures Exchange
			ONEC	One Chicago
			CME	Chicago Mercantile Exchange
			ALGOs	
			ALG1	Fox River
			ALG2	Deep Value
			ALG3	Barclay's
			ALG4	Credit Suisse

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>CS</td><td>Common Stock</td></tr><tr><td>OPT</td><td>Option</td></tr><tr><td>FUT</td><td>Future</td></tr></table></td></tr>
<tr><td>47</td><td>Rule80A</td><td>Y</td><td>Aka Order Capacity.
<table><tr><th>Exchange Code</th><th>Description</th></tr><tr><td colspan="2">CDN Equities</td></tr><tr><td>CL</td><td>Client</td></tr><tr><td>NC</td><td>Non Client</td></tr><tr><td>IN</td><td>Inventory</td></tr><tr><td>ST</td><td>Specialist</td></tr><tr><td>US Equities</td><td></td></tr><tr><td>A</td><td>Agent</td></tr><tr><td>P</td><td>Principal</td></tr></table></td></tr>
<tr><td>110</td><td>MinQty</td><td>N</td><td>Minimum quantity of an order to be executed.</td></tr>
<tr><td>111</td><td>MaxFloor</td><td>N</td><td>Maximum number of shares within an order to be shown on the exchange floor at any given time.</td></tr>
<tr><td>114</td><td>LocateReqd</td><td>Conditionally</td><td>Required for short sell orders. Indicates whether the broker is to locate the stock in conjunction with a short sell order.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>N</td><td>Indicates the broker is NOT required to locate</td></tr></table></td></tr>
<tr><td>11023</td><td>ShortProvider</td><td>Conditionally</td><td>Short sells require a locate broker, which must be a valid MPID. If you will always use the same value, then this can be set as a session level default.</td></tr>
<tr><td>48</td><td>SecurityID</td><td>N</td><td>CUSIP or other alternate security identifier</td></tr>
<tr><td>22</td><td>IDSource</td><td>N</td><td>Identifies class of alternative SecurityID
<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>CUSIP</td></tr><tr><td>2</td><td>SEDOL</td></tr><tr><td>4</td><td>ISIN number</td></tr></table></td></tr>
</table>

Tag	Field Name	Required	Comments
54	Side	Y	**Value / Description** **Equity** **1** Buy **2** Sell **3** Buy Minus **4** Sell Plus **5** Short **6** Short Exempt **8** Cross **Options** **1** Buy **2** Sell **Futures** **1** Buy **2** Sell
60	TransactTime	Y	Time (GMT) this order request was initiated/released by the trader or trading system.
38	OrderQty	Y	Quantity ordered
40	OrdType	Y	**Value / Description** **Equity** **1** Market **2** Limit **3** Stop **4** Stop-Limit **5** Market on Close **6** With or Without **7** Limit or better **8** Limit With or Without **9** On Basis **A** On Close **B** Limit on Close **P** Pegged Orders **Options** **1** Market **2** Limit **3** Stop **4** Stop-Limit **Futures** **1** Market **2** Limit
44	Price	Conditionally	Required if OrdType is Limit or Stop-Limit.
99	StopPx	Conditionally	Required if OrdType is Stop or Stop-Limit.
200	MaturityMonthYear	Conditionally	Required for Options or Futures to specify the month and year of maturity. SecurityType = OPT or FUT. The year and month of maturity. Format: **YYYYMM** (i.e 200806)
201	PutorCall	Conditionally	Required for Options to specify if the option is for put or call. SecurityType =

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td></td><td></td><td>OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Put</td></tr><tr><td>1</td><td>Call</td></tr></table></td></tr>
<tr><td>202</td><td>StrikePrice</td><td>Conditionally</td><td>Required for Options to specify the strike price for an Option. SecurityType = OPT.
Valid values:
0-99999999.9999 (decimals may vary, not limited to 4)</td></tr>
<tr><td>203</td><td>CoveredOrUncovered</td><td>Conditionally</td><td>Required for Options to specify if the option is covered or uncovered. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Covered</td></tr><tr><td>1</td><td>Uncovered</td></tr></table></td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Customer</td></tr><tr><td>1</td><td>Firm</td></tr></table></td></tr>
<tr><td>205</td><td>MaturityDay</td><td>Conditionally</td><td>For new OSI requirements: Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
1-31 (int)</td></tr>
<tr><td>211</td><td>PegDifference</td><td>Conditionally</td><td>Required for Pegged orders on ARCA</td></tr>
<tr><td>77</td><td>OpenClose</td><td>Conditionally</td><td>Required for Options to specify if the option is open or closed. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>O</td><td>Open</td></tr><tr><td>C</td><td>Closed</td></tr></table></td></tr>
</table>

Tag	Field Name	Required	Comments
11011	Range/ActAs	Conditionally	Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011. **Value** / **Description**: **C** – **Customer** **F** – **Firm** **B** – **Broker Dealer** **X** – **Customer Broker Dealer** **M** – **Market Makers** **N** – **Non Member Market Makers**
440	ClearingAccount	N	OCC sub-account require for Customer Market Maker option orders.
9431	GiveUp	N	Identifies giveup for Options. Alternative to tag 76
76	ExecBroker/GiveUp	N	Identifies executing/giveup broker for Option or Future trades.
9942	ClearingFirm/CMTA	N	The CMTA (Clearing Member Trade Agreeement) field is used to designate an OCC clearing firm. Numeric value from 1-999.
9962	Anonymous	N	User Defined tag for Anonymous trading = Y for anonymous trading.
11074	NoMatchID	N	User Defined tag for Omega NoMatchID
11002	UMIR	N	Candian tag representing UMIRS **Value** / **Description**: **1** – **IA** **2** – **SS**
9020	RoutingInstruction	N	Instructions for order routing to NYSE. **Value** / **Description**: **DNS** – Do Not Ship - A DNS order is a limit order to buy or sell that is to be quoted and/or executed in whole or in part only by the NYSE. **SOC** – NMS IOC - A market or limited price order designated immediate or cancel that will be automatically executed against the displayed quotation up to its [the] full size and [will] sweep the NYSE Display Book® system, to the extent possible without being routed elsewhere for execution, and the portion not so executed will be immediately and automatically cancelled.
9025	Jitney	N	Jitney tag used by CDN Exchanges.
9030	NonRes	N	Non Resident tag used by CDN Exchanges. Set to Y
9027	NonMGF	N	Non Minimum Guranteed Fill used by CDN Exchanges. Set to N

Tag	Field Name	Required	Comments
9031	ProgTrade	N	Program trade, used by CDN exchanges. Set to Y
9003	BoothID	N	Used to route to a NYSE Booth.
	Message Trailer	Y	

Sample Messages

Equity Order(s)

New Order Single - Market Order

8=FIX.4.1 9=136 35=D 34=89 49=BLZ 50=BLZInbound 52=20080624-10:20:34 56=ALL 11=1115 43=N **38=1000 40=1 47=CL 54=2 55=INV 59=12 100=TSES** 10=043

New Order Single – Limit

8=FIX.4.1 9=146 35=D 34=100 11=1116 43=N 49=BLZ 50=BLZInbound 52=20080624-10:25:34 56=ALL **38=1000 40=2 44=10.00 47=CL 54=2 55=INV 59=12 100=TSES** 10=232

New Order Single - Stop Limit

8=FIX.4.1 9=154 35=D 34=111 11=1117 43=N 49=BLZ 50=BLZInbound 52=20080624-10:30:24 56=ALL **38=1000 40=4 44=10.00 47=CL 54=2 55=INV 59=12 99=9.00 100=TSES** 10=094

Option Order(s);

New Order Single – Limit

8=FIX.4.1 9=216 35=D 34=587 49=BLZ 56=ALL 52=20080624-14:19:54 50=BLZInbound **1=ACC1 11=1 21=1 43=N 38=5 40=2 44=1.70 47=A 54=2 55=HOV 59=0 77=O 100=CBOE 114=Y 167=OPT 200=200808 201=0 202=7.500 203=0 204=0 9942=501** 10=226

Future Order(s)

New Order Single – Limit

8=FIX.4.1 9=246 35=D 34=620 49=BLZ 56=ALL 52=20080624-14:35:40 50=BLZInbound **11=11165 1=AXXX 21=1 43=N 38=10 40=2 44=20.71 47=A 55=VX 54=1 59=0 77=O 100=CFE 109=DCN38100 167=FUT 200=200806 204=0 207=CFE 9942=094 11011=C** 10=120

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Order Cancel Replace (a.k.a Order Modification Request)

The Order Cancel Replace message is used to change the parameters of an existing Single Orders

New Order - Single. Belzberg Technologies supports the following parameter changes: Price, volume, display qty and duration.

The Belzberg FIX engine will respond to a Cancel Replace with either an

Execution Report or a Cancel Reject.

Implementation Tip: A Cancel Replace is used to modify an open order. This is done by replacing the original order with a new one. Therefore, specify all pertinent tags in the Cancel Replace. Old values will not be transferred from the original to the new order.

Implementation Tip: Malformed Cancel Replace messages will be rejected using a session level reject. Any message will be considered to be malformed if it is missing a required or conditionally required tag, contains unknown or unexpected tags, or fails to pass a check sum or size.

Tag	Field Name	Required	Comments
	Message Header	Y	MsgType = G
11	ClOrdID	Y	Unique order identifier assigned by the client. Must be unique within a given trading day.
41	OrigClOrdID	Y	ClOrdID of the order being replaced.
1	Account	Y	The assigned clearing account for this transaction.
109	ClientID	N	Used for firm identification in third party transactions.
21	HandlInst	Y	Always **1** (*automated execution*)

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>18</td><td>ExecInst</td><td>N</td><td>Instructions for order handling on exchange trading floor. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>E</td><td>Do Not Increase – DNI</td></tr><tr><td>F</td><td>Do Not Reduce - DNR</td></tr><tr><td>G</td><td>All or None - AON</td></tr><tr><td>1</td><td>Not Held</td></tr><tr><td>f</td><td>Intermarket Sweep Order (ISO)</td></tr><tr><td>g</td><td>Out Routing (AMEX Only). To effectively create a hit or take order. Set TIF to IOC.</td></tr><tr><td>O</td><td>Open Peg</td></tr><tr><td>P</td><td>Market Peg</td></tr><tr><td>R</td><td>Primary Peg</td></tr><tr><td>0</td><td>Post on Offer (Omega Only)</td></tr><tr><td>9</td><td>Post on Bid (Omega Only)</td></tr></table></td></tr>
<tr><td>59</td><td>TimeInForce</td><td>Y</td><td>Specifies how long the order remains in effect. Absence of this field is interpreted as DAY.
Absence of this field indicates Day order
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Day</td></tr><tr><td>1</td><td>Good Till Cancel (GTC)</td></tr><tr><td>2</td><td>At the Open (OPG)</td></tr><tr><td>3</td><td>Immediate or Cancel (OC)</td></tr><tr><td>4</td><td>Fill or Kill (FOK)</td></tr><tr><td>5</td><td>Good Till Crossing (GTX)</td></tr><tr><td>6</td><td>Good Till Date (GTD)</td></tr></table></td></tr>
<tr><td>126</td><td>ExpireTime</td><td>Conditionally</td><td>Date of order expiration. All orders will expire at end of trading hours on day of expiry. Format: YYYYMMDD</td></tr>
<tr><td>63</td><td>SettlmntTyp</td><td>N</td><td>Indicates order settlement period. Absence of this field is interpreted as Regular.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Regular</td></tr><tr><td>1</td><td>Cash</td></tr><tr><td>E</td><td>Cash Today</td></tr><tr><td>C</td><td>Delayed Delivery</td></tr><tr><td>A</td><td>Non Net</td></tr></table></td></tr>
</table>

Tag	Field Name	Required	Comments
64	FutSettDate	N	Used in conjunction with 63=C. Format: YYMMDD
55	Symbol	Y	The exchange-supported instrument code. For Options: Requires the option root. Note: For OSI initiative Belzberg will require the options underlyer instead of option root.
65	SymbolSfx	N	Additional information about the security (e.g. preferred, warrants, etc.). Absence of this field indicates common.
211	PegDifference	N	Price difference for a pegged order.

Tag	Field Name	Required	Comments	
100	ExDestination	N	**Exchange Code**	**Description**
			CDN Equities	
			TSES	Toronto Stock Exchange
			CDNX	Toronto Venture Exchange
			PURE	Pure Trading
			CHIX	Chi-X
			ALPH	Alpha Trading
			OMEG	Omega Trading
			BEST	Belzberg Smart Order Router
			TRIC/TRLQ	Triact
			ITS	ITS Trading
			CNQ	CNQ
			US Equities	
			NYSE	New York Stock Exchange
			AMEX	American Stock Exchange
			ARCA	ARCA Ex
			NSDQ	Nasdaq
			CBSX	CBOE Stock Exchange
			ISES	ISE Stock Exchange
			INST	Instinet
			ISLA	Island
			BATS	BATS Trading
			CHX	Chicago Stock Exchange
			CTDL	Citadel Trading
			EDGA/EDGX	Edge Trading
			KSEC	Knight Securities
			STNG	Sting Trading
			TRAC	TrackECN
			LAVA	Lava Trading
			WEDN	Weeden Trading
			Options	
			CBOE	Chicago Board of Options Exchange
			ISE	International Securities Exchange
			ARCO	Arca Options Exchange
			PHOP	Philadelphia Options Exchange
			AMOP	AMEX Options
			NSDO	Nasdaq Options
			BOX	Boston Options Exchange
			MEOP	Montreal Options Exchange
			BATO	Bats Options Trading
			Futures	
			MEFUTURE	Montreal Futures Exchange
			CFE	CBOE Futures Exchange
			ONEC	One Chicago
			CME	Chicago Mercantile Exchange
			ALGOs	
			ALG1	Fox River
			ALG2	Deep Value
			ALG3	Barclay’s
			ALG4	Credit Suisse

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>CS</td><td>Common Stock</td></tr><tr><td>OPT</td><td>Option</td></tr><tr><td>FUT</td><td>Future</td></tr></table></td></tr>
<tr><td>47</td><td>Rule80A</td><td>Y</td><td>Aka Order Capacity.
<table><tr><th>Exchange Code</th><th>Description</th></tr><tr><td colspan="2">CDN Equities</td></tr><tr><td>CL</td><td>Client</td></tr><tr><td>NC</td><td>Non Client</td></tr><tr><td>IN</td><td>Inventory</td></tr><tr><td>ST</td><td>Specialist</td></tr><tr><td>US Equities</td><td></td></tr><tr><td>A</td><td>Agent</td></tr><tr><td>P</td><td>Principal</td></tr></table></td></tr>
<tr><td>110</td><td>MinQty</td><td>N</td><td>Minimum quantity of an order to be executed.</td></tr>
<tr><td>111</td><td>MaxFloor</td><td>N</td><td>Maximum number of shares within an order to be shown on the exchange floor at any given time.</td></tr>
<tr><td>114</td><td>LocateReqd</td><td>Conditionally</td><td>Required for short sell orders. Indicates whether the broker is to locate the stock in conjunction with a short sell order.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>N</td><td>Indicates the broker is NOT required to locate</td></tr></table></td></tr>
<tr><td>11023</td><td>ShortProvider</td><td>Conditionally</td><td>Short sells require a locate broker, which must be a valid MPID. If you will always use the same value, then this can be set as a session level default.</td></tr>
<tr><td>48</td><td>SecurityID</td><td>N</td><td>CUSIP or other alternate security identifier</td></tr>
<tr><td>22</td><td>IDSource</td><td>N</td><td>Identifies class of alternative SecurityID
<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>CUSIP</td></tr><tr><td>2</td><td>SEDOL</td></tr><tr><td>4</td><td>ISIN number</td></tr></table></td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Equity</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr><tr><td>3</td><td>Buy Minus</td></tr><tr><td>4</td><td>Sell Plus</td></tr><tr><td>5</td><td>Short</td></tr><tr><td>6</td><td>Short Exempt</td></tr><tr><td>8</td><td>Cross</td></tr></table></td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td></td><td></td><td><table>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
</table></td></tr>
<tr><td>60</td><td>TransactTime</td><td>Y</td><td>Time (GMT) this order request was initiated/released by the trader or trading system.</td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Quantity ordered</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td><table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Equity</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
<tr><td>3</td><td>Stop</td></tr>
<tr><td>4</td><td>Stop-Limit</td></tr>
<tr><td>5</td><td>Market on Close</td></tr>
<tr><td>6</td><td>With or Without</td></tr>
<tr><td>7</td><td>Limit or better</td></tr>
<tr><td>8</td><td>Limit With or Without</td></tr>
<tr><td>9</td><td>On Basis</td></tr>
<tr><td>A</td><td>On Close</td></tr>
<tr><td>B</td><td>Limit on Close</td></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
<tr><td>3</td><td>Stop</td></tr>
<tr><td>4</td><td>Stop-Limit</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
</table></td></tr>
<tr><td>44</td><td>Price</td><td>Conditionally</td><td>Required if OrdType is Limit or Stop-Limit.</td></tr>
<tr><td>99</td><td>StopPx</td><td>Conditionally</td><td>Required if OrdType is Stop or Stop-Limit.</td></tr>
<tr><td>200</td><td>MaturityMonthYear</td><td>Conditionally</td><td>Required for Options or Futures to specify the month and year of maturity. SecurityType = OPT or FUT.
The year and month of maturity. Format: YYYYMM (i.e 200806)</td></tr>
<tr><td>201</td><td>PutorCall</td><td>Conditionally</td><td>Required for Options to specify if the option is for put or call. SecurityType = OPT.<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Put</td></tr>
<tr><td>1</td><td>Call</td></tr>
</table></td></tr>
<tr><td>202</td><td>StrikePrice</td><td>Conditionally</td><td>Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
0-99999999.9999 (decimals may vary, not limited to 4)</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>203</td><td>CoveredOrUncovered</td><td>Conditionally</td><td>Required for Options to specify if the option is covered or uncovered. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Covered</td></tr><tr><td>1</td><td>Uncovered</td></tr></table></td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Customer</td></tr><tr><td>1</td><td>Firm</td></tr></table></td></tr>
<tr><td>205</td><td>MaturityDay</td><td>Conditionally</td><td>For new OSI requirements: Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
1-31 (int)</td></tr>
<tr><td>77</td><td>OpenClose</td><td>Conditionally</td><td>Required for Options to specify if the option is open or closed. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>O</td><td>Open</td></tr><tr><td>C</td><td>Closed</td></tr></table></td></tr>
<tr><td>11011</td><td>Range/ActAs</td><td>Conditionally</td><td>Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>C</td><td>Customer</td></tr><tr><td>F</td><td>Firm</td></tr><tr><td>B</td><td>Broker Dealer</td></tr><tr><td>X</td><td>Customer Broker Dealer</td></tr><tr><td>M</td><td>Market Makers</td></tr><tr><td>N</td><td>Non Member Market Makers</td></tr></table></td></tr>
<tr><td>440</td><td>ClearingAccount</td><td>N</td><td>OCC sub-account require for Customer Market Maker option orders.</td></tr>
<tr><td>76</td><td>ExecBroker/GiveUp</td><td>N</td><td>Identifies executing/giveup broker for Option or Future trades.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>9020</td><td>RoutingInstruction</td><td>N</td><td>Instructions for order routing to NYSE.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>DNS</td><td>Do Not Ship - A DNS order is a limit order to buy or sell that is to be quoted and/or executed in whole or in part only by the NYSE.</td></tr><tr><td>SOC</td><td>NMS IOC - A market or limited price order designated immediate or cancel that will be automatically executed against the displayed quotation up to its [the] full size and [will] sweep the NYSE Display Book® system, to the extent possible without being routed elsewhere for execution, and the portion not so executed will be immediately and automatically cancelled.</td></tr></table></td></tr>
<tr><td>9942</td><td>ClearingFirm/CMTA</td><td>N</td><td>The CMTA (Clearing Member Trade Agreeement) field is used to designate an OCC clearing firm. Numeric value from 1-999.</td></tr>
<tr><td>9003</td><td>BoothID</td><td>N</td><td>Used to route to a NYSE Booth. Required to cancel replace any order previously routed to a NY booth.</td></tr>
<tr><td></td><td><u>Message Trailer</u></td><td>Y</td><td></td></tr>
</table>

Sample Message

Equity Order(s)

Order Cancel/Replace Request

8=FIX.4.1 9=238 35=G 34=73 50=BLZ-FIX1 57=204.225.213.36 52=20080716-16:50:34 56=ALL 49=BLZ **1=NFN0027W 11=1235 21=1 43=N 41=4560 38=1000 40=3 55=KFS 59=0 54=1 60=20031112-16:47:32 99=13.3 100=TSES 126=20031112-23:59:59 128=TSES** 10=094

Options Order(s)

Order Cancel/Replace Request

8=FIX.4.1 9=209 35=G 34=63 57=204.225.213.36 49=BLZ 56=ALL 52=20080716-16:45:46 **11=_ANDZ0005 21=1 43=N 41=_ANDZ0004 38=20 40=2 44=7.00 55=YHQ 54=1 59=0 50=BLZ-FIX1 77=O 100=ISE 167=OPT 200=200310 202=30.000 201=1 203=0 204=0** 10=055

Future Order(s)

Order Cancel/Replace Request

8=FIX.4.0 9=0218 35=G 34=183 49=BLZ 56=ALL 52=20080711-13:57:10 50=BLZInbound **55=SXA 1=A1 18=1 21=1 100=MEFUTURE 200=200809 16**

7=FUT 15=CAD 110=0 11=21930008 44=355.0 66=S1 63=0 59=0 54=2 47=IN 41=21930006 40=2 38=3 37=BSR9023 11002=0 10=040

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Order Cancel Request

The order cancel request message requests the cancellation of ALL remaining quantity of an existing order. Note that an Order Cancel Replace request should be used to partially cancel (reduce) an order.

The Belzberg FiX gateway will respond to a Cancel Replace with either an

Execution Report or a Cancel Reject.

Implementation Tip: A cancel request is assigned a ClOrdID and is treated as a separate entity. The OrigClOrderID should match the ClOrdID of the order to be cancelled

Implementation Tip: A cancel request is assigned a ClOrdID and is treated as a separate entity. If rejected, the CLOrdID of the cancel request will be sent in the Cancel Reject message, as well as the ClOrdID of the actual order in the OrigClOrdID field.

Implementation Tip: Malformed Cancel messages will be rejected using a session level reject. Any message will be considered to be malformed if it is missing a required or conditionally required tag, contains unknown or unexpected tags or fails to pass a check sum or size checks.

Tag	Field Name	Required	Comments
	Message Header	Y	MsgType = F
11	ClOrdID	Y	Unique order identifier assigned by the client. Must be unique within a given trading day.
41	OrigClOrdID	Y	ClOrdID of the order being replaced.
1	Account	Y	The assigned clearing account for this transaction.
109	ClientID	N	Used for firm identification in third party transactions.
55	Symbol	Y	The exchange-supported instrument code. For Options: Requires the option root. Note: For OSI initiative Belzberg will require the options underlyer instead of option root.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>65</td><td>SymbolSfx</td><td>N</td><td>Additional information about the security (e.g. preferred, warrants, etc.). Absence of this field indicates common.</td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>CS</td><td>Common Stock</td></tr>
<tr><td>OPT</td><td>Option</td></tr>
<tr><td>FUT</td><td>Future</td></tr>
</table></td></tr>
<tr><td>47</td><td>Rule80A</td><td>Y</td><td>Aka Order Capacity.
<table>
<tr><th>Exchange Code</th><th>Description</th></tr>
<tr><td colspan="2">CDN Equities</td></tr>
<tr><td>CL</td><td>Client</td></tr>
<tr><td>NC</td><td>Non Client</td></tr>
<tr><td>IN</td><td>Inventory</td></tr>
<tr><td>ST</td><td>Specialist</td></tr>
<tr><td>US Equities</td><td></td></tr>
<tr><td>A</td><td>Agent</td></tr>
<tr><td>P</td><td>Principal</td></tr>
</table></td></tr>
<tr><td>48</td><td>SecurityID</td><td>N</td><td>CUSIP or other alternate security identifier</td></tr>
<tr><td>22</td><td>IDSource</td><td>N</td><td>Identifies class of alternative SecurityID
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>1</td><td>CUSIP</td></tr>
<tr><td>2</td><td>SEDOL</td></tr>
<tr><td>4</td><td>ISIN number</td></tr>
</table></td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Equity</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
<tr><td>3</td><td>Buy Minus</td></tr>
<tr><td>4</td><td>Sell Plus</td></tr>
<tr><td>5</td><td>Short</td></tr>
<tr><td>6</td><td>Short Exempt</td></tr>
<tr><td>8</td><td>Cross</td></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
</table></td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>OrderQty = CumQty + LeavesQty</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>200</td><td>MaturityMonthYear</td><td>Conditionally</td><td>Required for Options or Futures to specify the month and year of maturity. SecurityType = OPT or FUT.
The year and month of maturity. Format: YYYYMM (i.e 200806)</td></tr>
<tr><td>201</td><td>PutorCall</td><td>Conditionally</td><td>Required for Options to specify if the option is for put or call. SecurityType = OPT.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Put</td></tr>
<tr><td>1</td><td>Call</td></tr>
</table></td></tr>
<tr><td>202</td><td>StrikePrice</td><td>Conditionally</td><td>Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
0-99999999.9999 (decimals may vary, not limited to 4)</td></tr>
<tr><td>203</td><td>CoveredOrUncovered</td><td>Conditionally</td><td>Required for Options to specify if the option is covered or uncovered. SecurityType = OPT.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Covered</td></tr>
<tr><td>1</td><td>Uncovered</td></tr>
</table></td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Customer</td></tr>
<tr><td>1</td><td>Firm</td></tr>
</table></td></tr>
<tr><td>205</td><td>MaturityDay</td><td>Conditionally</td><td>For new OSI requirements: Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
1-31 (int)</td></tr>
<tr><td>77</td><td>OpenClose</td><td>Conditionally</td><td>Required for Options to specify if the option is open or closed. SecurityType = OPT.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>O</td><td>Open</td></tr>
<tr><td>C</td><td>Closed</td></tr>
</table></td></tr>
</table>

Tag	Field Name	Required	Comments
11011	Range/ActAs	Conditionally	Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011. **Value** / **Description** **C** – **Customer** **F** – **Firm** **B** – **Broker Dealer** **X** – **Customer Broker Dealer** **M** – **Market Makers** **N** – **Non Member Market Makers**
9003	BoothID	N	Used to route to a NYSE Booth. Required to cancel any order previously routed to a NY booth.
	Message Trailer	Y	

Sample Message

Equity Order(s)

Order Cancel Request

8=FIX.4.1 9=200 35=F 34=12 11=1098 21=1 43=N 41=1097 50=BLZ-FIX1 57=204.225.213.36 49=BLZ 52=20080716-16:21:11 56=ALL **54=1 55=SPY 59=0 60=20080716-13:51:14.989 100=ARCA 109=1 167=CS 204=0 207=ARCA** 10=206

Options Order(s)

Order Cancel Request

8=FIX.4.1 9=265 35=F 34=3849=BLZ 56=ALL 52=20080716-16:33:43 50=BLZ-FIX1 57=204.225.213.36 **11=Ord123 43=N 41=Ord222 37=DCG547 38=200 47=A 55=VBA 54=1 60=20080606-13:31:35 77=O 109=DCN10600 167=OPT 200=200901 205=17 201=0 202=10.0 207=CBOE 203=1 9942=573 11011=C** 10=087

Future Order(s)

Order Cancel Request

8=FIX.4.1 9=157 35=F 34=4 11=21930009 43=N 38=3 41=21930008 57=204.225.213.36 49=BLZ 56=ALL 52=20080716-16:17:45 50=BLZ-FIX1 **55=SXA 54=2 125=F 167=FUT 200=200809** 10=073

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Execution Report

Belzberg Technologies will use the Execution Report message to:

1. Confirm the receipt of an order
2. Confirm changes to an existing order.
3. Relays fill information on working orders.
4. Reject orders.

Implementation Tip: The combination of ExecTransType (Tag 20), OrdStatus (Tag 39), and ExecType (Tag 150 will provide you with indications on how to process the Execution Report.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td>Message Header</td><td>Y</td><td>MsgType = 8</td></tr>
<tr><td>37</td><td>OrderID</td><td>Y</td><td>Unique order identifier assigned by the gateway.</td></tr>
<tr><td>11</td><td>ClOrdID</td><td>Y</td><td>Identifier of the order, as assigned by the client.</td></tr>
<tr><td>41</td><td>OrigClOrdID</td><td>Conditionally</td><td>If responding to a Cancel or Cancel/Replace, the ClOrdID of the order being cancelled or replaced.</td></tr>
<tr><td>17</td><td>ExecID</td><td>Y</td><td>For fills or partial fills, the execution identifier assigned by the exchange, or 0 otherwise.</td></tr>
<tr><td>20</td><td>ExecTransType</td><td>Y</td><td>Identifies transaction type.
Valid values:
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>New</td></tr>
<tr><td>1</td><td>Cancel</td></tr>
<tr><td>2</td><td>Correct</td></tr>
<tr><td>3</td><td>Status</td></tr>
</table></td></tr>
<tr><td>150</td><td>ExecType</td><td>Y</td><td>Describes the type of execution report. Same possible values as OrdStatus.</td></tr>
<tr><td>39</td><td>OrdStatus</td><td>Y</td><td>Describes the current state of a chain of orders, with the same scope as OrderQty, CumQty, LeavesQty, and AvgPx.
Valid values:
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>New</td></tr>
<tr><td>1</td><td>Partially filled</td></tr>
<tr><td>2</td><td>Filled</td></tr>
<tr><td>4</td><td>Canceled</td></tr>
<tr><td>5</td><td>Replaced</td></tr>
<tr><td>6</td><td>Pending Cancel</td></tr>
<tr><td>8</td><td>Rejected</td></tr>
<tr><td>A</td><td>Pending New</td></tr>
</table></td></tr>
<tr><td>1</td><td>Account</td><td>Y</td><td>The assigned clearing account for the order.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>55</td><td>Symbol</td><td>Y</td><td>The exchange-supported instrument code.
For Options: Requires the option root.
Note: For OSI initiative Belzberg will require the options underlyer instead of option root.</td></tr>
<tr><td>65</td><td>SymbolSfx</td><td>N</td><td>Additional information about the security (e.g. preferred, warrants, etc.). Absence of this field indicates common.</td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.<table><tr><th>Value</th><th>Description</th></tr><tr><td>CS</td><td>Common Stock</td></tr><tr><td>OPT</td><td>Option</td></tr><tr><td>FUT</td><td>Future</td></tr></table></td></tr>
<tr><td>48</td><td>SecurityID</td><td>N</td><td>CUSIP or other alternate security identifier</td></tr>
<tr><td>22</td><td>IDSource</td><td>N</td><td>Identifies class of alternative SecurityID<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>CUSIP</td></tr><tr><td>2</td><td>SEDOL</td></tr><tr><td>4</td><td>ISIN number</td></tr></table></td></tr>
<tr><td>207</td><td>SecurityExchange</td><td>Y</td><td>The exchange where the contract or security should be executed.</td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.<table><tr><th>Value</th><th>Description</th></tr><tr><td>CS</td><td>Common Stock</td></tr><tr><td>OPT</td><td>Option</td></tr><tr><td>FUT</td><td>Future</td></tr></table></td></tr>
<tr><td>200</td><td>MaturityMonthYear</td><td>Y</td><td>The month and year of maturity. Format: YYYYMM</td></tr>
<tr><td>201</td><td>PutorCall</td><td>Conditionally</td><td>Required for Options to specify if the option is for put or call.
SecurityType = OPT.<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Put</td></tr><tr><td>1</td><td>Call</td></tr></table></td></tr>
<tr><td>202</td><td>StrikePrice</td><td>Conditionally</td><td>Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
0-99999999.9999 (decimals may vary, not limited to 4)</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>203</td><td>CoveredOrUncovered</td><td>Conditionally</td><td>Required for Options to specify if the option is covered or uncovered. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Covered</td></tr><tr><td>1</td><td>Uncovered</td></tr></table></td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Customer</td></tr><tr><td>1</td><td>Firm</td></tr></table></td></tr>
<tr><td>205</td><td>MaturityDay</td><td>Conditionally</td><td>For new OSI requirements: Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
1-31 (int)</td></tr>
<tr><td>77</td><td>OpenClose</td><td>Conditionally</td><td>Required for Options to specify if the option is open or closed. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>O</td><td>Open</td></tr><tr><td>C</td><td>Closed</td></tr></table></td></tr>
<tr><td>11011</td><td>Range/ActAs</td><td>Conditionally</td><td>Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>C</td><td>Customer</td></tr><tr><td>F</td><td>Firm</td></tr><tr><td>B</td><td>Broker Dealer</td></tr><tr><td>X</td><td>Customer Broker Dealer</td></tr><tr><td>M</td><td>Market Makers</td></tr><tr><td>N</td><td>Non Member Market Makers</td></tr></table></td></tr>
<tr><td>76</td><td>ExecBroker/GiveUp</td><td>N</td><td>Identifies executing/giveup broker for Option or Future trades.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Equity</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
<tr><td>3</td><td>Buy Minus</td></tr>
<tr><td>4</td><td>Sell Plus</td></tr>
<tr><td>5</td><td>Short</td></tr>
<tr><td>6</td><td>Short Exempt</td></tr>
<tr><td>8</td><td>Cross</td></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
</table>
</td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Quantity ordered</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Equity</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
<tr><td>3</td><td>Stop</td></tr>
<tr><td>4</td><td>Stop-Limit</td></tr>
<tr><td>5</td><td>Market on Close</td></tr>
<tr><td>6</td><td>With or Without</td></tr>
<tr><td>7</td><td>Limit or better</td></tr>
<tr><td>8</td><td>Limit With or Without</td></tr>
<tr><td>9</td><td>On Basis</td></tr>
<tr><td>A</td><td>On Close</td></tr>
<tr><td>B</td><td>Limit on Close</td></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
<tr><td>3</td><td>Stop</td></tr>
<tr><td>4</td><td>Stop-Limit</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
</table>
</td></tr>
<tr><td>44</td><td>Price</td><td>Conditionally</td><td>Required if specified on the original order.</td></tr>
<tr><td>99</td><td>StopPx</td><td>Conditionally</td><td>Required if specified on the original order.</td></tr>
<tr><td>32</td><td>LastShares</td><td>Conditionally</td><td>For fill or partial fill, the quantity of shares traded on this execution.</td></tr>
<tr><td>31</td><td>LastPx</td><td>Conditionally</td><td>For fill or partial fill, the fill price for this execution.</td></tr>
<tr><td>151</td><td>LeavesQty</td><td>Y</td><td>Amount of shares open for further execution.</td></tr>
<tr><td>14</td><td>CumQty</td><td>Y</td><td>Currently executed shares or contracts for this chain of orders.</td></tr>
</table>

Tag	Field Name	Required	Comments
6	AvgPx	Y	Always **0**
60	TransactTime	N	Time (GMT) the transaction represented by this ExecutionReport occurred.
58	Text	N	Human-readable description of any errors encountered.
11024	Away MKT Exchange	N	If the initial exchange routes the order away, away mkt exchange will specify the exchange that the order was routed too. I.E. If the intial was initially routed to NYSE and NYSE routes it to the CBOE Stock exchange 11024 = W. Note: Used by NYSE only
11003	Liquidity Taker/Provider	N	Liquidity taker/provider tags. See Appendix A: for liquidity tag values by exchange.
9943	Canadian Rebate Tag	N	Passive/Aggressive Rebate Tags for CDN exchanges. See Appendix A: for rebate tag values by exchange.
	Message Trailer	Y	

Values for 11024 (Away MKT Exchange):

Value	Description
Equity	
B	**Boston Stock Exchange**
C	**NSX (National Stock Exch)**
I	**International Stock Exch**
M	**CHX**
P	**Pacific Stock Exchange**
T	**NASDAQ**
W	**CBOE Stock Exchange**
X	**Philly Stock Exchange**
Z	**BATS**
D	**NASD**

Sample Message

Equity Order(s)

Execution Report - New Order

8=FIX.4.1 9=367 35=8 49=BLZ 56=BLZ-FIX1 34=8 50=TO-BTE-INB01 43=N 52=20031112-16:06:47 **37=JAB6 11=200311120 17=80162471100000111242691 1 20=0 150=0 39=0 1=NFN0027W 55=KFS 54=1 38=100000 40=2 44=13.000 15=CAD 59=0 32=0 31=13.000 30=TO 151=100000 14=0 6=0 75=20031112 60=20031112-16:06:47 58=BOOKED, PriorityTimeStamp=20031112110647099002, ActionSource=BLZ, MGFCandidate=N** 10=084

Execution Report - Partial Fill

8=FIX.4.1 9=319 35=8 49=BLZ 56=BLZ-FIX1 34=36 50=TO-BTE-INB01 43=N 52=20031112-16:15:16 **37=JAB7 11=200311121 76=27 17=81167554100990111242691 4 20=0 150=1 39=1 1=NFN0027W 55=KFS 54=2 38=100000 40=2 44=13.500 15=CAD 32=1000 31=13.500 30=TO 151=99000 14=1000 6=13.500 75=20031112 60=20031112-16:15:15 58=, ActionSource=BLZ(1)** 10=231

Execution Report - Complete Filled

8=FIX.4.1 9=303 35=8 49=BLZ 56=BLZ-FIX1 34=35 50=TO-BTE-INB01 43=N 52=20031112-

16:15:16 **37=JAB8 11=200311122 76=27 17=82167553100000111242691320=0 150=2 39=2 1=NFN0027W 55=KFS 54=1 38=1000 40=2 15=CAD 32=1000 31=13.500 30=TO 151=0 14=1000 6=13.500 75=20031112 60=20031112-16:15:15 58=, ActionSource=BLZ(1)** 10=208

Option Order(s)

8=FIX.4.1 9=320 35=8 49=BLZ 56=BLZ-FIX1 34=472 50=TO-BTE-INB01 43=N 52=20060206-18:20:27 **37=LBI2708 11=6:06131334 76=CBOE:551 17=8200000E0000000206000638 20=0 150=2 39=2 55=IBM 167=OPT 200=200602 201=1 202=70 54=1 38=108 40=2 44=9.400 59=0 32=10 31=9.400 30=CBOE 151=0 14=108 6=9.400 75=20060206 58=0 77=O 204=1 203=0 11011=F** 10=238

Future Order(s)

8=FIX.4.0 9=366 35=8 49=BLZ 56=BLZ-FIX1 34=180 50=TO-BTE-INB01 43=N 52=20080711-13:56:51 **37=BSR9024 11=21930007 76=079 17=821636960010000711110466 20=0 39=2 1=A1 55=SXA 54=2 38=1 40=2 44=354.000 32=1 31=355.000 30=MEFU 14=16=355.000 75=20080711 60=20080711-13:56:49 58=, OptionsPositionO 9259=Hedger 77=O 167=FUT 200=200809 201=0 202=0.000 204=0 203=0 150=2 151=0** 10=013

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Cancel Reject

The Cancel Reject message is sent as a result of either a Cancel Replace or Cancel that could not be processed by the FIX engine.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td>Message Header</td><td>Y</td><td>MsgType = 9</td></tr>
<tr><td>37</td><td>OrderID</td><td>Y</td><td>Unique order identifier assigned by the gateway.</td></tr>
<tr><td>11</td><td>ClOrdID</td><td>Y</td><td>Identifier of the rejected order, as assigned by the client.</td></tr>
<tr><td>41</td><td>OrigClOrdID</td><td>Y</td><td>The ClOrdID of the order that could not be canceled.</td></tr>
<tr><td>39</td><td>OrdStatus</td><td>Y</td><td><table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>New</td></tr>
<tr><td>1</td><td>Partially filled</td></tr>
<tr><td>2</td><td>Filled</td></tr>
<tr><td>4</td><td>Canceled</td></tr>
<tr><td>5</td><td>Replaced</td></tr>
<tr><td>6</td><td>Pending Cancel</td></tr>
<tr><td>8</td><td>Rejected</td></tr>
<tr><td>A</td><td>Pending New</td></tr>
<tr><td>E</td><td>Pending Replace</td></tr>
</table>
This is the status of the order after the cancel reject.</td></tr>
<tr><td>102</td><td>CxlRejReason</td><td>N</td><td>Reason for Cancel Reject.</td></tr>
<tr><td>58</td><td>Text</td><td>N</td><td>Human-readable reason for the rejection.</td></tr>
<tr><td></td><td>Message Trailer</td><td>Y</td><td></td></tr>
</table>

Equity Order(s)

Cancel Reject

8=FIX.4.1 9=141 35=9 49=BLZ 56=BLZ 34=4 50=TO-BTE-INB01 57=BLZ-FIX1 43=N 52=20080716-20:21:11 **37=234 11=1098 41=1097 39=8 102=1 58=CLORDID LOOKUP FAILED** 10=088

Options Order(s)

Cancel Reject

8=FIX.4.1 9=163 35=9 49=BLZ 56=BLZ 34=5 50=TO-BTE-INB01 57=BLZ-FIX1 43=N 52=20080716-20:33:43 **37=Ord777 11=Ord123 41=Ord222 39=8 102=1 58=CLORDID LOOKUP FAILED** 10=102

Futures Order(s)

Cancel Reject

8=FIX.4.1 9=149 35=9 49=BLZ 56=BLZ 34=3 50=TO-BTE-INB01 57=BLZ-FIX1 43=N 52=20080716-20:17:45 **37=235 11=21930009 41=21930008 39=8 102=1 58=CLORDID LOOKUP FAILED** 10=247

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Red tags are message trailer information

Complex Spread Orders

New Order – Spread (Multi-Leg) Order

New spread orders allow clients to send orders with multiple securities (each security in the spread is known as a leg). These multi legged orders can consist of Option strategies such as Spreads, Straddles, Butterflies, and Ratio. They can also consist of Option with Stock strategies such as Buy Writes or Delta Neutrals.

Important Tip: Currently Belzberg Technologies only support spreads on the Chicago Board of Options Exchange (CBOE) and the International Securities Exchange (ISE). This means tag 100 should contain only of CBOE or ISE.

Important Tip: All legs in a multi-legged spread must have the same underlying security.

Important Tip: A repeating block section is defined below. This section is used to define individual legs in a multi leg spread. In one 35=D, there could be two to four repeated blocks. It is mandatory that LegSymbol (tag 600) is ALWAYS the first repeating tag of each leg. LegSymbol (tag 600) must also follow immediately after NoLegs (tag 555)

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td><u>Message Header</u></td><td>Y</td><td>MsgType = D</td></tr>
<tr><td>11</td><td>ClOrdID</td><td>Y</td><td>Unique order identifier assigned by the client. Must be unique within a given trading day.
Note: CliOrdID specified by the client should represent the order ID for the entire spread. Note each individual leg.</td></tr>
<tr><td>1</td><td>Account</td><td>N</td><td>The assigned clearing account for this transaction.</td></tr>
<tr><td>109</td><td>ClientID</td><td>N</td><td>Used for firm identification in third party transactions.</td></tr>
<tr><td>21</td><td>HandlInst</td><td>Y</td><td>Always 1 (automated execution)</td></tr>
<tr><td>18</td><td>ExecInst</td><td>N</td><td>Instructions for order handling on exchange trading floor. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.<table><tr><th>Value</th><th>Description</th></tr><tr><td>G</td><td>All or None - AON</td></tr></table></td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>59</td><td>TimeInForce</td><td>Y</td><td>Specifies how long the order remains in effect. Absence of this field is interpreted as DAY.
Absence of this field indicates Day order
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Day</td></tr><tr><td>1</td><td>Good Till Cancel (GTC)</td></tr><tr><td>2</td><td>At the Open (OPG)</td></tr><tr><td>3</td><td>Immediate or Cancel (OC)</td></tr><tr><td>4</td><td>Fill or Kill (FOK)</td></tr></table></td></tr>
<tr><td>63</td><td>SettlmntTyp</td><td>N</td><td>Indicates order settlement period. Absence of this field is interpreted as Regular.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Regular</td></tr></table></td></tr>
<tr><td>55</td><td>Symbol</td><td>Y</td><td>The underlyer of the entire spread.</td></tr>
<tr><td>100</td><td>ExDestination</td><td>Y</td><td><table><tr><th>Exchange Code</th><th>Description</th></tr><tr><td colspan="2">Options</td></tr><tr><td>CBOE</td><td>Chicago Board of Options Exchange</td></tr><tr><td>ISE</td><td>International Securities Exchange</td></tr><tr><td colspan="2">Futures</td></tr><tr><td>CFE</td><td>CBOE Futures Exchange</td></tr><tr><td>ONEC</td><td>One Chicago</td></tr></table></td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>MLG</td><td>Multi Leg</td></tr></table></td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Options</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr><tr><td colspan="2">Futures</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
<tr><td>60</td><td>TransactTime</td><td>Y</td><td>Time (GMT) this order request was initiated/released by the trader or trading system.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Number of times the spread is available (multiplier)</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
</table>
</td></tr>
<tr><td>44</td><td>Price</td><td>Conditionally</td><td>Net price of the spread. Required for all limit orders.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>+’ve pirce</td><td>Debit - Willing to pay</td></tr>
<tr><td>-‘tve price</td><td>Credit – Wants cash back</td></tr>
<tr><td>0</td><td>Even orders</td></tr>
</table>
</td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Customer</td></tr>
<tr><td>1</td><td>Firm</td></tr>
</table>
</td></tr>
<tr><td>11011</td><td>Range/ActAs</td><td>Conditionally</td><td>Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>C</td><td>Customer</td></tr>
<tr><td>F</td><td>Firm</td></tr>
<tr><td>B</td><td>Broker Dealer</td></tr>
<tr><td>X</td><td>Customer Broker Dealer</td></tr>
<tr><td>M</td><td>Market Makers</td></tr>
<tr><td>N</td><td>Non Member Market Makers</td></tr>
</table>
</td></tr>
<tr><td>440</td><td>ClearingAccount</td><td>N</td><td>OCC sub-account require for Customer Market Maker option orders.</td></tr>
<tr><td>76</td><td>ExecBroker/GiveUp</td><td>N</td><td>Identifies executing/giveup broker for Option or Future trades.</td></tr>
<tr><td>9942</td><td>ClearingFirm/CMTA</td><td>N</td><td>The CMTA (Clearing Member Trade Agreeement) field is used to designate an OCC clearing firm. Numeric value from 1-999.</td></tr>
</table>

Tag	Field Name	Required	Comments
555	NoLegs	Y	Number of legs in spread. **Value** / **Description** **2** – **Two legged spread** **3** – **Three legged spread** **4** – **Four legged spread**
Start of Repeating Block		Y	Used for the details of each individual security leg.
600	LegSymbol	Y	The exchange-supported instrument code. For Options legs this is the OCC trading symbol. For stock legs, this is the underlying symbol. Note: For OSI initiative Belzberg will require the options underlyer instead of option root.
654	LegRefID	Y	The numeric value that represents the specific leg of a spread. This value should be 1, 2, 3, 4 for leg 1, 2, 3 and 4 respectively.
608	LegCFICode	Y	Individual leg CFI code for a spread. Combines SecurityType (167) and PutorCall (tag 201). **Value** / **Description** **Option** **OC** – **Option-Call** **OP** – **Option-Put** **Equity** **CS** – **Equity Common Share (CS)**
610	LegMaturityMonthYear	Conditionally	Option legs only. Expiration month and year. Format: YYYYMM
611	LegMaturityDay	Conditionally	For new OSI requirements: Option legs only. Expiration Year, month and day. Format: YYYYMMDD
612	LegStrikePrice	Conditionally	Option legs only. Strike price for an option. Valid values: 0-99999999.9999 (decimals may vary, not limited to 4)
564	LegPositionEffect	Conditionally	Option legs only. **Value** / **Description** **O** – **Open** **C** – **Closed**
566	LegPrice	Conditionally	<For future use>

Tag	Field Name	Required	Comments
624	LegSide	Conditionally	**Value** | **Description** **Equity** **1** | **Buy** **2** | **Sell** **5** | **Short** **6** | **Short Exempt** **Options** **1** | **Buy** **2** | **Sell** **Futures** **1** | **Buy** **2** | **Sell**
623	LegRatioQty	Y	The ration of quantity for an individual leg relatiavely to the spread as a whole. Value must be an integer.
End of Repeating Block		Y	
	Message Trailer	Y	

Sample Messages

Option Spread:

New Order Single – Limit

8=FIX.4.1 9=318 35=D 49=BLZ 56=ALL 34=659 50=BLZ-FIX1 57=10.254.220.142 43=N 52=20081114-21:43:20 11**=00024313.00622509 21=2 100=ISE 55=CTX 167=MLG 54=1 38=1000 40=2 44=0.95 59=0 204=0 555=2** 600=CTX 608=OC 610=200811 612=10.00 623=1 624=1 564=O 654=1 600=CTX 608=OC 610=200811 612=15.00 623=1 624=2 564=O 654=2 10=246

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Order Cancel Replace – Spread (Multi-Leg) Order

The Order Cancel/Replace Request message is used to modify the parameters of an existing order.

Important Tip: Only modifications of the Price (44) and OrderQty (38) are supported for spreads

Important Tip: A repeating block section is defined below. This section is used to define individual legs in a multi leg spread. In one 35=G, there could be two to four repeated blocks. It is mandatory that LegSymbol (tag 600) is ALWAYS the first repeating tag of each leg. LegSymbol (tag 600) must also follow immediately after NoLegs (tag 555)

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td><u>Message Header</u></td><td>Y</td><td>MsgType = G</td></tr>
<tr><td>11</td><td>ClOrdID</td><td>Y</td><td>Unique order identifier assigned by the client. Must be unique within a given trading day.
Note: CliOrdID specified by the client should represent the order ID for the entire spread. Note each individual leg.</td></tr>
<tr><td>41</td><td>OrigClOrdID</td><td>Y</td><td>ClOrdID of the order being replaced.</td></tr>
<tr><td>1</td><td>Account</td><td>Y</td><td>The assigned clearing account for this transaction.</td></tr>
<tr><td>109</td><td>ClientID</td><td>N</td><td>Used for firm identification in third party transactions.</td></tr>
<tr><td>21</td><td>HandlInst</td><td>Y</td><td>Always 1 (automated execution)</td></tr>
<tr><td>18</td><td>ExecInst</td><td>N</td><td>Instructions for order handling on exchange trading floor. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>G</td><td>All or None - AON</td></tr>
</table></td></tr>
<tr><td>59</td><td>TimeInForce</td><td>Y</td><td>Specifies how long the order remains in effect. Absence of this field is interpreted as DAY.
Absence of this field indicates Day order
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Day</td></tr>
<tr><td>1</td><td>Good Till Cancel (GTC)</td></tr>
<tr><td>2</td><td>At the Open (OPG)</td></tr>
<tr><td>3</td><td>Immediate or Cancel (OC)</td></tr>
<tr><td>4</td><td>Fill or Kill (FOK)</td></tr>
</table></td></tr>
<tr><td>63</td><td>SettlmntTyp</td><td>N</td><td>Indicates order settlement period. Absence of this field is interpreted as Regular.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>Regular</td></tr>
</table></td></tr>
<tr><td>55</td><td>Symbol</td><td>Y</td><td>The underlyer of the entire spread.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>100</td><td>ExDestination</td><td>Y</td><td>
<table>
<tr><th>Exchange Code</th><th>Description</th></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>CBOE</td><td>Chicago Board of Options Exchange</td></tr>
<tr><td>ISE</td><td>International Securities Exchange</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>CFE</td><td>CBOE Futures Exchange</td></tr>
<tr><td>ONEC</td><td>One Chicago</td></tr>
</table>
</td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>MLG</td><td>Multi Leg</td></tr>
</table>
</td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Buy</td></tr>
<tr><td>2</td><td>Sell</td></tr>
</table>
</td></tr>
<tr><td>60</td><td>TransactTime</td><td>Y</td><td>Time (GMT) this order request was initiated/released by the trader or trading system.</td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Number of times the spread is available (multiplier)</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">Options</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
<tr><td colspan="2">Futures</td></tr>
<tr><td>1</td><td>Market</td></tr>
<tr><td>2</td><td>Limit</td></tr>
</table>
</td></tr>
<tr><td>44</td><td>Price</td><td>Conditionally</td><td>Net price of the spread. Required for all limit orders.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>+'ve pirce</td><td>Debit - Willing to pay</td></tr>
<tr><td>-'tve price</td><td>Credit – Wants cash bak</td></tr>
<tr><td>0</td><td>Even orders</td></tr>
</table>
</td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td></td><td></td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Customer</td></tr><tr><td>1</td><td>Firm</td></tr></table></td></tr>
<tr><td>11011</td><td>Range/ActAs</td><td>Conditionally</td><td>Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011.<table><tr><th>Value</th><th>Description</th></tr><tr><td>C</td><td>Customer</td></tr><tr><td>F</td><td>Firm</td></tr><tr><td>B</td><td>Broker Dealer</td></tr><tr><td>X</td><td>Customer Broker Dealer</td></tr><tr><td>M</td><td>Market Makers</td></tr><tr><td>N</td><td>Non Member Market Makers</td></tr></table></td></tr>
<tr><td>440</td><td>ClearingAccount</td><td>N</td><td>OCC sub-account require for Customer Market Maker option orders.</td></tr>
<tr><td>76</td><td>ExecBroker/GiveUp</td><td>N</td><td>Identifies executing/giveup broker for Option or Future trades.</td></tr>
<tr><td>9942</td><td>ClearingFirm/CMTA</td><td>N</td><td>The CMTA (Clearing Member Trade Agreeement) field is used to designate an OCC clearing firm. Numeric value from 1-999.</td></tr>
<tr><td>555</td><td>NoLegs</td><td>Y</td><td>Number of legs in spread.<table><tr><th>Value</th><th>Description</th></tr><tr><td>2</td><td>Two legged spread</td></tr><tr><td>3</td><td>Three legged spread</td></tr><tr><td>4</td><td>Four legged spread</td></tr></table></td></tr>
<tr><td colspan="2">Start of Repeating Block</td><td>Y</td><td>Used for the details of each individual security leg.</td></tr>
<tr><td>600</td><td>LegSymbol</td><td>Y</td><td>The exchange-supported instrument code.
For Options legs this is the OCC trading symbol. For stock legs, this is the underlying symbol.
Note: For OSI initiative Belzberg will require the options underlyer instead of option root.</td></tr>
<tr><td>654</td><td>LegRefID</td><td>Y</td><td>The numeric value that represents the specific leg of a spread. This value should be 1, 2, 3, 4 for leg 1, 2, 3 and 4 respectively.</td></tr>
<tr><td>608</td><td>LegCFICode</td><td>Y</td><td>Individual leg CFI code for a spread. Combines SecurityType (167) and PutorCall (tag 201).<table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Option</td></tr><tr><td>OC</td><td>Option-Call</td></tr><tr><td>OP</td><td>Option-Put</td></tr><tr><td colspan="2">Equity</td></tr><tr><td>CS</td><td>Equity Common Share (CS)</td></tr></table></td></tr>
</table>

Tag	Field Name	Required	Comments
610	LegMaturityMonthYear	Conditionally	Option legs only. Expiration month and year. Format: YYYYMM
611	LegMaturityDay	Conditionally	For new OSI requirements: Option legs only. Expiration Year, month and day. Format: YYYYMMDD
612	LegStrikePrice	Conditionally	Option legs only. Strike price for an option. Valid values: 0-99999999.9999 (decimals may vary, not limited to 4)
564	LegPositionEffect	Conditionally	Option legs only. **Value** / **Description** **O** – **Open** **C** – **Closed**
566	LegPrice	Conditionally	<For future use>
624	LegSide	Conditionally	**Value** / **Description** **Equity** **1** – **Buy** **2** – **Sell** **5** – **Short** **6** – **Short Exempt** **Options** **1** – **Buy** **2** – **Sell** **Futures** **1** – **Buy** **2** – **Sell**
623	LegRatioQty	Y	The ration of quantity for an individual leg relatiavely to the spread as a whole. Value must be an integer.
End of Repeating Block		Y	
	Message Trailer	Y	

Sample Messages

Option Spread:

Order Cancel/Replace Request

8=FIX.4.2 9=296 35=G 49=EBS 56=ISE 34=581 50=CIB 57=TALX 52=20080903-17:53:40 **11=BEO7396-20080903 21=2 38=100 40=2 41=BEO7395-20080903 44=4.910000000 59=0 100=ISE 55=IBM 54=1 167=MLG 204=0 555=2** 600=IBM 654=1 564=O 608=OC 610=200809 612=105.00 623=1 624=1 600=IBM 654=2 564=O 608=OC 610=200809 612=110.00 623=1 624=2 10=046

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Order Cancel Request – Spread (Multi-Leg) Order

The Order Cancel Request message cancels the remaining quantity in an existing order.

Tag	Field Name	Required	Comments
	Message Header	Y	MsgType = G
11	ClOrdID	Y	Unique order identifier assigned by the client. Must be unique within a given trading day. **Note:** CliOrdID specified by the client should represent the order ID for the entire spread. Note each individual leg.
41	OrigClOrdID	Y	ClOrdID of the order being replaced.
1	Account	Y	The assigned clearing account for this transaction.
109	ClientID	N	Used for firm identification in third party transactions.
21	HandlInst	Y	Always **1** (*automated execution*)
18	ExecInst	N	Instructions for order handling on exchange trading floor. If more than one instruction is applicable to an order, this field can contain multiple instructions separated by space. **Value** / **Description** **G** – **All or None - AON**
59	TimeInForce	Y	Specifies how long the order remains in effect. Absence of this field is interpreted as DAY. Absence of this field indicates Day order **Value** / **Description** **0** – **Day** **1** – **Good Till Cancel (GTC)** **2** – **At the Open (OPG)** **3** – **Immediate or Cancel (OC)** **4** – **Fill or Kill (FOK)**
63	SettlmntTyp	N	Indicates order settlement period. Absence of this field is interpreted as Regular. **Value** / **Description** **0** – **Regular**

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>55</td><td>Symbol</td><td>Y</td><td>The underlyer of the entire spread.</td></tr>
<tr><td>100</td><td>ExDestination</td><td>Y</td><td><table><tr><th>Exchange Code</th><th>Description</th></tr><tr><td colspan="2">Options</td></tr><tr><td>CBOE</td><td>Chicago Board of Options Exchange</td></tr><tr><td>ISE</td><td>International Securities Exchange</td></tr><tr><td colspan="2">Futures</td></tr><tr><td>CFE</td><td>CBOE Futures Exchange</td></tr><tr><td>ONEC</td><td>One Chicago</td></tr></table></td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>MLG</td><td>Multi Leg</td></tr></table></td></tr>
<tr><td>54</td><td>Side</td><td>Y</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Options</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr><tr><td colspan="2">Futures</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
<tr><td>60</td><td>TransactTime</td><td>Y</td><td>Time (GMT) this order request was initiated/released by the trader or trading system.</td></tr>
<tr><td>38</td><td>OrderQty</td><td>Y</td><td>Number of times the spread is available (multiplier)</td></tr>
<tr><td>40</td><td>OrdType</td><td>Y</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Options</td></tr><tr><td>1</td><td>Market</td></tr><tr><td>2</td><td>Limit</td></tr><tr><td colspan="2">Futures</td></tr><tr><td>1</td><td>Market</td></tr><tr><td>2</td><td>Limit</td></tr></table></td></tr>
<tr><td>44</td><td>Price</td><td>Conditionally</td><td>Net price of the spread. Required for all limit orders.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>+’ve pirce</td><td>Debit - Willing to pay</td></tr><tr><td>-‘tve price</td><td>Credit – Wants cash bak</td></tr><tr><td>0</td><td>Even orders</td></tr></table></td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Customer</td></tr><tr><td>1</td><td>Firm</td></tr></table></td></tr>
<tr><td>11011</td><td>Range/ActAs</td><td>Conditionally</td><td>Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>C</td><td>Customer</td></tr><tr><td>F</td><td>Firm</td></tr><tr><td>B</td><td>Broker Dealer</td></tr><tr><td>X</td><td>Customer Broker Dealer</td></tr><tr><td>M</td><td>Market Makers</td></tr><tr><td>N</td><td>Non Member Market Makers</td></tr></table></td></tr>
<tr><td>555</td><td>NoLegs</td><td>Y</td><td>Number of legs in spread.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>2</td><td>Two legged spread</td></tr><tr><td>3</td><td>Three legged spread</td></tr><tr><td>4</td><td>Four legged spread</td></tr></table></td></tr>
<tr><td colspan="2">Start of Repeating Block</td><td>Y</td><td>Used for the details of each individual security leg</td></tr>
<tr><td>600</td><td>LegSymbol</td><td>Y</td><td>The exchange-supported instrument code.
For Options legs this is the OCC trading symbol. For stock legs, this is the underlying symbol.
Note: For OSI initiative Belzberg will require the options underlyer instead of option root.</td></tr>
<tr><td>654</td><td>LegRefID</td><td>Y</td><td>The numeric value that represents the specific leg of a spread. This value should be 1, 2, 3, 4 for leg 1, 2, 3 and 4 respectively.</td></tr>
<tr><td>608</td><td>LegCFICode</td><td>Y</td><td>Individual leg CFI code for a spread. Combines SecurityType (167) and PutorCall (tag 201).
<table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Option</td></tr><tr><td>OC</td><td>Option-Call</td></tr><tr><td>OP</td><td>Option-Put</td></tr><tr><td colspan="2">Equity</td></tr><tr><td>CS</td><td>Equity Common Share (CS)</td></tr></table></td></tr>
<tr><td>610</td><td>LegMaturityMonthYear</td><td>Conditionally</td><td>Option legs only.
Expiration month and year.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td></td><td></td><td>Format: YYYYMM</td></tr>
<tr><td>611</td><td>LegMaturityDay</td><td>Conditionally</td><td>For new OSI requirements:
Option legs only.
Expiration Year, month and day.
Format: YYYYMMDD</td></tr>
<tr><td>612</td><td>LegStrikePrice</td><td>Conditionally</td><td>Option legs only.
Strike price for an option.
Valid values:
0-99999999.9999 (decimals may vary, not limited to 4)</td></tr>
<tr><td>564</td><td>LegPositionEffect</td><td>Conditionally</td><td>Option legs only.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>O</td><td>Open</td></tr><tr><td>C</td><td>Closed</td></tr></table></td></tr>
<tr><td>566</td><td>LegPrice</td><td>Conditionally</td><td><For future use></td></tr>
<tr><td>624</td><td>LegSide</td><td>Conditionally</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">Equity</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr><tr><td>5</td><td>Short</td></tr><tr><td>6</td><td>Short Exempt</td></tr><tr><td colspan="2">Options</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr><tr><td colspan="2">Futures</td></tr><tr><td>1</td><td>Buy</td></tr><tr><td>2</td><td>Sell</td></tr></table></td></tr>
<tr><td>623</td><td>LegRatioQty</td><td>Y</td><td>The ration of quantity for an individual leg relatiavely to the spread as a whole. Value must be an integer.</td></tr>
<tr><td colspan="2">End of Repeating Block</td><td></td><td></td></tr>
<tr><td>440</td><td>ClearingAccount</td><td>N</td><td>OCC sub-account require for Customer Market Maker option orders.</td></tr>
</table>

Option Spread:

Order Cancel Request

8=FIX.4.2 9=251 35=F 49=EBS 56=ISE 34=579 50=CIB 57=TALX 52=20080903-17:53:20 **11=BEO7394-20080903 21=2 38=100 41=BEO7393-20080903 55=IBM 54=1 167=MLG 555=2** 600=IBM 654=1 564=O 608=OC 610=200809 612=105.00 623=1 624=1 600=IBM 654=2 564=O 608=OC 610=200809 612=110.00 623=1 624=2 10=234

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Execution Report – Spread (Multi-Leg) Order

Belzberg Technologies will use the Execution Report message to:

1. Confirm the receipt of an order
2. Confirm changes to an existing order.
3. Relays fill information on working orders.
4. Reject orders.

Implementation Tip: Multi-Leg (spread) executions are reported as individual FIX execution reports per leg.

Implementation Tip: For a two-legged spread, it is possible to receive one "Complete" Fill message (39=2) on the 1st leg, but, on the 2nd leg, received a Partial Fill message (39/150=1) and then another message for the Complete (39/150=2). In other words, it is possible to receive one trade message for one leg, and two trade messages for the other.

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td></td><td>Message Header</td><td>Y</td><td>MsgType = 8</td></tr>
<tr><td>37</td><td>OrderID</td><td>Y</td><td>Unique order identifier assigned by the gateway.</td></tr>
<tr><td>11</td><td>ClOrdID</td><td>Y</td><td>Identifier of the order, as assigned by the client.</td></tr>
<tr><td>41</td><td>OrigClOrdID</td><td>Conditionally</td><td>If responding to a Cancel or Cancel/Replace, the ClOrdID of the order being cancelled or replaced.</td></tr>
<tr><td>17</td><td>ExecID</td><td>Y</td><td>For fills or partial fills, the execution identifier assigned by the exchange, or 0 otherwise.</td></tr>
<tr><td>20</td><td>ExecTransType</td><td>Y</td><td>Identifies transaction type.
Valid values:
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td>0</td><td>New</td></tr>
<tr><td>1</td><td>Cancel</td></tr>
<tr><td>2</td><td>Correct</td></tr>
<tr><td>3</td><td>Status</td></tr>
</table></td></tr>
<tr><td>150</td><td>ExecType</td><td>Y</td><td>Describes the type of execution report. Same possible values as OrdStatus.</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>39</td><td>OrdStatus</td><td>Y</td><td>Describes the current state of a chain of orders, with the same scope as OrderQty, CumQty, LeavesQty, and AvgPx.
Valid values:<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>New</td></tr><tr><td>1</td><td>Partially filled</td></tr><tr><td>2</td><td>Filled</td></tr><tr><td>4</td><td>Canceled</td></tr><tr><td>5</td><td>Replaced</td></tr><tr><td>6</td><td>Pending Cancel</td></tr><tr><td>8</td><td>Rejected</td></tr><tr><td>A</td><td>Pending New</td></tr></table></td></tr>
<tr><td>1</td><td>Account</td><td>Y</td><td>The assigned clearing account for the order.</td></tr>
<tr><td>55</td><td>Symbol</td><td>Y</td><td>The exchange-supported instrument code.
For Options: Requires the option root.
Note: For OSI initiative Belzberg will require the options underlyer instead of option root.</td></tr>
<tr><td>65</td><td>SymbolSfx</td><td>N</td><td>Additional information about the security (e.g. preferred, warrants, etc.). Absence of this field indicates common.</td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.<table><tr><th>Value</th><th>Description</th></tr><tr><td>CS</td><td>Common Stock</td></tr><tr><td>OPT</td><td>Option</td></tr><tr><td>FUT</td><td>Future</td></tr></table></td></tr>
<tr><td>48</td><td>SecurityID</td><td>N</td><td>CUSIP or other alternate security identifier</td></tr>
<tr><td>22</td><td>IDSource</td><td>N</td><td>Identifies class of alternative SecurityID<table><tr><th>Value</th><th>Description</th></tr><tr><td>1</td><td>CUSIP</td></tr><tr><td>2</td><td>SEDOL</td></tr><tr><td>4</td><td>ISIN number</td></tr></table></td></tr>
<tr><td>207</td><td>SecurityExchange</td><td>Y</td><td>The exchange where the contract or security should be executed.</td></tr>
<tr><td>167</td><td>SecurityType</td><td>Y</td><td>Indicates type of security.<table><tr><th>Value</th><th>Description</th></tr><tr><td>CS</td><td>Common Stock</td></tr><tr><td>OPT</td><td>Option</td></tr><tr><td>FUT</td><td>Future</td></tr></table></td></tr>
<tr><td>200</td><td>MaturityMonthYear</td><td>Y</td><td>The month and year of maturity. Format: YYYYMM</td></tr>
</table>

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>201</td><td>PutorCall</td><td>Conditionally</td><td>Required for Options to specify if the option is for put or call.
SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Put</td></tr><tr><td>1</td><td>Call</td></tr></table></td></tr>
<tr><td>202</td><td>StrikePrice</td><td>Conditionally</td><td>Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
0-99999999.9999 (decimals may vary, not limited to 4)</td></tr>
<tr><td>203</td><td>CoveredOrUncovered</td><td>Conditionally</td><td>Required for Options to specify if the option is covered or uncovered. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Covered</td></tr><tr><td>1</td><td>Uncovered</td></tr></table></td></tr>
<tr><td>204</td><td>CustomerOrFirm</td><td>Conditionally</td><td>Required for Options to specify if the option is for a customer or the firm placing the order itself. Note: Belzberg supports either 204 or Internal tag 11011.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>0</td><td>Customer</td></tr><tr><td>1</td><td>Firm</td></tr></table></td></tr>
<tr><td>205</td><td>MaturityDay</td><td>Conditionally</td><td>For new OSI requirements: Required for Options to specify the strike pice for an Option. SecurityType = OPT.
Valid values:
1-31 (int)</td></tr>
<tr><td>77</td><td>OpenClose</td><td>Conditionally</td><td>Required for Options to specify if the option is open or closed. SecurityType = OPT.
<table><tr><th>Value</th><th>Description</th></tr><tr><td>O</td><td>Open</td></tr><tr><td>C</td><td>Closed</td></tr></table></td></tr>
</table>

Tag	Field Name	Required	Comments
11011	Range/ActAs	Conditionally	Required for Options to specify if the Range or ActAs of an option. Note: Belzberg supports either 204 or Internal tag 11011. **Value** – **Description** **C** – **Customer** **F** – **Firm** **B** – **Broker Dealer** **X** – **Customer Broker Dealer** **M** – **Market Makers** **N** – **Non Member Market Makers**
76	ExecBroker/GiveUp	N	Identifies executing/giveup broker for Option or Future trades.
54	Side	Y	**Value** – **Description** **Options** **1** – **Buy** **2** – **Sell** **Futures** **1** – **Buy** **2** – **Sell**
38	OrderQty	Y	Quantity ordered
40	OrdType	Y	**Value** – **Description** **Options** **1** – **Market** **2** – **Limit** **Futures** **1** – **Market** **2** – **Limit**
44	Price	Conditionally	Required if specified on the original order.
99	StopPx	Conditionally	Required if specified on the original order.
32	LastShares	Conditionally	For fill or partial fill, the quantity of shares traded on this execution.
31	LastPx	Conditionally	For fill or partial fill, the fill price for this execution.
151	LeavesQty	Y	Amount of shares open for further execution.
14	CumQty	Y	Currently executed shares or contracts for this chain of orders.
6	AvgPx	Y	Always **0**
60	TransactTime	N	Time (GMT) the transaction represented by this ExecutionReport occurred.
58	Text	N	Human-readable description of any errors encountered.

Tag	Field Name	Required	Comments
654	LegRefID	Y	As specifed on the order.
	Message Trailer	Y	

Sample Message

Option Spread:

Execution Report – New Order

8=FIX.4.1 9=319 35=8 49=MAIN 56=BLZ 34=668 50=TO-BTE-INB-01 57=BLZ-FIX1 43=N 52=20081114-21:43:20 **37=BBE17 11=00024313.00622509 17=8027080E1000003488444 20=0 150=0 39=0 55=CTX 167=OPT 200=200811 201=1 202=10 54=1 38=1000 40=2 44=0.950 59=0 32=0 31=0.950 30=ISE 151=1000 14=0 6=0 75=20081114 60=20081114-22:43:20 58=0 654=1 204=0 203=0** 10=036

Execution Report - Partial Fill

8=FIX.4.1 9=326 35=8 49=MAIN 56=BLZ 34=672 50=TO-BTE-INB-01 57=BLZ-FIX1 43=N 52=20081114-21:43:50 **37=BBE17 11=00024313.00622509 17=8127110E0006003488448 20=0 150=1 39=1 55=CTX 167=OPT 200=200811 201=1 202=10 54=1 38=1000 40=2 44=0.950 59=0 32=100 31=2.480 30=ISE 151=600 14=400 6=2.480 75=20081114 60=20081114-22:43:50 58=0 654=1 204=0 203=0** 10=143

Execution Report - Complete Filled

8=FIX.4.1 9=325 35=8 49=MAIN 56=BLZ 34=675 50=TO-BTE-INB-01 57=BLZ-FIX1 43=N 52=20081114-21:44:00 **37=BBE17 11=00024313.00622509 17=8227120E0000003488451 20=0 150=2 39=2 55=CTX 167=OPT 200=200811 201=1 202=15 54=2 38=1000 40=2 44=0.950 59=0 32=600 31=1.530 30=ISE 151=0 14=1000 6=1.530 75=20081114 60=20081114-22:44:00 58=0 654=2 204=0 203=0** 10=074

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Belzberg Algorithms

ALG1 Algorithms – Deep Value

All ALG1 algorithms support the following parameters

Tag	Field Name	Required	Comments

<table>
<tr><td>11019</td><td>AlgorithmType</td><td>Y</td><td>
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">ALG1</td></tr>
<tr><td>00</td><td>Guranteed VWAP (GVWAP)</td></tr>
<tr><td>01</td><td>VWAP Limit</td></tr>
<tr><td>02</td><td>VWAP Avg</td></tr>
<tr><td>03</td><td>VWAP Mkt</td></tr>
<tr><td>04</td><td>Arrival Price Average</td></tr>
<tr><td>05</td><td>Arrival Price Market</td></tr>
</table>
</td></tr>
<tr><td>126</td><td>Expire Time/End Time</td><td>N</td><td>Start Time for Algorithm. Format: YYYYMMDD-HH:MM:SS using GMT, 0 padded</td></tr>
<tr><td>168</td><td>EffectiveTime/Start Time</td><td>N</td><td>End Time for Algorithm. Format: YYYYMMDD-HH:MM:SS using GMT, 0 padded</td></tr>
<tr><td>11053</td><td>TargetEndTime</td><td>N</td><td>Target End Time. Format: YYYYMMDD-HH:MM:SS using GMT, 0 padded</td></tr>
<tr><td>11031</td><td>Participation Rate/Participation Target Rate.</td><td>N</td><td>Percent of Market Volume</td></tr>
</table>

VWAP

These Strategies track the market-wide Volume-Weighted Average Price over the period the order is given to trade. A period can be set using S.T (Start Time) and E.T (End Time). The TET (Target End Time) can be used for pacing the order and does not specifically end the market fills.

VWAP Limit

The volume Limit is set using %Mkt vol (Percent of Market Volume). If the limit is exceeded, additional child fills will be suspended until the market volume falls below the limit. VWAP Avg An Average volume limit is set using %Mkt vol (Percent of Market Volume).

VWAP Mkt

A Market volume limit is set using %Mkt vol (Percent of Market Volume).

Arrival Price

These Strategies benchmark performance against the arrival price. Providing either an E.T (End Time) or a %Mkt vol (Percent of Market Volume) will determine the aggression of the order. %Mkt vol will act as a target. Orders will be rejected if both E.T and %Mkt vol are filled. The arrival price can be an average (Arrival Pri Avg) or the market price (Arrival Pri Mkt).

GVWAP

Guaranteed Volume Weighted Average Price is a VWAP Strategy in which the price is guaranteed by prior agreement. As with VWAP, a period can be set using S.T (Start Time) and E.T (End Time). The TET (Target End Time) can be used for pacing the order and does not specifically end the market fills.

Sample Message

GVWAP Order

8=FIX.4.1 9=136 35=D 34=89 **11=1116 43=N 38=1000 40=1 47=A 57=10.254.222.33 49=BLZ 50=BLZInbound 52=20080624-10:20:34 56=ALL 54=2 55=IBM 59=0** 100=ALG1 11019=00 168=20081127-14:50:31 126=20081127-16:00:00 11053=20081127-16:00:00 11031=30 10=043

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Table: ALG1 Algorithm Specific Fields

Description	Data Type	Tag #	GVWAP	VWAP Limit	VWAP Avg	VWAP Mkt	AP Avg	AP MKT
Strategy Type	String	11019	Req	Req	Req	Req	Req	Req
OrderType	Integer	40	40=1	40=2	40=2	40=1	40=2	40=1
Price	Price	44	N/A	Req	Req	N/A	Req	N/A
Start Time	Time	168	Opt	Opt	Opt	Opt	Opt	Opt
End Time	Time	126	Opt	Opt	Opt	Opt	Opt	Opt
Target End Time	Time	11053	Opt	N/A	N/A	Opt	Opt	Opt
Particpation Rate/Participation Target Rate	Integer	11031	N/A	N/A	Opt	N/A	Opt	Opt

ALG2 Algorithms – Barclay's

All ALG2 algorithms support the following parameters

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th>Comments</th></tr>
<tr><td>11019</td><td>AlgorithmType</td><td>Y</td><td><table><tr><th>Value</th><th>Description</th></tr><tr><td colspan="2">ALG1</td></tr><tr><td>01</td><td>VWAP</td></tr><tr><td>02</td><td>Arrival Price (AP)</td></tr><tr><td>03</td><td>APICE</td></tr><tr><td>05</td><td>POV</td></tr></table></td></tr>
<tr><td>168</td><td>Start Time</td><td>N</td><td>Start Time for Algorithm.</td></tr>
<tr><td>126</td><td>End Time</td><td>N</td><td>End Time for Algorithm.</td></tr>
</table>

<table>
<tr><td>11036</td><td>ExecutionAgression</td><td>N</td><td>Agression level for Arrival Price and Dark Algorithms.
<table>
<tr><th>Value</th><th>Description</th></tr>
<tr><td colspan="2">ALG1</td></tr>
<tr><td>1</td><td>Low Agression</td></tr>
<tr><td>2</td><td>Medium Agression</td></tr>
<tr><td>3</td><td>High Agression</td></tr>
</table>
</td></tr>
<tr><td>11054</td><td>ReactPX</td><td>N</td><td>A soft limit price, switches the APICE algorithm from participating aggressively to being passive</td></tr>
<tr><td>11031</td><td>Target%Volume</td><td>N</td><td>Determines the participation rate for the POV algorithm</td></tr>
</table>

VWAP

The VWAP algorithm aims to track the market-wide volume-weighted average price in the stock over the period the order is given to trade. The algorithm uses a continually-updated forecast of remaining day volume to track the VWAP. It typically avoids paying the spread, does not overreact if there is a sudden and adverse price spike, constantly looks for hidden liquidity across destinations, and is seldom the price-setting participant in the market for the stock.

Arrival Price (AP)

Belzberg's ALG1 arrival price algorithm benchmarks performance against the arrival price. The algorithm strives to leave as small a presence/footprint in the market as possible, and is a patient strategy that trades off market participation in order to lower slippage. The model driving the strategy takes into account the local liquidity, return and volatility profiles to determine when, where and how to place orders. The vehicle typically avoids paying the spread, does not overreact if there is a sudden and adverse price spike, constantly looks for hidden liquidity across destinations, and is seldom the price-setting participant in the market for the stock. While passive in its pricing, sizing and timing decisions, when there are contra-side liquidity spikes, however, or aggressive parties on the opposite side or forecasted market moves to be exploited, the algorithm participates quickly, sizably and aggressively. Order completion is not guaranteed when using this vehicle.

An optional "**Execution Aggression**" parameter governs aggression levels of the algorithm.

APICE

APICE is a two-phase algorithm that switches from an initial aggressive phase to a "throttled iceberg" mode when a soft limit is hit. Orders arrive with a soft limit specified in the **ReactPx** field. If orders are in-the-money at arrival relative to this ReactPx, they are traded via an arrival price algorithm in an aggressive setting. In the event the algorithm hits the soft limit price (or if the order is out-of-the-money at arrival), it switches to participating passively. In this mode, the algorithm trades via "iceberg" orders – lightly displayed quotes but with large sizes hidden undisplayed – until hit. After some participation in the market, the algo withdraws from the market, and allows the market to validate the price before resuming participation. Order completion is not guaranteed while using this vehicle.

POV

POV is a participation algorithm that takes in a percent participation parameter, and aims to be that percent of the ongoing non-block volume since order arrival time. The algorithm intelligently excludes block prints to prevent overtrading in the wake of block prints, and uses a narrowing tolerance band around the specified participation rate to avoid having to participate at inopportune moments. It typically avoids paying the spread, constantly looks for hidden liquidity across destinations, and strives to not be the price-setting participant in the market for the stock. Order completion is not guaranteed while using this vehicle.

Sample Message

VWAP Order

8=FIX.4.1 9=136 35=D 34=89 **11=1116 43=N 38=1000 40=1 47=A 57=10.254.222.33 49=BLZ 50=BLZInbound 52=20080624-10:20:34 56=ALL 54=2 55=IBM 59=0** 100=ALG2 11019=1 168=20081127-14:50:31 126=20081127-16:00:00 11053=20081127-16:00:00 10=043

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Table: ALG2 Algorithm Specific Fields

Description	Data Type	Tag #	VWAP	AP	APICE	POV
Strategy Type	String	11019	Req	Req	Req	Req
Start Time	Time	168	Opt	Opt	Opt	Opt
End Time	Time	126	Opt	Opt	Opt	Opt
Execution Aggression	Integer	11036	N/A	Opt	N/A	N/A
Target Vol	Integer	11031	N/A	N/A	N/A	Req
ReactPx	Float	11054	N/A	N/A	Opt	N/A

ALGO Algorithms

All ALGO algorithms support the following parameters

<table>
<tr><th>Tag</th><th>Field Name</th><th>Required</th><th colspan="2">Comments</th></tr>
<tr><td rowspan="8">11019</td><td rowspan="8">AlgorithmType</td><td rowspan="8">Y</td><td>Value</td><td>Description</td></tr>
<tr><td colspan="2">ALGO</td></tr>
<tr><td>SL</td><td>SLICER</td></tr>
<tr><td>VW</td><td>VWAP</td></tr>
<tr><td>TW</td><td>TWAP</td></tr>
<tr><td>PC</td><td>PCTMKTVOL</td></tr>
<tr><td>SH</td><td>SHADOWER</td></tr>
<tr><td>AG</td><td>AGER</td></tr>
<tr><td>168</td><td>Start Time</td><td>N</td><td colspan="2">Start Time for Algorithm. Format: YYYYMMDD-HH:MM:SS using GMT, 0 padded</td></tr>
<tr><td>126</td><td>End Time</td><td>N</td><td colspan="2">End Time for Algorithm. Format: YYYYMMDD-HH:MM:SS using GMT, 0 padded</td></tr>
</table>

11036	Execution Agression	N	Agression level for Arrival Price and Dark Algorithms. **Value** / **Description** **ALGO** **1** – **Low Agression** **2** – **Medium Agression** **3** – **High Agression**
11032	Slicer Treatment	Y	The Slicer treatment is an execution strategy **Value** / **Description** **ALGO** **1** – **Shares** **2** – **%Target** **3** – **%Avg-Size** **4** – **%Ask-B/Bid-S** **5** – **%Bid-B/Ask-S**
11038	Shadow Units	N	Specifies in what units the Sdw offs. Is expressed **Value** / **Description** **ALGO** **0** – **basis Pts** **1** – **% of Spread** **2** – **Ticks**
11034	S.Period	N	This is the interval between the Slices, in seconds
11033	S.Param	N	Actual no.of Shares or Percentage of the Size Specified by the Slicer treat feild
11035	Max.Size	N	Protest againest big order sizes that can be caused by usually bid Bid/Ask sizes or algorithm falling behind
11031	%MktVol	N	If specified, the algorithm will make sure that the total quantity released to the market at any time does not exceed the specified percentage of the market volume
11037	Sdw Offs	N	Shows how far away the shadow slice is priced from pervious slice

SLICER

The **Slicer** is the simplest execution strategy. It continuously sends to the next slice of the order to the market, after the previous slice is closed (e.g. filled, cancelled, done for the day, etc). The size of the slice is determined by the parameters specified in the **Slicer Treatment** and the Slicer Parameter (**S.Param**) fields. The **Aggressive** field controls the pricing and the timing strategies, which are the most important parameters for this algorithm.

VWAP

The VWAP algorithm aims to track the market-wide volume-weighted average price in the stock over the period the order is given to trade. The algorithm uses a continually-updated forecast of remaining day volume to track the VWAP. It typically avoids paying the spread, does not overreact if there is a sudden and adverse price spike, constantly looks for hidden liquidity across destinations, and is seldom the price-setting participant in the market for the stock.

TWAP

Time Weighted Average Price execution strategy assures equal-time distribution of slices between the **S.T** (Start Time) and **E.T** (End Time). If the Start Time is not specified, it defaults to the time of initial order or the market open. If the End Time is not specified, it defaults to the market close time. The TWAP algorithm uses the specified timer period (S.Period) to calculate the best slice size each time. Because of the rounding to lot it is possible for the algorithm to finish trading the order early if the original order qty was small.

PCTMKTVOL

The **Percentage of Market Volume** execution strategy trades the order by always keeping the quantity on the market close to the specified percentage of the current days market volume for the traded instrument.

SHADOW

This Shadow (Shadowing Slicer) execution strategy is similar to the Slicer except that it releases more than one slice at a time, with each slice priced a little further away from the market price. This assures more advantageous execution in the case that the market moves in the right direction.

AGER

The Ager execution strategy releases the full order quantity to the market and makes sure that the specialist fees are avoided by cancelling the order if it gets too stale. After that the full (100%) remaining quantity is released again to the market.

Sample Message

Slicer Order

8=FIX.4.1 9=136 35=D 34=89 **11=1116 43=N 38=15000 40=1 47=A 57=10.254.222.33 49=BLZ 50=BLZInbound 52=20080624-10:20:34 56=ALL 54=2 55=IBM 59=0** 100=ALGO 11019=SL 11031=50 11032=1 11033=1000 11035=5000 10=043

Sample Message Legend
Green tags are header information
Bold blue tags are message body
Purple tags are Repeating Block
Red tags are message trailer information

Table: ALGO Algorithm Specific Fields

Description	Data Type	Tag#	SLICER	VWAP	TWAP	PCTMKTVOL	SHADOW	AGER
Strategy Type	String	11019	Req	Req	Req	Req	Req	Req
Start Time	Time	168	Opt	Opt	Opt	Opt	Opt	N/A
End Time	Time	126	Opt	Opt	Opt	Opt	Opt	N/A
Execution Aggression	Integer	11036	Opt	Opt	Opt	Opt	Opt	N/A
Shadow Units	Integer	11038	N/A	N/A	N/A	N/A	Req	N/A
S.period	Integer	11034	N/A	N/A	Req	N/A	N/A	N/A
Slicer Treatment	Integer	11032	Req	N/A	N/A	N/A	Req	N/A
S.param	Float	11033	Req	N/A	N/A	N/A	Req	N/A
Max.size	Integer	11035	Opt	Opt	Opt	Opt	Opt	N/A
%MktVol	Float	11031	Req	Opt	Opt	Opt	N/A	N/A
Sdw Offs	Integer	11037	N/A	N/A	N/A	N/A	Req	N/A

Appendix 1: Attributes by Exchanges

Table 1: Attributes by US Exchanges

US Exchanges

ATTRIBUTES

	AMEX	ARCA	NYSE	CBSX	ISES	ISLAND	NSDQ	INSTINET
Transactions								
Buy / Sell / Short	Y	Y	Y	Y	Y	Y	Y	Y
Cross	N	N	N	Y	N	N	N	N
Buy Minus / Sell Plus	N	N	Y	N	N	N	N	Y
Short Cross	N	N	N	Y	N	N	N	N
Short Exempt	N	Y	Y	Y	Y	Y	Y	Y
Short Exempt Cross	N	N	N	Y	N	N	N	N
Order Type								
Limit / Market	Y	Y	Y	Y	Y	Y	Y	Y
On Close	Y	Y	Y	Y	N	N	Y	Y
On Basis	N	N	Y	N	N	N	N	Y
Or Better	N	Y	Y	N	N	N	N	Y
With Or Without	N	N	Y	N	N	N	N	Y
Stop	Y	N	Y	Y	Y	N	N	N
Stop Limit	Y	N	Y	N	Y	N	N	N
Account Code								
A / P	Y	Y	Y	Y	Y	Y	Y	Y
R	N	N	N	N	Y	N	N	N
V / W	Y	N	N	N	N	N	N	N
Time Duration								
DAY	Y	Y	Y	Y	Y	Y	Y	Y
GTC	Y	N	Y	N	N	N	Y	N
OPG	Y	Y	Y	Y	N	Y	Y	Y
IOC	Y	Y	Y	Y	Y	Y	Y	Y
FOK	Y	N		Y	Y	Y	Y	Y
GTX	N	Y		N	N	Y	Y	N
Trading Tags								
Display Qty	N	N	N	Y	Y	Y	Y	Y

Min Volume	N	Y	N	N	N	Y	Y	Y
Pegging (Mkt, Mid, Pri)	N	Y	N	N	N	N	Y	N
Discretionary Orders (Disp,Mkt,Mid)	N	Y	N	N	Y	N	N	N
AON	N	Y	N	N	N	N	N	Y
Cross Trade	N	N	N	N	Y	N	Y	N
Broker Booth	Y	N	Y	N	N	N	N	N
Display Instructions								
Anonymous	N	N	N	N	N	N	Y	N
Non-Display	N	N	N	N	N	N	Y	N
Attrib	N	N	N	N	N	N	Y	N
Imbalance	N	N	N	N	N	N	Y	N
Routing Code								
AUC	N	N	Y	N	N	N	N	N
DNS	N	N	Y	N	N	N	N	N
SOC	N	N	Y	N	N	N	N	N
Exec Inst								
ALLORNONE(G)	N	N	N	Y	Y	N	N	N
NOTHELD(1)	Y	Y	N	N	N	N	N	N
DONOTREDUCE	Y	N	Y	N	N	N	N	N
DONOTINC(E)	N	Y	Y	N	N	N	N	N
ISO(f)	Y	N	Y	Y	N	N	N	N
OUTROUTING(g)	Y	N	N	N	N	N	N	N
Settlement								
Cash	N	N	Y	N	N	N	N	Y

Table 2: Attributes by Canadian Exchanges

Canadian Exchanges

	ALPHA	BEST	CDNX	CHIX	CNQ	ITS	OMEGA	PURE	TSE
Transactions									
Buy / Sell / Short / Short Expt	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cross / Short Cross /Short Exempt Cross	Y	N	Y	Y	Y	Y	N	Y	Y
Cross Basis	Y	N	Y	N	Y	Y	N	Y	Y
Cross Internal	Y	N	Y	Y	Y	Y	N	Y	Y
Cross Contingent	Y	N	Y	N	Y	Y	N	Y	Y
Cross VWAP	Y	N	Y	N	Y	Y	N	Y	Y
Cross STS	N	N	Y	N	Y	Y	N	Y	Y

ATTRIBUTES

Cross National	Y	N	N	N	N	N	N	N	N
Order Type									
Limit / Market	Y	Y	Y	Y	Y	Y	Y	Y	Y
On Close	Y	Y	YYYY	Y	Y	Y	Y	Y	Y
MBF	N	N	N	N	N	Y	N	N	Y
Stop	Y	Y	Y	N	N	Y	N	Y	Y
Stop Limit	Y	Y	N	N	N	N	N	Y	N
Account Code									
CN	Y	Y	Y	Y	Y	Y	Y	Y	Y
NC	Y	Y	Y	Y	Y	Y	Y	Y	Y
ST	Y	Y	Y	Y	Y	Y	Y	Y	Y
IN	Y	Y	Y	Y	Y	Y	Y	Y	Y
PT	Y	N	Y	N	Y	Y	N	Y	Y
OF	Y	N	Y	N	Y	Y	N	Y	Y
MP,MX,OT,,FT,FF	N	N	Y	N	N	Y	N	N	Y
Time Duration									
DAY	Y	Y	Y	Y	Y	Y	Y	Y	Y
GTC	Y	N	Y	Y	Y		N	Y	Y
OPG	Y	Y	N	Y	Y		N	N	N
IOC	Y	N	Y	Y	Y	Y	Y	N	N
GTD	Y	N	N	N	Y		N	Y	Y
FOK	Y	N	N	N	N	Y	Y	Y	Y
GTX	Y	N	N	Y	N		N	N	N
NM, AM	N	N	N	N	Y		N	N	Y
Trading Tags									
Display Qty, Jitney, UMIR	Y	Y	Y	Y	Y	Y	Y	Y	Y
Min Volume	N	N	Y	Y	Y	Y	Y	Y	Y
Anonymous	Y	Y	Y	N	Y	Y	N	Y	Y
AON	N	N	Y	N	Y	Y	N	N	N
Prog-Trade	Y	N	N	N	Y	Y	N	Y	Y
Cash	Y	N	Y	N	Y	Y	Y	Y	Y
Cash Today	Y	N	Y	N	Y	Y	Y	Y	Y
Delayed Delivery	Y	N	Y	N	Y	Y	Y	Y	Y
Non-Net	Y	N	N	N	Y	Y	Y	Y	Y
Non-MGF	N	N	N	N	N	Y	N	N	Y
No Match ID	N	N	N	N	N	N	Y	N	N

Discretionary Orders	Y	N	N	N	N	N	N	N	N
Exec Inst									
All or None (AON)	Y	N	N	Y	N	N	Y	N	N
Price Improvement Match.	Y	N	N	N	N	N	N	N	N
Pegging	N	N	N	Y	N	N	N	N	N
Post On Ask(0) / Bid(9)	N	N	N	N	N	N	Y	N	N

Appendix 2: Liquidity Tag Values by Exchange (UDT 11003/9943)

US Exchange/ECN	Tag Value
NYSE/AMEX	11003
Taker	1
Provider	2
Blended	3
Opening/Provider (Prior-Day GTC Orders)	4
Opening/Provider	5
Closing/Provider	6
Closing/Blended	7
ARCA	11003
Add Liquidity	A
Removed Liquidity	R
Routed	X
BATS	11003
Add Liquidity	A
Removed Liquidity	R
Routed	X
Direct Edge	11003
Execution added liquidity (Tape A / C)	Y
Execution added liquidity (Tape B)	B
Execution removed liquidity (Tape A / B / C)	N
Route to External Venue (Tape A / B / C)	X
Route to ARCA, AMEX, or Regionals (Tape A / B)	I
Route to an IOI destination (Tape A / B / C, ROUZ ExecBroker only)	Z
Listed Route removing liquidity from NYSE DOT (Tape A)	D
Listed Route Rerouting via NYSE DOT (Tape A)	R
Listed Route adding liquidity to NYSE DOT (Tape A)	F
Internal Match (Tape A / B / C, Add and Remove MMIDs are the same)	E
Execution added liquidity from Hidden order (Tape A / B / C, EDGA only)	H
Execution added liquidity to INET book (Tape A / B / C)	A
Execution for an ISO order routed externally as ISO (Tape A / B / C)	S
Execution from ARCA in a Nasdaq security (Tape C)	P
Routed to the Nasdaq Opening Cross (Tape C)	O
Island	11003
Add Liquidity	A

Removed Liquidity	R
Routed	X
ISE Stock	11003
Add Liquidity	A
Removed Liquidity	R
Routed	X
NSDQ-SingleBook	11003
Adds Liquidity	A
Removes Liquidity	R
Routed	X
CBSX	NA
Tags not supported by CBSX	
CTDL	NA
Tags not supported by Citadel	
CHX	NA
Tags not supported by CHX	
WEDN	NA
Tags not supported by Weeden	
KSEC	NA
Tags not supported by Knight Securities	
LAVA	NA
Tags not supported by Lava Trading	
TRAC	NA
Tags not supported by TRAC ECN	
STNG	NA
Tags not supported by Sting	
CDN Exchange/ATS	**Tag Value**
TSX/TSXV	9943
Passive	A
Aggressive	P
CHIX	11003
Add Liquidity	A
Removed Liquidity	R
Routed	X
ALPHA	11003
Add Liquidity	A
Removed Liquidity	R
PURE/CNQ	11003
Passive	A
Aggressive	P
OMEGA	11003
Add Liquidity	A

Removed Liquidity	R
ITS	9943
Passive	A
Aggressive	P

Appendix 3: Acknowledgements

The Financial Information eXchange (FIX) protocol was defined by the FIX Protocol Limited and is subject to its copyrights. More information, as well as the standard FIX 4.1 specifications can be found on the FIX website at www.FIXprotocol.org.