CME Group

CME Globex

Advanced Functionality

Version 2.4

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Futures trading is not suitable for all investors, and involves the risk of loss. Futures are a leveraged investment, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for a futures position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade.

All references to options refer to options on futures.

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All matters pertaining to rules and specifications herein are made subject to and are superseded by official CME, CBOT, and NYMEX rules. Current rules should be consulted in all cases concerning contract specifications.

1. Introduction

This document describes advanced functionality available to CME Globex customers beyond the basic order entry described in iLink Core Functionality.

Advanced CME Globe functionality includes:

2. Quote Request (RFQ)

CME Group customers who wish to trade an instrument for which the order book is blank or stale can request a quote to create or refresh the book using an iLink Quote Request (tag 35-MsgType=R) message. An accepted quote request is acknowledged with an iLink Quote Acknowledgment (tag 35-MsgType=b) message and disseminated to the market with the FIX/FAST Quote Request (tag 35-MsgType=R) message.

Once the FIX/FAST Quote Request (tag 35-MsgType=R) message is disseminated, Market Makers can respond with an iLink Mass Quote Request (tag 35-MsgType=i) message and market participants can submit an iLink New Order (tag 35-MsgType=D) message to populate the book.

Additionally, CME Group customers submitting an iLink Security Definition Request (tag 35-MsgType=c) messages can opt to have a FIX/FAST Quote Request (tag 35-MsgType=R) message disseminated at instrument creation.

Customers who wish to request quotes must implement two CME iLink 2.X messages from the FIX 4.2 specification:

- Quote Request (tag 35-MsgType=R) message.
- Quote Acknowledgment (tag 35-MsgType=b) message which notifies the customer of accept/reject of a Quote Request (tag 35-MsgType=R) message.
  - In the Quote Acknowledgment (tag 35-MsgType=b), the value in tag 131-QuoteReqID is returned with the same tag value from the Quote Request (tag 35-MsgType=R) message.
  - However, tag 9770-ExchangeQuoteReqID in the Quote Acknowledgment (tag 35-MsgType=b) contains the value broadcast to the market from tag 131-QuoteReqID in the FIX/FAST Quote Request (tag 35-MsgType=R) message.

Note: **Customers who wish to receive RFQs must be able to process the FIX/FAST Quote Request (tag 35-MsgType=R) message. For additional information see** FIX/FAST Message Specifications**.**

The following table highlights the iLink Quote Request and FIX/FAST messages.

Function/Component	Quote Request Functionality
iLink	
Quote Request (tag 35-MsgType=R) message	The Quote Request (tag 35-MsgType=R) message allows users to submit the following Quote Request types: • Standard two-sided quote • Quote Request for one side
Quote Acknowledgment (tag 35-MsgType=b) message	The Quote Acknowledgment message is sent to the customer to acknowledge the Quote Request message: • Tag 131-QuoteReqID contains the original value submitted by the client system. • Tag 9770-ExchangeQuoteReqID contains the CME Globex generated quote ID that is disseminated in market data.

Function/Component	Quote Request Functionality
Business Level Reject (tag 35-MsgType=j) message	Notifies client of business-level message reject.
FIX/FAST	
FIX/FAST Quote Request (tag 35-MsgType=R) message	Allows the customer to match the FIX/FAST Quote Request (tag 35-MsgType=R) message with the iLink Quote Request (tag 35-MsgType=R) message. Tag 131-QuoteReqID contains the value returned from the iLink Quote Acknowledgement (tag 35-MsgType=b) in tag 9770-ExchangeQuoteReqID.

Note: **Order Status Requests cannot be performed on Quote Requests.**

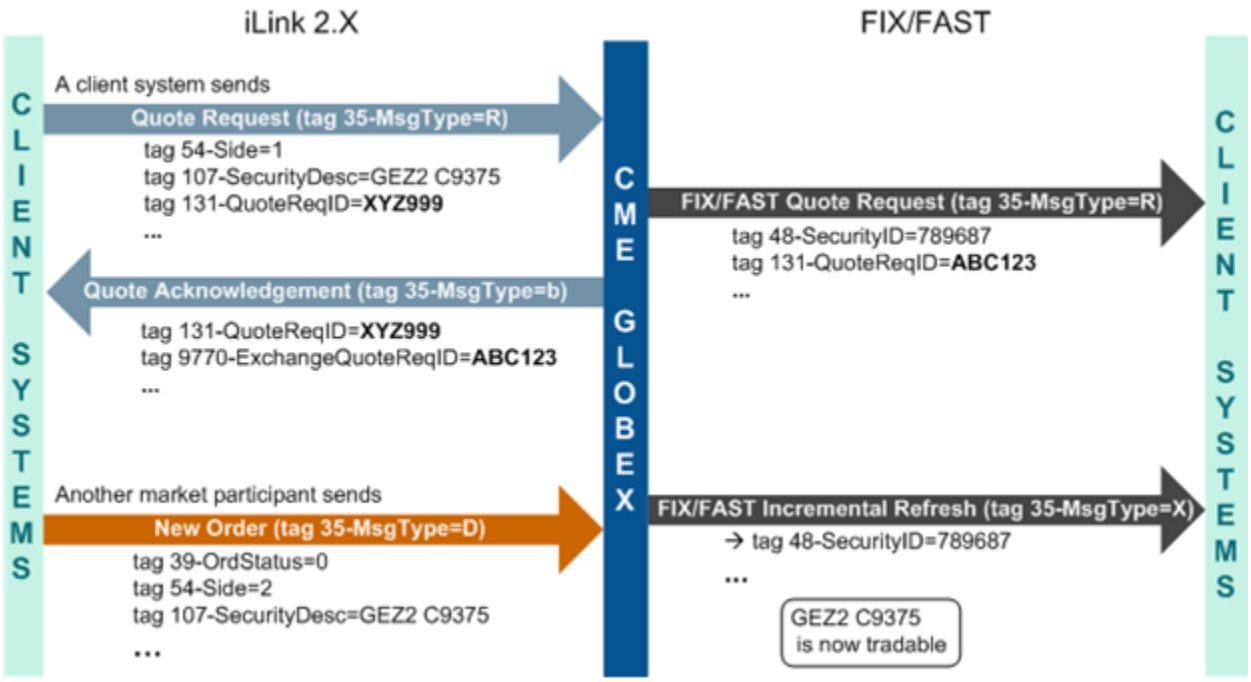
2.1 Quote Request Message Processing

iLink 2.X customers who wish to trade an instrument can submit an iLink Quote Request (tag 35-MsgType=R) message to which Market Makers can respond with a quote or customers can submit a New Order tag 35-MsgType=D) message.

The following sections depict various Quote Request message scenarios for quote request message processing.

2.1.1 Scenario 1 - Quote Request with New Order

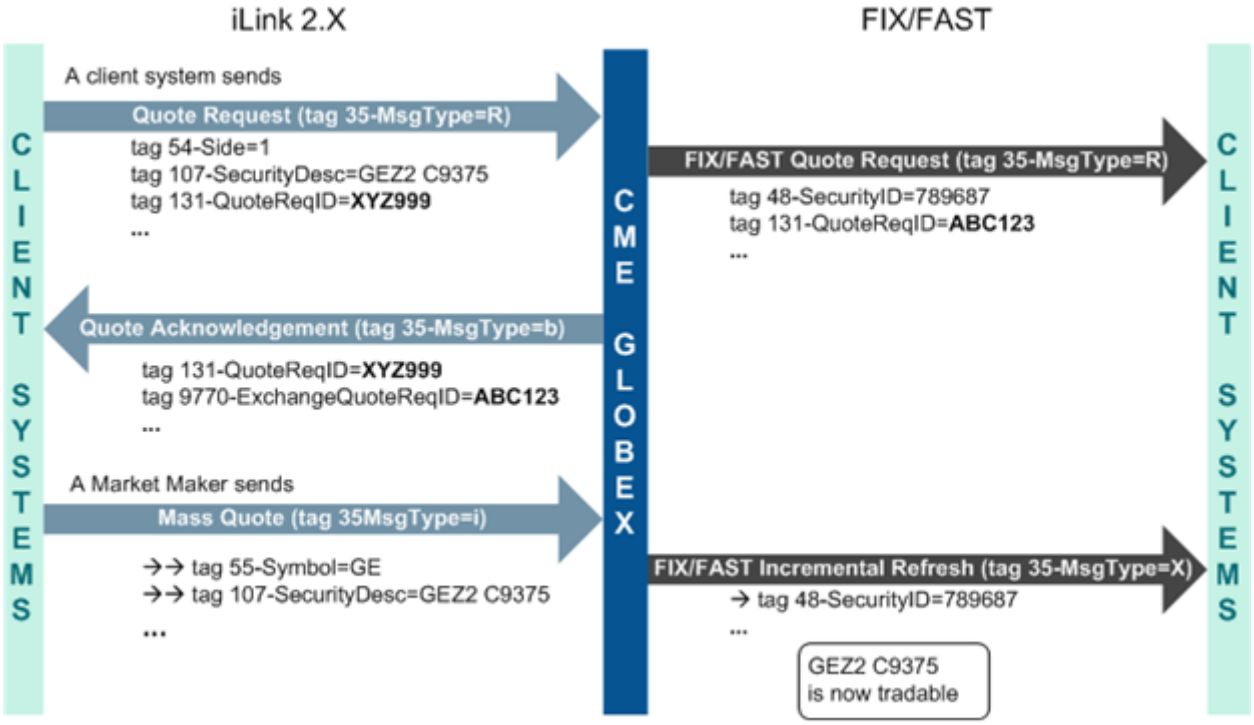
In this figure, the client system sends an iLink Quote Request (tag 35-MsgType=R) message. CME Globex responds with an iLink Quote Acknowledgment (tag 35-MsgType=b) message back to the client system and broadcasts the FIX/FAST Quote Request (tag 35-MsgType=R) message to the market. In the FIX/FAST Quote Request, CME Globex assigns a new value to tag 131-QuoteReqID.



Another market participant sends an iLink New Order (tag 35-MsgType=D) to CME Globex. CME Globex responds with a FIX/FAST Incremental Refresh (tag 35-MsgType=X) message to the market.

2.1.2 Scenario 2 - Quote Request with Mass Quote Request

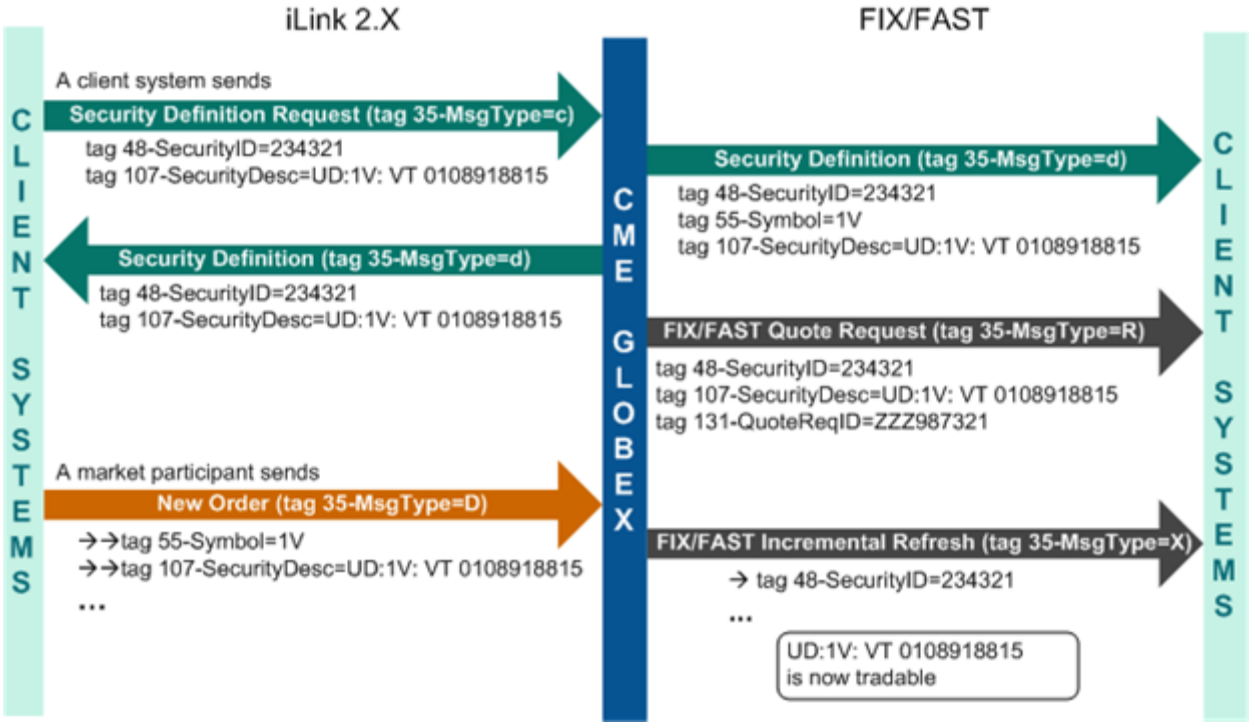
In this figure, the client system sends an iLink Quote Request (tag 35-MsgType=R) message. CME Globex responds with an iLink Quote Acknowledgment (tag 35-MsgType=b) message back to the client system and broadcasts the FIX/FAST Quote Request (tag 35-MsgType=R) message to the market. In the FIX/FAST Quote Request, CME Globex assigns a new value to tag 131-QuoteReqID.



This figure shows a Market Maker sending an iLink Mass Quote Request (tag 35-MsgType=i) message to CME Globex. CME Globex responds with a FIX/FAST Incremental Refresh (tag 25-MsgType=X) message to the market.

2.1.3 Scenario 3 - Security Definition Request with a New Order

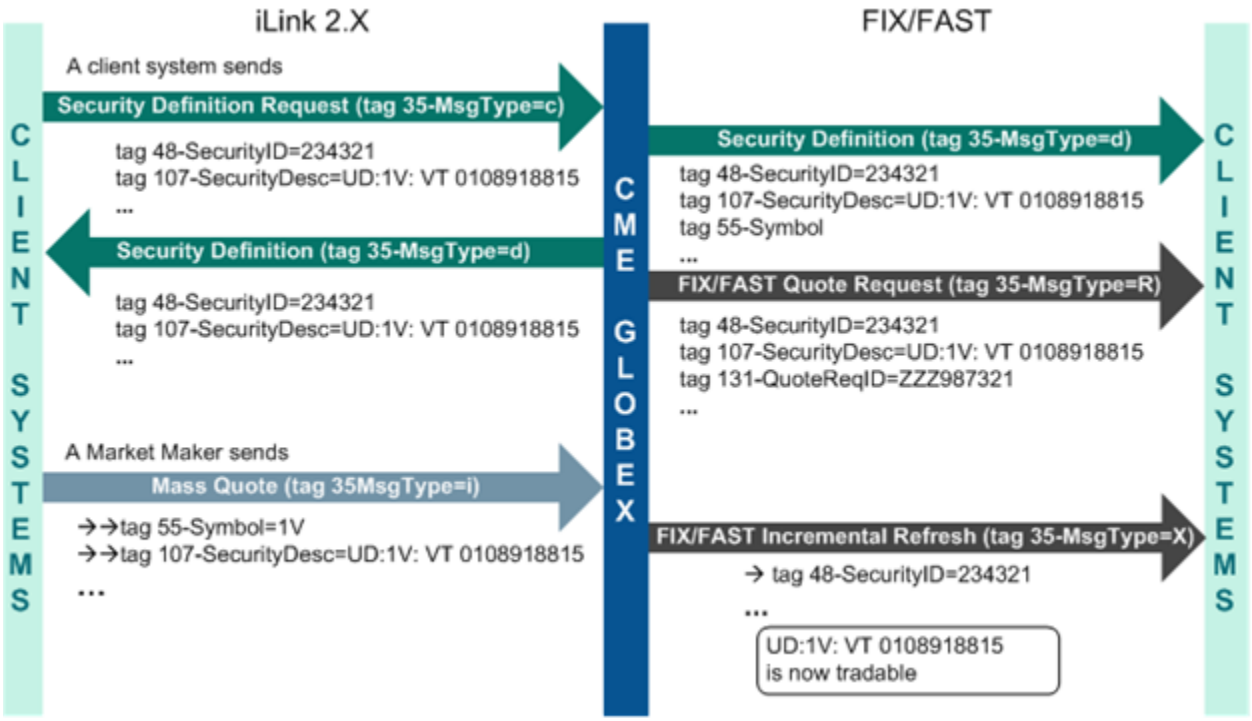
In this figure, the client system sends an iLink Security Definition Request (tag 35-MsgType=c) message. CME Globex responds with a FIX/FAST Security Definition Request (tag 35-MsgType=d) message to the market and an iLink Security Definition Request (tag 35-MsgType=d) to the client system. In addition CME Globex auto-generates a FIX/FAST Quote Request (tag 35-MsgType=R) message.



A market participant responds with an iLink New Order (tag 35-MsgType=D) message to CME Globex. CME Globex responds with a FIX/FAST Incremental Refresh (tag 35-MsgType=X) to the market.

2.1.4 Scenario 4 - Security Definition Request with a Mass Quote Request

In this figure, the client system sends an iLink Security Definition Request (tag 35-MsgType=c) message. CME Globex responds with a FIX/FAST Security Definition Request (tag 35-MsgType=d) message to the market and an iLink Security Definition Request (tag 35-MsgType=d) to the client system. In addition CME Globex auto-generates a FIX/FAST Quote Request (tag 35-MsgType=R) message to the market.



A Market Maker sends an iLink Mass Quote Request (tag 35-MsgType=i) message to CME Globex. CME Globex responds with a FIX/FAST Incremental Refresh (tag 35-MsgType=X) to the market.

2.1.5 From Client to CME Globex Message Structure

For the complete header specification, see iLink 2.X Message Specifications.

Repeating groups are designated within the message by the (➔) symbol.

Tag	FIX Name	Req	Type	Description
131	QuoteReqID	Y	String (23)	Unique identifier for quote request populated by the client system.
146	NoRelat-edSym	Y	Int (3)	Only (1) Quote request supported
➔55	Symbol	Y	String (6)	Symbol
➔38	OrderQty	N	Qty (9)	Mandatory for a cross trade alert; must be a positive integer. For quote request with no quantity, customers should not submit this tag.
➔54	Side	N	Char (1)	1 = buy 2 = sell For a buy or sell RFQ send tag 54. For two-sided (buy/sell) RFQ, do not send tag 54.
➔60	TransactTime	N	UTCTimes-tamp (21)	Time of execution/quote creation (UTC format: HH:MM:SS:sss e.g. 10:00:29:714)
➔107	SecurityDesc	Y*	String (20)	Security description
➔167	SecurityType	N	String (3)	'OPT'
➔9943	Quote Type	N	Int (1)	Must = 1 for tradable.

Y = FIX required Y* = CME Group required N = Not required

Note: **A request for a two-sided quote is indicated by the absence of tag 54-Side.**

Note: **For tag 38-OrderQty: If the client enters "0" for the quantity, the message is rejected. If the client does not send tag 38-OrderQty in the Quote Request message, the corresponding FIX/FAST Quote Request (tag 35-MsgType=R) message will have no quantity.**

2.1.6 CME Globex Platform to Client Message Structure

A Quote Acknowledgment (tag 35-MsgType=b) message is sent from the CME Globex platform in response to an iLink Quote Request (tag 35-MsgType=R) message. The Quote Acknowledgment can be either positive or negative. A positive Quote Acknowledgment will contain a value of '0' (accepted) in tag 297-QuoteAckStatus. A negative Quote Acknowledgment is returned with a value of '5' (rejected) in tag 297-QuoteAckStatus.

The following tables contain the message specifications for the two possible Quote Acknowledgment (tag 35-MsgType=b) message types sent in response to a Quote Request. For the complete header specification, please see iLink Message Specifications.

Quote Acknowledgment (tag 35-MsgType=b) Message – Accepted

Tag	FIX Name	Req	Type	Description
131	QuoteReqID	Y*	String (23)	Tag 131-QuoteRequestID value is from the Quote Request (tag 35-MsgType=R) message.
297	QuoteAckStatus	Y	Int (2)	Identifies the status of the Quote Acknowledgment. 0 = accepted 5 = rejected
9770	ExchangeQuoteReqID	N	String (23)	Tag 9970-ExchangeQuoteReqID corresponds to tag 131-QuoteReqID in the FIX/FAST Quote Request (tag 35-MsgTyp=R) message.

Y = FIX required Y* = CME Group required N = Not required

Quote Acknowledgment (tag 35-MsgType=b) Message – Rejected

Tag	FIX Name	Req	Type	Description
131	QuoteReqID	Y*	String (23)	Tag 131-QuoteRequestID from Quote Request (tag 35-MsgType=R) message.
297	QuoteAckStatus	Y	Int (2)	Identifies the status of the Quote Acknowledgment. 5 = rejected
300	QuoteRejectReason	N	Int (2)	Quote reject reason: 1 = Unknown symbol (Security) 2 = Exchange (Security) closed 3 = Quote Request exceeds limit 5 = Unknown Quote 6 = Duplicate Quote 7 = Invalid bid/ask spread 8 = Invalid price 9 = Not authorized to quote security 20* = too many rejects and cancel instrument group 98* = Market maker protection 99* = Missing account number; Other *CME Defined
58	Text	N	String (80)	Text message description of the error.

Y = FIX required Y* = CME Group required N = Not required

2.1.7 Business Level Reject (tag 35-MsgType=j)

This message is submitted when a iLink Quote Request message is rejected by CME Globex. In such an instance, a Business Level Reject message is sent with tag 380-BusinessRejectReason containing a value from the reject codes listed below.

Business Level Reject (tag 35-MsgType=j)

Tag	FIX Name	Req	Type	Description
45	RefSeqNum	N	Int (10)	Tag 34-MsgSeqNum of the message being rejected.
372	RefMsgType	Y	String (2)	Tag 35-MsgType of the message being rejected.
379	BusinessRejectRefID	N	String (32)	Identifier of the rejected message, tag 131-QuoteReqID.
380	BusinessRejectReason	Y*	Int (2)	Code to identify the reason for rejection: 0 = Other 1 = Unknown ID 2 = Unknown Security 3 = Unsupported Message Type (message type not in use) 4 = Application not available 5 = Conditionally Required Field Missing 6 = Not Authorized 7 = Delivery to Firm Not Available At This Time
58	Text	Y*	String (80)	Additional information on the reject reason.

Y = FIX required Y* = CME Group required N = Not required

Example: If a Quote Request message is sent with an invalid tag 107-SecurityDesc, CME Globex will reject the message using a Business Level Reject (tag 35-MsgType=j) message with tag 380-BusinessRejectReason=2.

Note: **If the submitted iLink Quote Request message does not conform to FIX session-level rules, the message is rejected with a session-level reject (tag 35-MsgType=3) message.**

2.1.8 Correlating FIX/FAST and iLink Quote Request Messages

The FIX/FAST Quote Request (tag 35-MsgType=R) message is broadcast any time the CME Globex platform processes a valid iLink Quote Request (tag 35-MsgType=R) message.

The following table contains the specifications from the FIX/FAST Quote Request (tag 35-MsgType=R) messages.

Relevant Specifications FIX/FAST Quote Request

Tag	FIX Name	Type	Comments
537	QuoteType	Int (1)	Type of quote requested. T = Tradable <space> = Cross Trade Request
131	QuoteReqID	String (23)	Assigned by CME Globex and correlates to tag 9770-ExchangeQuoteReqID in the Quote Acknowlegment (tag 35-MsgType=b) message.

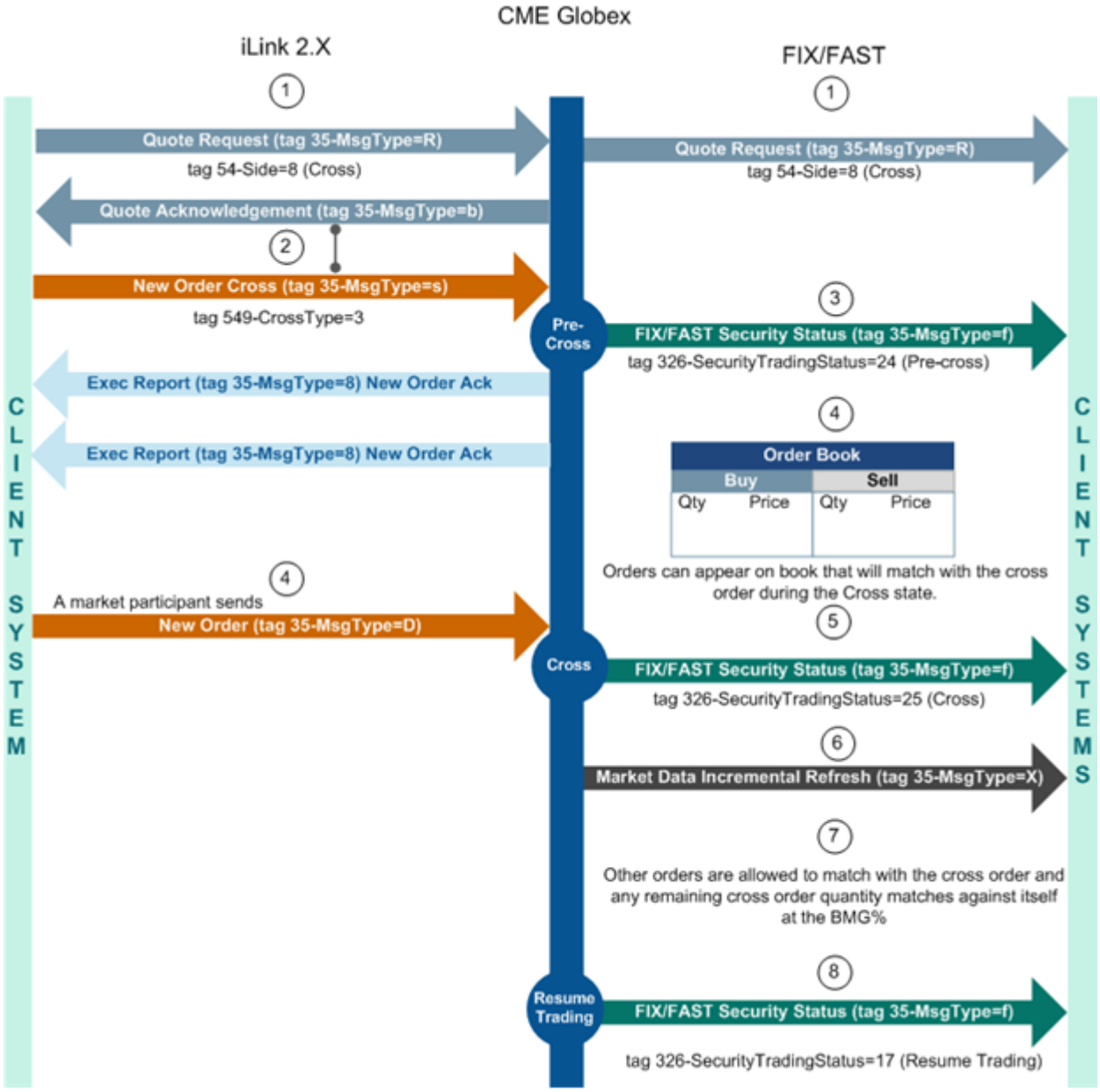
Note: **CME strongly recommends that customer trading applications receive all Quote Request messages for all instruments in a single viewer in the end-user display.**

3. Request for Cross (RFC) Orders

An RFC order is a two-sided order submitted by a single party/broker at the same price and quantity. RFC order functionality provides CME Group customers submitting RFC orders the best available price with optimal market transparency by allowing market participants to match orders against the RFC order prior to the order matching against itself at the CME Group configured Broker Match Guarantee (BMG) percent.

Note: **Customers can call the CME Globex Control Center (GCC) at 312.345.2391 to obtain the BMG percentage for a given product.**

The following diagram provides a generic example of the message flow for the RFC process. Process steps and descriptions are provided in the following discussion.



Submitting an RFC order is a staged process whereby the client system signals intent to submit a Cross order, submits the cross order, notifies the market of the cross and then the order proceeds through the RFC window. The RFC window is comprised of three states: Pre-Cross, Cross and Resume (Normal) Trading.

Note: **Each phase of the RFC window is of a duration configured by CME Group.**

RFC Process Steps

Step 1. Client system submits an iLink Quote Request (tag 35-MsgType=R) message with tag 54-Side=8, signaling **intent to next submit a cross order which establishes the Pre-Cross state**.

Pre-Cross State

Step 2. Upon receipt of the iLink Quote Acknowledgment (tag 35-MsgType=b) message, the client system sends a New Order Cross (tag 35-MsgType=s, tag 549-CrossType=3) message.

Step 3. CME Globex broadcasts a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=24) **indicating the Pre-Cross state to market participants**.

Step 4. During the Pre-Cross state, orders can appear on the book that will match with the cross order during the Cross state.

Step 5. After the configured Pre-Cross time period, CME Globex sends a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=25) **indicating that the RFC state has changed to Cross**.

Cross State

Step 6. CME Globex will broadcast market data associated with the RFC order and the order book will be updated.

Step 7. During the Cross state, other orders are allowed to match with the cross order and any remaining cross order quantity matches against itself at the Broker Match Guarantee percent.

Step 8. After a CME Globex configurable time period, a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=17) **indicating Resume (Normal) Trading state** is sent.

Resume Trading State

Note: **The duration of the Pre-Cross, Cross and Resume (Normal) Trading states are configurable by CME Group. CME Group may configure new durations as needed. Detail information is available in the Rulebooks for each product.**

The RFC Buy side/Sell side match is executed at the CME Group-configured Broker Match Guarantee (BMG) percent.

3.1 Supported Functionality

This section describes supported Cross order functionality:

- An RFC process is initiated with an iLink Quote Request (tag 35-MsgType=s, tag 54-Side=8) intent to cross message.
- An RFC Order Cancel is not allowed in the **Pre-Cross** state; an RFC Order Cancel is allowed during **Cross state only**.
  - An Order Cancel Request (tag 35-MsgType=F) message submitted for either side of the RFC order during the Cross instrument state cancels the entire RFC order. It is not possible to cancel only one side of the RFC during the Cross instrument state.
  - Two Execution Reports - Order Cancellation Notices (tag 35-MsgType=8, tag 39-OrdStatus=4) messages will be returned, one for each side.
  - One Order Cancel Reject (tag 35-MsgType=9) message will be sent for an RFC order Cancel rejection.
  - An RFC order side can only be canceled after the RFC process has completed and the instrument state has returned to Resume Trading (i.e., unmatched RFC quantity remains as a resting order on one side of the book).
  - If the market state changes to Pause or Close while the RFC is in either the Pre-Cross or Cross state, then the RFC automated matching processes will cease and the RFC is automatically canceled. However, if the market state changes to Pause or Close exactly at the conclusion of either the Pre-Cross or Cross state, then automated matching will occur consistent with the rules of engagement related to the end of those periods before the RFC is automatically canceled.
- Status Request
  - The iLink Order Status Request (tag35-MsgType=H) message functionality is supported per side for the RFC. One Execution Report (tag 35-MsgType=8) is sent for only one side of the RFC order.
  - A Status request is supported on both sides of RFC order, but not on the New Cross Order message.
  - A ***Cross ID submitted in a Status Request*** will be ignored. The tag 11-ClOrdID should be used to identify the queried side. If tag 11 is missing, the Order Status Request will be rejected with a session-level reject message.
  - An iLink Order Status Request (tag 35-MsgType=H) message will generate one status response for the specified side.
  - Customers should send two status requests—one for each side—to confirm status of the RFC order.
- RFC Order Cancel/Replace
  - Cancel/Replace functionality is supported only during the Open instrument state when one side of the RFC order remains working (i.e., has remaining quantity).
  - Cancel/Replace is not supported for the RFC order during the Pre-Cross or Cross instrument states.
  - RFC orders are canceled and replaced with the iLink Order Cancel/Replace Request (tag 35-MsgType=G) message with tag 37-OrderID identifying the Cross order and, the side to Cancel/Replace.

- If the submitting party needs to give-up one or both sides of the RFC, then the message supports all information for current give-up functionality for orders (tag 9708-CmtaGiveUp and tag 9707-GiveUpFirm).

3.1.1 Cross Window

RFC order processing occurs during the Cross Window. The Cross Window is configured by CME Group. Before client systems can submit a Cross order, the client system must submit a Quote Request (tag 35-MsgType=R, tag 54-Side=8) message per Market and Regulation guidelines.

Note: **Contact the GCC at 312.345.2391 for product-specific information.**

The Pre-Cross state is in effect when the CME Globex platform receives a Cross order for a given instrument. In response to the RFC order, the CME Globex platform broadcasts a Market Data Platform FIX/FAST Quote Request (tag 35-MsgType=R) message and a FIX/FAST Security Status (tag 35-MsgType=F) message with tag 326-SecurityTradeStatus=24 (Pre-Cross) for the instrument.

During the Pre-Cross State

- The Market Data Incremental Refresh (tag 35-MsgType=X) Best Limits data block **is not broadcast** for the Cross order and is not visible to the market; however, orders can appear on the book which can then trade during the Cross state.
- No matching occurs for the Cross order.
- Cancellation of a Cross order is not allowed.

Matching occurs during the Cross instrument state. Only one Cross order will be accepted for the instrument for the duration of the Cross Window, until instrument state returns to 'Resume Trading'.

During the Cross Window, market data will be sent for the Cross order as follows:

Instrument State	Cross Window Market Data Messages
Pre-Cross	FIX/FAST Quote Request (tag 35-MsgType=R), FIX/FAST Security Status (tag 35-MsgType=f, tag-326-SecurityTradingStatus=24)
Cross	FIX/FAST Security Status (tag 35-MsgType=f, tag-326-SecurityTradingStatus=25)
Resume (Normal) Trading	FIX/FAST Security Status (tag 35-MsgType=f, tag-326-SecurityTradingStatus=17)

3.1.2 Processing Rules

A. Quote Request

1. The client system submits an iLink Quote Request (tag 35-MsgType=R) with tag 54-Side=8 (cross) and tag 9943-QuoteType=1 (Tradable) message.
2. Upon receipt of an iLink Quote Acknowledgment – Accept (tag 35-MsgType=b) with tag 297-QuoteAckStatus=0 Accept message, the client system can initiate the Cross Order process.

B. Pre-Cross State

1. The client system submits an iLink New Order Cross (tag 35-MsgType=s, tag 549-CrossType=3) message.
2. Upon acknowledgment of the Cross order, the Cross Window starts.
3. CME Globex broadcasts a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=24) Pre-Cross message.
4. CME Globex broadcasts a FIX/FAST Quote Request (tag35-MsgType=R, tag 54-Side=8) Cross message to notify market of the Cross order.

- The Market Data Incremental Refresh (tag 35-MsgType=X) Best Limits data block message **is not broadcast** and the Cross order is not visible to the market; however, orders can appear on the book.

5. The Pre-Cross state initiates and persists for a CME Group-configurable **n** seconds.

- Only one Cross order is allowed during the Cross Window for the given instrument; any subsequent Cross order will be rejected until the state returns to 'Resume Trading'.
- RFQs will be rejected during the Cross Window for the given instrument.
- Cancellation of a Cross order during the Pre-Cross state will be rejected with a Cancel Reject (tag 35-MsgType=9) message.
- At the Pre-Cross state, the CME Globex platform moves the Cross order to the book and determines if orders on the book can match with either side of the RFC order.
  - If the new Cross order betters the existing bid/ask, the cross matches 100% immediately.
  - If the new Cross order can match a resting bid offer:
    - Cross order first matches 100% against the resting order quantity.
    - Remaining cross order quantity is matched to itself at BMG percent of the smallest side.
    - Pre-Cross state ends and a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=25) Cross message is sent.

C. Cross State

6. If the Cross order is not fully matched on one side after the Pre-cross state, the CME Globex platform broadcasts a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=25) Cross message. The Cross state for the given instrument persists for a CME Group-configurable number of seconds.
7. The Cross order appears on the book and, if applicable, is executed at price or better against resting orders.

- If either side of the Cross order is filled completely, the Cross Window closes and the CME Globex platform transmits a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTradingStatus=17) Resume (Normal) Trading message. The remaining Cross order behaves according to the value set in tag 962-SideTimeInForce (see Section D below).

8. If both sides of the Cross order have remaining quantities, the CME Globex platform matches 100 percent of the common quantity.

- If a Cross order side remains with quantity, the order behaves according to the value set in tag 962 - SideTimeInForce (see Section D below).

9. The CME Globex platform transmits the Execution Report and and a FIX/FAST Security Status (tag 35-MsgType=f, tag 326-SecurityTrading Status =17) Resume (Normal) Trading.

D. SideTimeInForce

The value submitted in the iLink New Order Cross message tag 962-SideTimeInForce determines if an Cross order side with remaining quantity stays on the book beyond the Cross Window as follows:

- A value of '0' in tag 962-SideTimeInForce=Day order, i.e., the side remains in the book as a regular order if quantity remains after the RFC order process ends.
- A value of '3' in tag 962-TimeInForce=FAK, i.e., the side is eliminated if quantity remains after RFC order process ends.

E. Cancel/Replace

For Cross orders, Cancel/Replace on a Cross side is allowed only after the Cross Window process ends and one side of the Cross order remains working.

- CME Globex platform will reject Cancel/Replace of a cross side when both sides are still working (i.e. the Cross Window is in process) using a Cancel Reject (tag 35-MsgType=9) with tag 180-CxlRejectReason=99 (Other) message.
- The Cross side that remains working after the instrument state returns to Resume (Normal) Trading is treated as a regular order, and follows the current Cancel/Replace rules.

3.1.3 RFC Better Price Match (BPM) Allocation

CME Globex applies BPM logic during RFC allocation. If the RFC price betters the order book bid and ask prices upon receipt **and** the order book bid or ask prices do not improve the RFC price at the conclusion of the Pre-Cross state, then CME Globex first applies a BPM percentage to the Cross order. All subsequent Cross match rules thereafter apply.

The following examples show cases in which the BPM would and would not apply according to the rules stated above.

Example 1

1. Market is 4 – 6.
2. RFC entered for price of 5 for a quantity of 5000.
3. At end of Pre-Cross state, the market is 5 – 6.
4. The BPM is applied because:

- the Cross price betters the order book bid and ask prices upon receipt by CME Globex **and**
- the order book bid or ask prices are not through the Cross price at the conclusion of the Pre-Cross state.

5. If any order quantity remains after the BPM, CME Globex matches the market's 5 bid against the Cross offer.
6. CME Globex applies the Broker Match Guarantee (BMG) percentage if there is remaining Cross quantity on both sides.

Example 2

1. Market is 5 – 6.

2. RFC entered for price of 5 for a quantity of 5000.
3. Since the Cross bid does not have a better price than the market's bid at the time of receipt by CME Globex, the BPM is not applied.
4. At end of Pre-Cross state, the market is 5 – 6.
5. CME Globex matches the market's 5 bid matched against the Cross offer.
6. CME Globex applies the BMG if there is remaining Cross quantity on both sides.

Example 3

1. Market is 4 – 6.
2. RFC entered for price of 5 for a quantity of 5000.
3. At end of Pre-Cross state, the market is 3 – 4.
4. The RFC 5 offer is better than the market price at the time of receipt by CME Globex, but at the conclusion of the Pre-Cross state the order book offer is better than the Cross bid. Therefore, the BPM is not applied.
5. The market's 4 offer is matched against the Cross bid and the Cross bid receives the price improvement.
6. CME Globex applies the BMG if there is remaining Cross quantity on both sides.

Example 4

1. Market is 5 – 6.
2. RFC entered for price of 5 for a quantity of 5000.
3. At end of Pre-Cross state, the market is 4 – 6.
4. Since the Cross order does not have a better price than the market upon receipt by CME Globex, the BPM is not applied.
5. CME Globex applies the BMG.

Example 5

1. Market is 4 – 6.
2. RFC entered for price of 5 for a quantity of 5000.
3. At end of Pre-Cross state, the market is 4 – 6.
4. Since the Cross betters the order book prices at the time of receipt by CME Globex, the BPM is applied first.
5. CME Globex applies the BMG.

Example 6

1. Market is no bid - no offer.
2. RFC entered for price of 5 for a quantity of 5000.
3. At end of Pre-Cross state, the market is no bid - no offer.

4. Since the Cross has a better price (and only price) than the order book prices, the BPM is applied at the conclusion of the Pre-Cross state.
5. CME Globex applies the BMG.

3.1.4 RFC Order Message Rejection

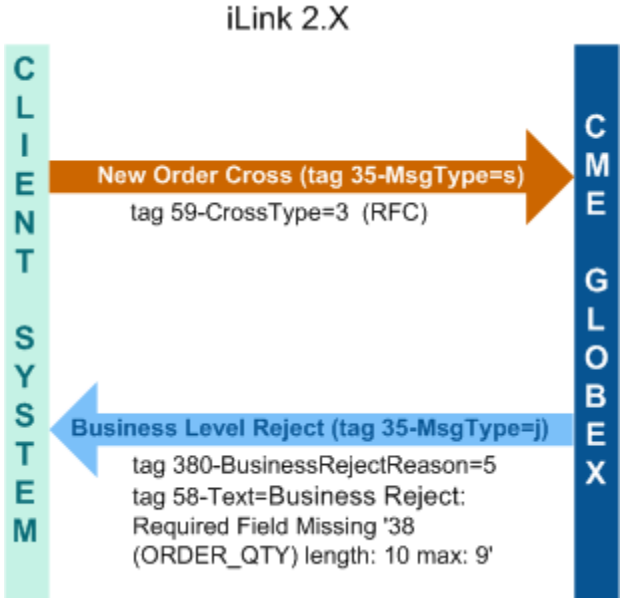
The following diagrams present basic message processing for rejected RFC orders. An RFC order message can be rejected in two ways:

1. With a single business-level reject message when the New Order Cross (tag 35-MsgType=s) message violates iLink message validation, or
2. With two Execution Reports, one sent for each side when the New Order Cross (tag 35-MsgType=s) message violates CME Globex business rules.

Diagrams in the subsequent section depict RFC message processing under specific order matching circumstances.

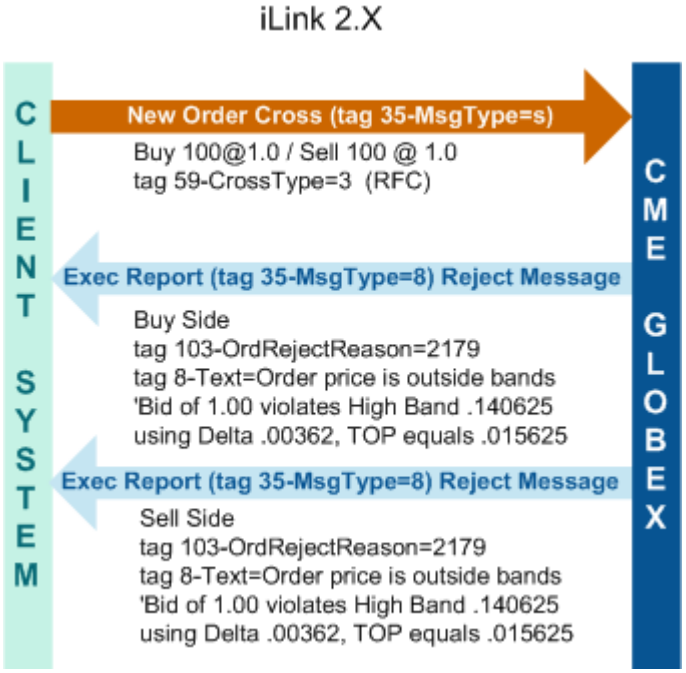
3.1.4.1 RFC Order Message Flow – Message Rejected

A single Business Level Reject (tag 35-MsgType=j) message is generated with the appropriate value in tag 380-BusinessRejectReason and reason for the rejection in tag 58-Text when an inbound RFC message fails CME Globex message validation illustrated in the following diagram.



3.1.4.2 RFC Order Message Flow - Sides Rejected

Two Execution Report – Reject (tag 35-MsgType=8) messages, one for each side, are generated when an inbound RFC message fails the CME Globex business rules validation illustrated in the following diagram.



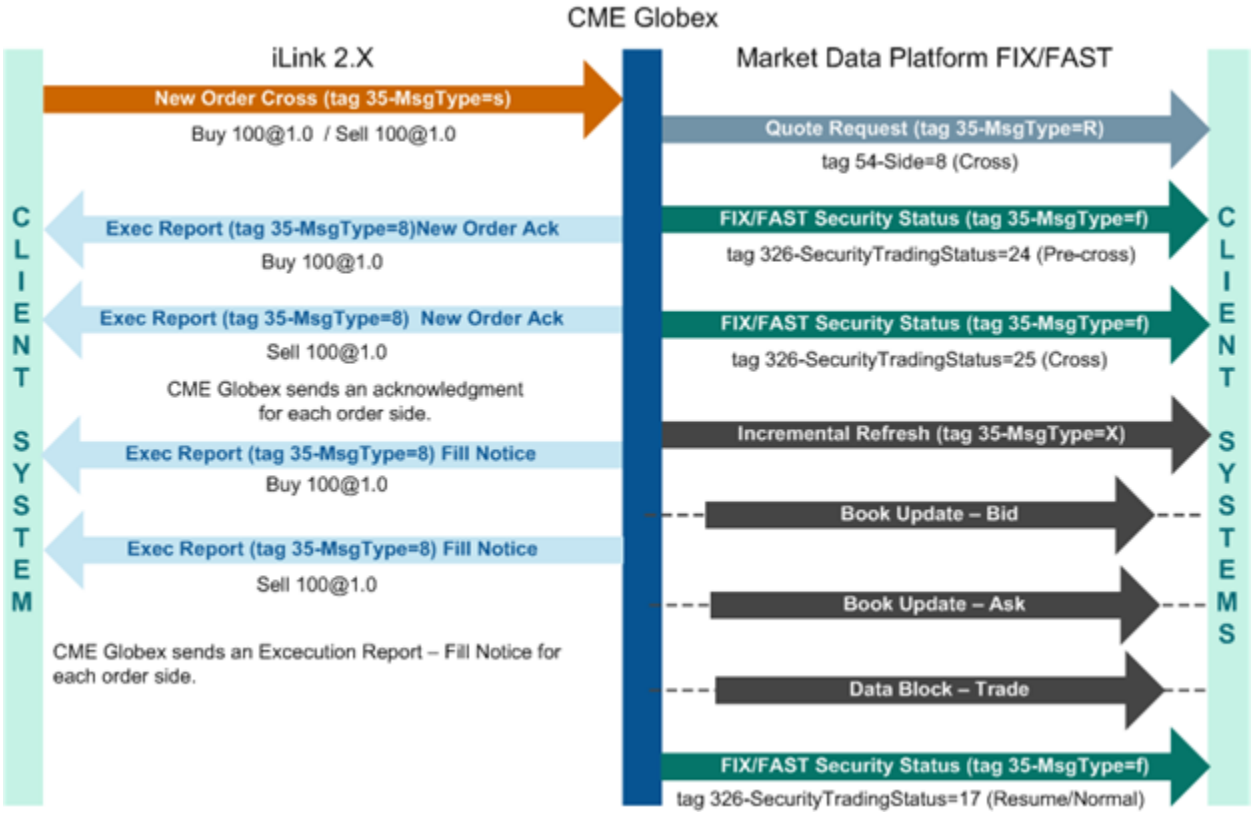
3.2 RFC Order Message Processing Scenarios

When the client sends an Cross order, the following match scenarios can occur during RFC processing depending upon market participation with the:

1. Cross Window Configured at Zero Seconds, 100% BMG, No Orders at or Better than Price Level.
2. Cross Window Configured at Zero Seconds, 100% BMG, Order on Book at Price Level.
3. Other Cross Window and BMG Percent Examples.
   - Cross Does Not Match with Other Order(s).
   - Cross Matches with Another Order - Total Fill - Side.
   - Cross Matches with Another Order - Partial Fill - Side.

3.2.1 Cross Window Configured at Zero Seconds, 100% BMG, No Orders at or Better than Price Level

The following diagram shows the RFC process configured for optimal efficiency. With the Cross window set from ‘0 - 0’ seconds and the BMG equal to 100%, the Cross order is executed instantaneously for a total fill. In this example, since each phase of the Cross Window is configured to ‘0’ seconds, market participants do not have the opportunity to submit quotes or oders against it. Since there are no existing orders at the Cross price level, the Cross matches with itself immediately at 100% quantity.



3.2.2 Cross Window Configured at Zero Seconds, 100% BMG, Order on Book at Price Level

In this example, the Cross order matches with an existing order prior to being executed at 100% BMG.

Assume the New Order Cross (tag 35-MsgType=s) message contains tag 962-SideTimeInForce=3 (Eliminate) remaining quantity.

3.2.3 Other Cross Window Scenarios and BMG Percent Examples

The following sections depict scenarios where the RFC matches with other orders, or matches with another an order for a total fill - side or a partial fill - side.

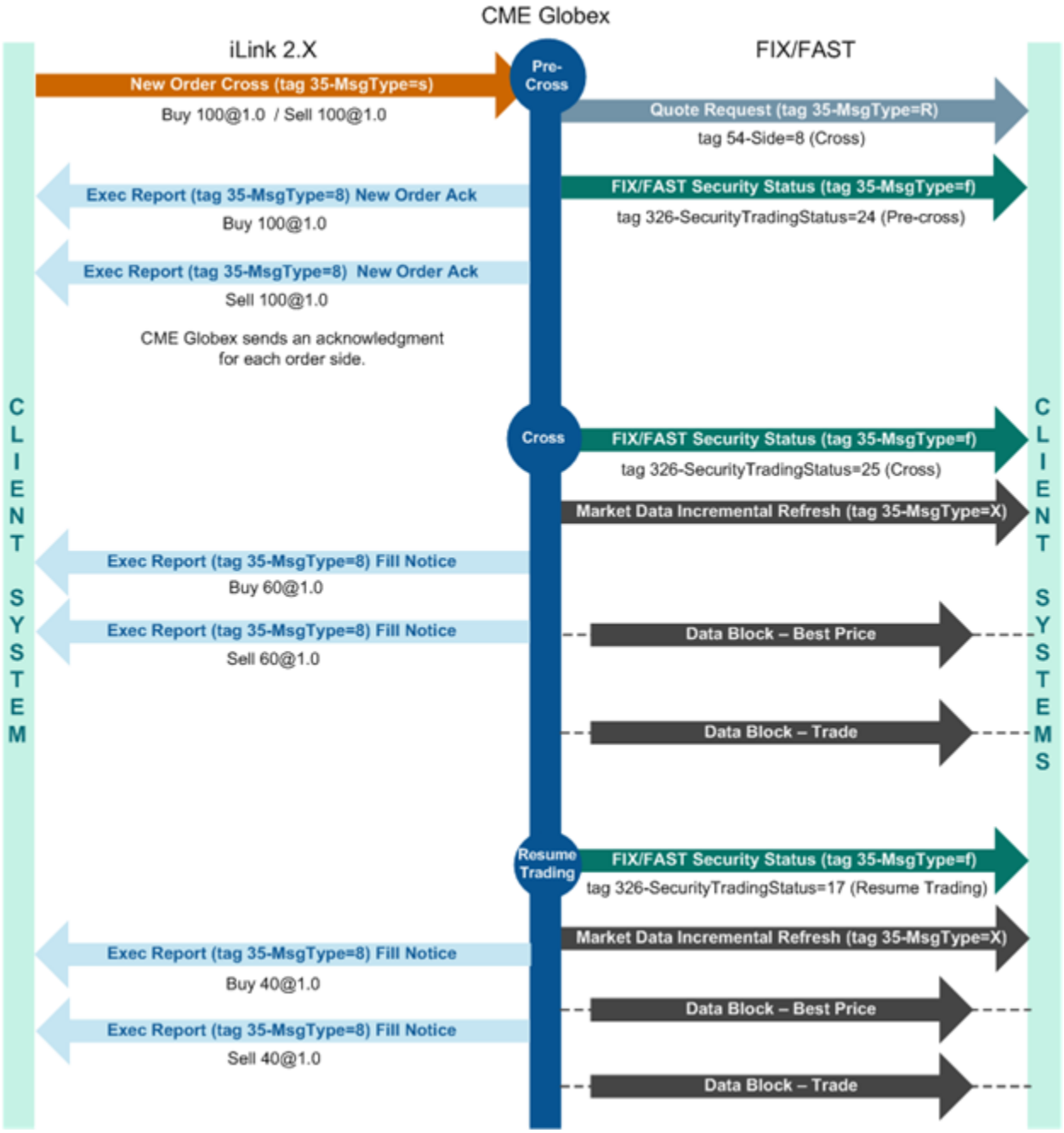
Note: **For the examples in this section, a BMG of 60 percent is used.**

3.2.3.1 RFC Does Not Match with Other Order(s)

During the Pre-Cross instrument state (0 seconds), the Market Data FIX/FAST Incremental Refresh (tag 35-MsgType=X) Best Limits data block is not transmitted to indicate the RFC order; however, orders will trigger a Market Data FIX/FAST Market Data Incremental Refresh (tag 35-MsgType=X) Best Limits data block message.

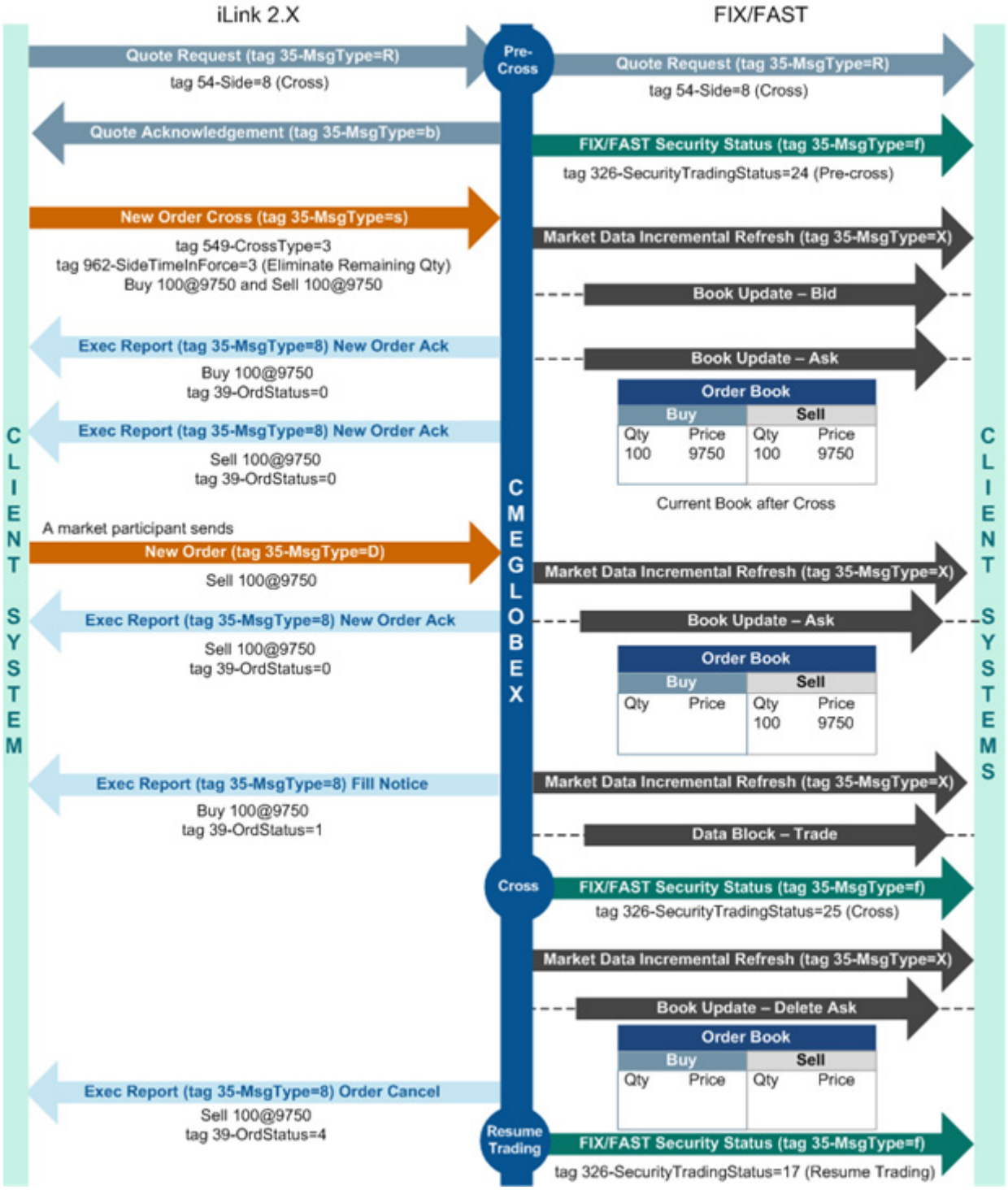
In this example, during the Pre-Cross instrument state, no orders are submitted that match with the RFC orders. Therefore, CME Globex platform matches the RFC Buy side against the RFC Sell side at the 60 percent BMG and sends the corresponding Execution Report and market data messages. At the end of the Cross instrument state, the remaining 40 of the RFC order matches.

The following diagram illustrates CME Globex messaging for an accepted RFC order that does not match with any order or quotes. In this example, the BMG is 60% and the duration of the states is configured by CME Group.



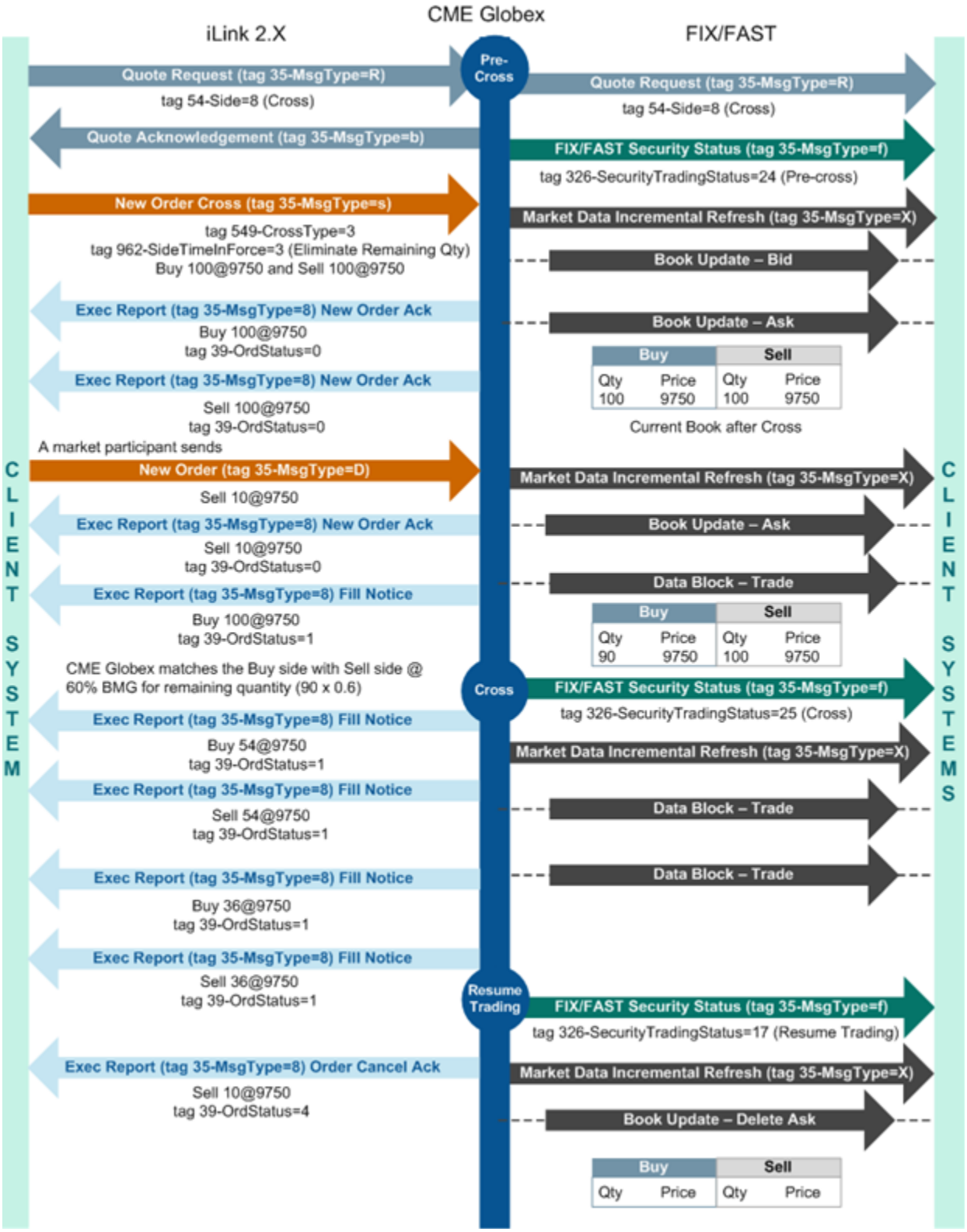
3.2.3.2 RFC Matches with Another Order - Total Fill - Side

This diagram illustrates CME Globex messaging and book updates for an RFC order that trades 100% with another order. During the Pre-Cross instrument state, another market participant responds to the RFQ and submits a Sell order that will match against one side of the Cross order. In this scenario tag 962-SideTimeInForce=3, 'Eliminate remaining quantity' cancels the remaining Sell side order. In this example, the duration of the states is configured by CME Group and the BMG is 60%



3.2.3.3 RFC Matches with Another Order - Partial Fill - Side

This diagram illustrates CME Globex messaging and book updates for an RFC that trades with another order.



During Pre-Cross instrument state, a market participant can respond to the RFQ by submitting a Sell order that will match partially against the Buy side of the RFC order.

In addition, the previous figure illustrates the effect of tag 962-SideTimeInForce=0, where the remaining quantity is left on the book. The originator of the RFC message must send an Order Cancel Request (tag 35-MsgType=F) to remove the remaining quantity from the book, if desired. CME Globex transmits an Execution Report - Order Cancel Acknowledgment (tag 35-MsgType=8) message.

4. User-Defined Spreads (UDS)

All CME Group options spreads are user-defined on the CME Globex platform to minimize the amount of maintenance and time commitment required to download the Security Definitions of all possible spreads.

A UDS is an option spread that CME Globex creates from a trader request that defines the spread legs and ratios. CME Globex receives the request and creates a tradable instrument that is disseminated to the entire market.

Note: **In UDS methodology, a leg is a 'repeating group' of tags within the iLink Security Definition Request (tag 35-MsgType=c), iLink Security Definition (tag 35-MsgType=d), or FIX/FAST Security Definition (tag 35-MsgType=d) messages.**

4.1 Rules for User-Defined Spreads

See Electronic Trading Concepts for basic information. For Spread Validation Rules see "Messaging Rules for User-Defined Spreads" on Page 46 in this document.

4.2 CME Globex Exchange Recognized Spread Type

If the spread being requested by the user is identified as one of the CME Globex standard spread types, that specific spread instrument will be created and a notice of the spread's availability will be distributed to the entire market. This is referred to as a CME Globex exchange recognized spread type. CME Globex exchange recognized spread types are described in detail in Electronic Trading Concepts.

4.3 CME Globex Unrecognized Spread Type

If the spread being requested by the user is not identified as an exchange recognized spread type, the spread instrument will be created exactly as the user requested, designated 'generic' (GN), and a notice of the spread's availability will be distributed to the market.

Client systems will receive no acknowledgment from CME Globex for an iLink Security Definition (tag 35-MsgType=c) message submitted containing instruments from different product groups.

If the proposed UDS is not valid (e.g. ratios are not in the lowest common denominator), the spread will be rejected as indicated in tag 323-SecurityResponseType=5.

4.4 Certification Requirements

Certification is not required for new exchange recognized spreads available on CME Globex.

Certification is required for:

- Client systems that want to support UDS functionality are required to certify order entry and market data systems on AutoCert+.
- For additional information on testing and certification, refer to www.cmegroup.com/certsdk .

4.5 Options Spread Terminology

The following terms are used to describe options spreads on CME Globex.

- **CME Globex Exchange Recognized Spread Type** - User-defined option spread that matches the structure of a standard Globex spread type. For example, a Butterfly option spread where the structure is: buy1 sell2 buy1.
- **CME Globex Unrecognized Spread Type** - User-defined option spread whose structure does not fit the construction of any Globex standard spread type.
- **COMBO Spread Type** - Any CME Globex exchange recognized or unrecognized options spread is considered an options combo.
- **COVERED Spread Type** - Any instrument created by combining an outright option or option spread with up to 39 outright future instruments. Exchange recognized spreads and unrecognized spread types can be used in a COVERED Spread.
- **Recursive Spread Type** - Is a spread which has at least 1 leg that is a user-defined options spread. Only one level of recursion is allowed.
- **Expiration** - The date on which the contract expires.

Note: **Both CME Globex exchange recognized and unrecognized spread types may be delta neutral or covered.**

4.6 Naming Conventions for Options Instruments

This section discusses the display naming conventions for outright options and options spreads using the FIX/FAST Security Definition (tag 35-MsgType=d) message as processed by client applications.

4.6.1 Naming Outright Options

For an outright option, tag 107-SecurityDesc in the FIX/FAST Security Definition (tag 35-MsgType=d) message can be used to uniquely identify the instrument. The following figure illustrates which tags contains sufficient data to display the instrument.

Security Definition	Value
Tag 35-MsgType	d
Tag 1151-SecurityGroup	GE
Tag 55-Symbol	ZE
Tag 107-SecurityDesc	GEZ0 C9375
Tag 461-CFICode	OCAFPS
Tag 202-StrikePrice	9375
Tag 200-MaturityMonthYear	201012

GEZ0 C9375

WARNING

For options spread instruments, tag 107-SecurityDesc is not sufficient to use for the screen display name.

4.6.2 Naming a CME Globex Options Spread

In the FIX/FAST Security Definition (tag 35-MsgType=d) message, tag 107-SecurityDesc does not contain sufficient information to display the options spread instrument. Client systems must leverage the Security Definition (tag 35-MsgType=d) message for the options spread and the FIX/FAST Security Definition (tag 35-MsgType=d) messages for all legs to name the options spread instrument.

4.6.2.1 Process to Build Spread Display Name

The following figure shows the spread/leg message relationships the client system can use to obtain the display name for an options spread instrument. This process can be applied to all options spreads, recognized, unrecognized, recursive, combo and covered.

The following steps provide an example of how to build an options spread display name using the figure.

1. Obtain the FIX/FAST Security Definition (tag 35-MsgType=d) for the options spread instrument and verify the number of legs using tag 555-NoLegs. From this Security Definition (tag 35-MsgType=d) message use tags 602-LegSecurityID to lookup the Security Definition (tag 35-msgType=d) messages for all the legs.

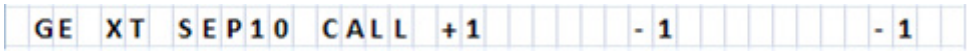
2. From the FIX/FAST Security Definition (tag 35-MsgType=d) of the first leg, obtain the product symbol using tag 1151-SecurityGroup and determine the display value.

3. From the FIX/FAST Security Definition (tag 35-MsgType=d) message of the options spread instrument, obtain the strategy type from tag 762-SecuritySubType (XT=Xmas Tree) and determine the display value.

4. From the FIX/FAST Security Definition (tag 35-MsgType=d) messages for all the legs, obtain the value(s) from tag 200-MaturityMonthYear (20100901) and determine the display value(s).

5. From the FIX/FAST Security Definition (tag 35-MsgType=d) messages for all the legs, obtain the value(s) from tag 461-CFICode (OCAFPS where the second byte, **C** indicates a Call in this example) and determine the display value(s).

6. From the FIX/FAST Security Definition (tag 35-MsgType=d) message for the options spread instrument obtain the value(s) for tag 623-LegRatioQty and tag 624-LegSide (Buy=1 and Sell=2) for all the legs and determine the display value(s). In this example the + equals Buy and the - equals Sell.



7. From the FIX/FAST Security Definition (tag 35-MsgType=d) messages for all the legs obtain the value(s) for tag 202-StrikePrice and determine the display value(s).

.

Extracting these values provides an example display name, **GE XT SEP10 CALL +1 9950 -1 9962.5 -1 9975** shown in the previous figure.

4.6.2.2 CME Globex Exchange Unrecognized Spread and Recursive Spread Types

- Implement “Process to Build Spread Display Name” on Page 36.
- Additional considerations:
  - The strategy type from tag 762-SecuritySubType is ‘:GN’. Client systems may choose to represent this as a ‘generic’ name or omit from the display name.
  - A recursive spread type is a spread which has at least 1 leg that is a **user-defined spread**. Only one level of recursion is allowed. Client systems should leverage the Process to Build Spread Display Name to decompose the spread.

4.6.2.3 CME Globex Covered Spread Type

- Implement “Process to Build Spread Display Name” on Page 36.
- Additional considerations:
  - A covered spread type is a unique option spread instrument created by combining an outright option or option spread with 1 - 39 underlying outright future instruments. If a spread is present as a leg, client systems should leverage the Process to Build Spread Display Name to decompose the spread.
  - The strategy type from tag 762-SecuritySubType will display these common values, ‘**:CV**’. Client systems may choose to represent this as a ‘covered spread’ or to omit from the display name.
  - Consideration should be given to tag 566-LegPrice and tag 1017-LegOptionDelta.
    - The value in tag 566-LegPrice defines the price of the option leg.
    - The value in tag 1017-LegOptionDelta determines the number of covering futures allocated at trade execution.

4.7 CME Globex Options Spread Methodology

All options spreads on CME Globex must be created using the iLink Security Definition Request (tag 35-MsgType=c) message. Once an options spread is created, it is identified as a CME Globex exchange recognized or unrecognized spread type by the value in tag 762-SecuritySubType broadcast in the FIX/FAST Security Definition (tag 35-MsgType=d) message.

All defined and active options spreads are disseminated at the beginning of the week, or at initial creation on the FIX/FAST Incremental feeds, and looped on the FIX/FAST Instrument Definition feeds.

This section discusses the following:

- Creating a user-defined spread via iLink.
- Receiving the new user-defined spread in FIX/FAST.

In user-defined spread methodology, a leg is a repeating group of tags within the iLink Security Definition Request (tag 35-MsgType=c) and FIX/FAST Security Definition (tag 35-MsgType=d) messages.

This section uses the term **repeating group** when referring specifically to tags defining a leg instrument within the iLink Security Definition Request and FIX/FAST Security Definition messages. Otherwise, the term ‘leg’ is used in the standard sense of an option spread component.

4.8 Identification of User-Defined Spreads

Client systems can identify a UDS instrument by analyzing the FIX/FAST Security Definition (tag 35-MsgType=d) message. Tag 9779-UserDefinedInstrument=Y is present on all user-defined spread instruments and should be used as the method for identifying this type of instrument.

4.9 CME Globex Exchange Recognized Options Spread Type

CME Globex supports options spread orders using the following:

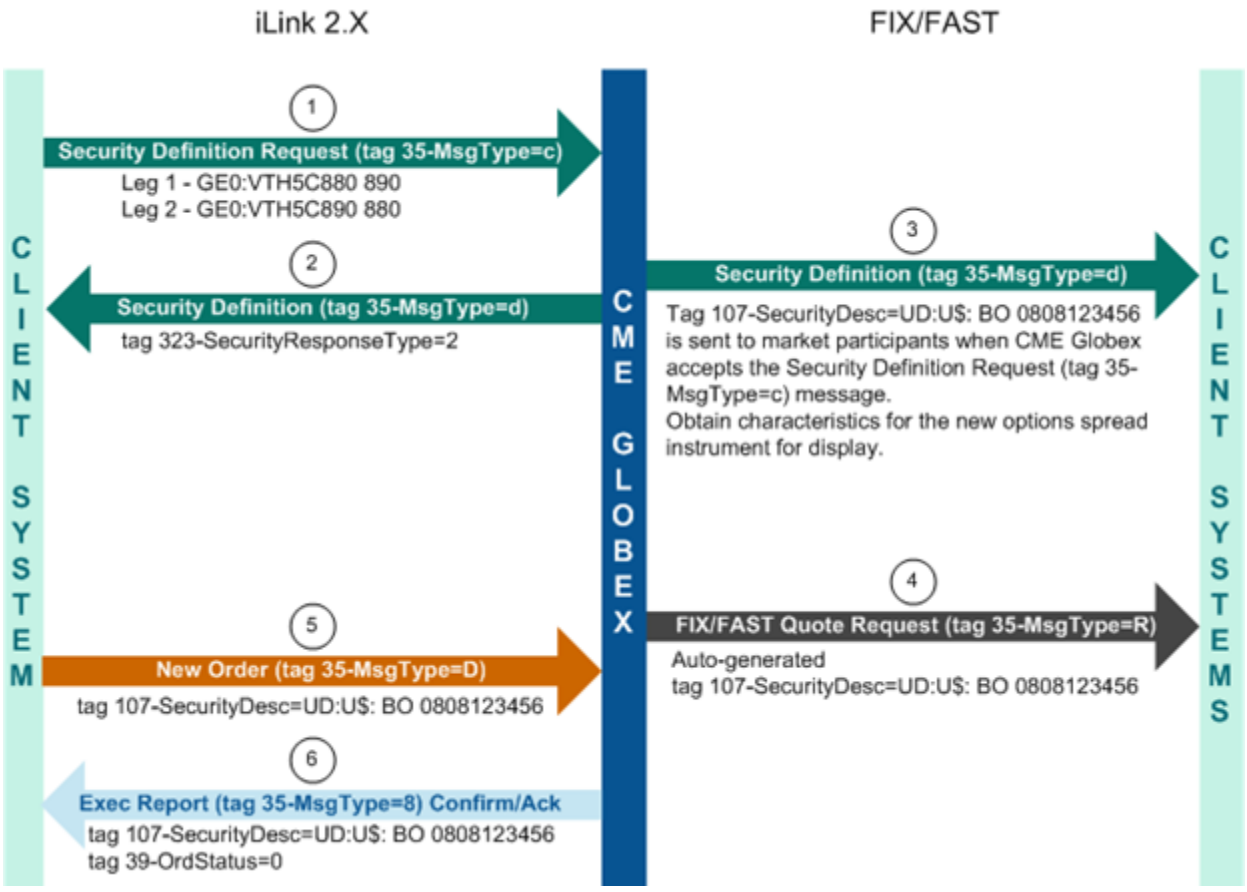
- Security Definition Request (tag 35-MsgType=c)
- Security Definition (tag 35-msgType=d)

FIX/FAST uses the Security Definition (tag 35-MsgType=d) message to broadcast the options spreads to the market.

Note: **The order entry iLink Security Definition (tag 35-MsgType=d) message and the FIX/FAST Security Definition (tag 35-MsgType=d) message have differences.**

CME Group recommends using the TCP order entry iLink Security Definition (tag 35-MsgType=d) as an acknowledgment and the FIX/FAST Security Definition (tag 35-MsgType=d) REPLAY message as the instrument definition.

In the following example, the user submits two vertical spreads in the iLink Security Definition Request message to create a user-defined Butterfly option spread. The iLink Security Definition Request (tag 35-MsgType=c) is submitted via iLink. This FIX/FAST Security Definition (Tag 35-MsgType=d) is broadcast via the appropriate channel.



Procedure:

1. Client system submits an iLink Security Definition Request (tag 35-MsgType=c) message.
2. If the iLink Security Definition Request (tag 35-MsgType=c) message is accepted, CME Globex sends the client system an iLink Security Definition (tag 35-MsgType=d) message with tag 323-SecurityResponseType=2 (accept).

Accepted

3. After accepting the iLink Security Definition Request (tag 35-MsgType=c) message and the creation of the option spread instrument, CME Globex broadcasts a FIX/FAST Security Definition (tag 35-MsgType=d) message containing the tag 107-SecurityDesc and tag 48-SecurityID of the option spread.
   Tag 762-SecuritySubType contains the strategy type code for the CME Globex recognized spread type (BO) in the Security Definition (tag 35-MsgType=d) message.
4. CME Globex also broadcasts a FIX/FAST Request for Quote (tag 35-MsgType=R) message for the options spread immediately following the FIX/FAST Security Definition (tag 35-MsgType=d) message.
5. The client system submits an iLink New Order (tag 35-MsgType=D, tag 39-OrdStatus=0) message for the recognized spread.
6. CME Globex sends an Execution Report - New Order Acknowledgement (tag 35-MsgType=8, tag 39-OrdStatus=0) message for the new order.

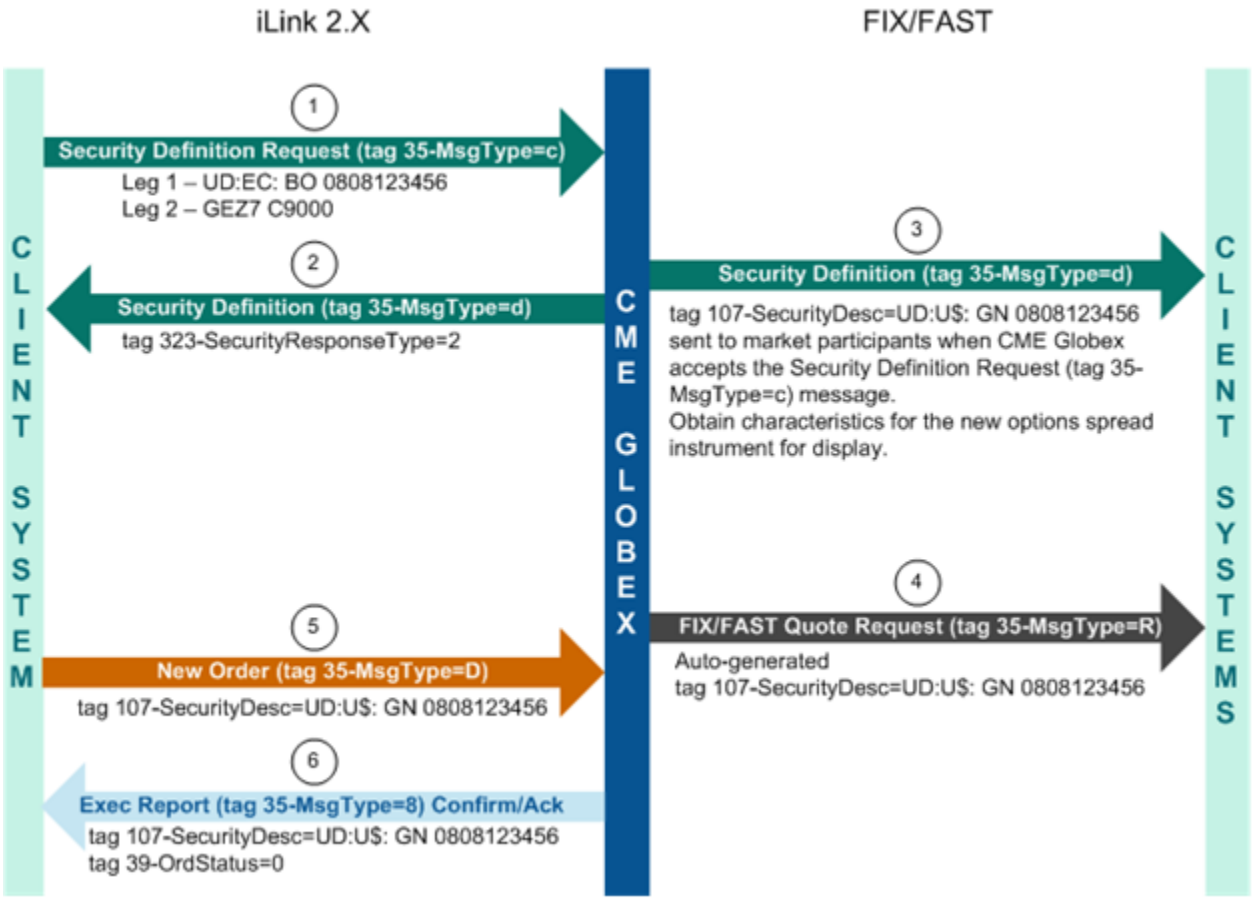
Rejected

- If rejected, for example, due to a Paused or Closed market or because the options spread instrument already exists, the iLink Security Definition (tag 35-MsgType=d) message will contain tag 323-SecurityResponseTyp=5, Reject and the reject reason in tag 58-Text. No FIX/FAST Security Definition (tag 35-MsgType=d) message is broadcast.
- If rejected due to invalid message format or content, the client system will receive an iLink Business Level Reject (tag 35-MsgType=j).

4.10 CME Globex Unrecognized Options Spread Type

For unrecognized options spread types, due to the fact that a UDS can have a UDS as a leg, each leg of the spread must be decomposed to the exchange-recognized level to ensure all component legs are identified. The client system must process each leg to ensure that tag 9779-UserDefinedInstrument is not present and/or not equal to 'Y'. If the leg is a user defined instrument, that instrument must be further decomposed to identify all component legs.

In this example, the user combines a spread with an exchange recognized option outright and creates a CME Globex unrecognized spread type.



Procedure:

1. Client system submits an iLink Security Definition Request (tag 35-MsgType=c) message containing one or more user-defined options spreads and one or more option outrights or unrecognized option spreads.
2. If the iLink Security Definition Request (tag 35-MsgType=c) message is accepted, CME Globex sends the client system an iLink Security Definition (tag 35-MsgType=d) message with tag 323-SecurityResponseType=2, Accept.
   - If rejected due to invalid message format or content, the client system will receive an iLink Business Level Reject (tag 35-MsgType=j).

Accepted

3. After accepting the iLink Security Definition Request (tag 35-MsgType=c) message and the creation of the option spread instrument, CME Globex broadcasts a FIX/FAST Security Definition (tag 35-MsgType=d) message containing the tag 107-SecurityDesc and tag 48-SecurityID code of the new option spread. The FIX/FAST Security Definition (tag 35-MsgType=d) message contains the strategy type code in tag 762-SecuritySubType.
4. CME Globex also broadcasts a FIX/FAST Request for Quote (tag 35-MsgType=R) message for the option spread immediately following the FIX/FAST Security Definition (tag 35-MsgType=d) message.
5. The client system submits an iLink New Order (tag 35-MsgType=D) message for the newly created unrecognized spread type.
6. CME Globex sends an Execution Report - New Order Acknowledgement (tag 35-MsgType=8, tag 39-OrdStatus=0) for the new order.

Rejected

- If rejected, for example, due to a Paused or Closed market or because the options spread instrument already exists, the iLink Security Definition (tag 35-MsgType=d) message will contain tag 323-SecurityResponseType=5 (reject) and the reject reason in tag 58-Text. No FIX/FAST Security Definition (tag 35-MsgType=d) message is broadcast.

4.11 Defining Leg Ratio Quantities

This example illustrates how CME Globex decomposes the quantity of leg instruments defined in the iLink Security Definition Request message in tag 623-LegRatioQty and tag 624-Side and rejects or accepts the instrument based upon the lowest common denominator for the leg ratio.

This example shows how the same component outright legs can be accepted or rejected depending upon how the client defines them in the iLink Security Definition Request repeating groups.

4.11.1 Example 1 - Message Accepted

1. Client defines a new options spread consisting of the following legs/repeating groups:

- GE0Z7 C8900 (side = Buy, ratio =1)
- GE0Z7 C8950 (side = Sell, ratio = 2)
- GE0Z7 C9000 (side = Buy, ratio = 1)

2. CME Globex determines that these legs have a common denominator of 1 → 1:2:1 = and accepts the message.

4.11.2 Example 2 - Message Accepted

1. Client defines a new options spread consisting of the following legs/repeating groups:

- GE0:VTZ7C895 900 (side = Sell, ratio = 1)
- GE0:VTZ7C890 895 (side = Buy, ratio = 1)

2. CME Globex identifies the component instruments as follows:

- GE0Z7 C8900 (side = Buy; ratio 1)
- GE0Z7 C8950 (side = Sell; ratio 2)
- GE0Z7 C9000 (side = Buy; ratio 1)

3. CME Globex determines that these legs have a common denominator of 1 → 1:2:1 = and accepts the message.

4.11.3 Example 3 - Message Accepted

1. Client defines a new recursive UDS consisting of the following legs/repeating groups:

- GE0:VTZ7C895 900 (side = Sell, ratio = 1)
- GE0:VTZ7C890 895 (side = Buy, ratio = 1)
- UD:U$:CVT0706924334

CME Globex determins this is a valid recursive UDS.

4.11.4 Example 4 - Message Rejected

1. Client defines a new option spread consisting of the following legs/repeating groups:

- GE0Z7 C8900 (side = Buy; ratio 2)

- GE0Z7 C8950 (side = Sell; ratio 3)
- GE0Z7 C9000 (side = Buy; ratio 1)
- GE0:VTZ7C895 900 (side = Sell; ratio 1)

2. CME Globex identifies the component instruments as follows:

- GE0Z7 C8900 (side = Buy; ratio 2)
- GE0Z7 C8950 (side = Sell; ratio 3)
- GE0Z7 C8950 (side = Sell; ratio 1)
- GE0Z7 C9000 (side = Buy; ratio 1)
- GE0Z7 C9000 (side = Buy; ratio 1)

3. CME Globex combines legs 2 and 3 and legs 4 and 5 as identical:

- GE0Z7 C8900 (side = Buy; ratio 2)
- GE0Z7 C8950 (side = Sell; ratio 4)
- GE0Z7 C9000 (side = Buy; ratio 2)

4. CME Globex determines that these legs have a common denominator of 2 → 2:4:2 = 2 x (1:2:1) and rejects the message.

In the case of the rejected iLink Security Definition Request above, the request is rejected due to the quantity of each leg requested. The client can submit the same legs in their lowest common denominator format as shown in the examples above and then, when the instrument is created (UD:U$: GN 1209250005), place an order for 2.

4.12 Messaging Rules for User-Defined Spreads

This section describes the CME Globex messaging rules specified on options spreads, market state and a GTD spread.

4.12.1 Spread Validation

The following restrictions apply to all options spreads; CME Globex will reject an iLink Security Definition Request (tag 35-MsgType=c) message that:

- Defines the same option instrument as both a Buy and a Sell; all instances of the given option must have the same side.
- Duplicates another user-defined option spread.
- Defines a ratio in other than the lowest common denominator.
    - For example, a Security Definition Request message for a Butterfly spread must be submitted with tag 623-LegRatioQty defined in each respective repeating group as 1:2:1.
- Exceeds a total of 40 instruments.

Examples for 40 Instrument Maximum Calculation

- A user-defined exchange recognized Call Butterfly counts as four instruments toward the forty instrument limit.

- A user-defined exchange recognized Straddle Strip counts as eight instruments toward the forty instrument limit.
- If the same instrument (identical strike, call/put, expiration) appears in more than one spread, it is counted in EACH spread in which it appears regardless of ratio quantities.
- Covereds can have up to 39 futures legs.

4.12.2 Market State Validation

- The iLink Security Definition Request (tag 35-MsgType=c) message is only accepted during the Pre-Open, Open and No Cancel market states as indicated by the FIX/FAST Security Status (tag 35-MsgType=f) message.
- Option instruments defined in the iLink Security Definition Request (tag 35-MsgType=c) message are valid only during the Open market state.
- A UDS instrument either expires with the earliest expiration of its component leg instruments or at the end of the trading session, as specified in tag 200-MaturityMonthYear of the Security Definition (tag 35-MsgType=d) message.

4.12.3 Spread GTD Validation

For a spread instrument, a GTD order qualifier for an iLink New Order or Cancel/Replace message cannot have a date later than the earliest expiring leg of the spread.

For complete details regarding order types and qualifiers, refer to Electronic Trading Concepts.

4.13 Market Data Platform Channels

All relevant market data for the UDS instrument, including Security Definition (tag 35-MsgType=d), Security Status (tag 35-MsgType=f), Quote Request (tag 35-MsgType=R), Market Data Request (tag 35-MsgType=V), Market Data Snapshot Full Refresh (tag 35-MsgType=W) and Market Data Incremental Refresh (tag 35-MsgType=X) messages are broadcast over the applicable FIX/FAST channels.

Note: **FIX/FAST messages are also available on the MDP Replay Channel.**

4.14 Message Processing and Specifications

This section discusses messaging for CME Globex exchange recognized and unrecognized options spread including examples of outbound and inbound messages for spread submission, acknowledgment, and market data dissemination.

4.14.1 iLink 2.X Messages

To create an options spread, a client systems must be able to create the following message types:

iLink 2.X Message Summary

Message	Description
Security Definition Request (tag 35-MsgType=c)	Submitted to CME Globex by customer system to request creation of user-defined spread.

iLink 2.X Message Summary

Message	Description
Security Definition – Accept or Reject (tag 35-MsgType=d)	Sent to customer system by CME Globex upon acceptance or rejection of Security Definition Request message.
Business-Level Reject (tag 35-MsgType=j)	Sent by CME Globex to reject messages at the FIX session level (e.g., messages with missing or invalid FIX tags) where the message cannot be processed.

The iLink Security Definition Request (tag 35-MsgType=c) and Security Definition (tag 35-MsgType=d) are FIX 4.4 market data messages implemented in a FIX 4.2 session as order entry messages to accommodate user-defined spreads.

Note: **The order entry iLink Security Definition (tag 35-MsgType=d) message and the FIX/FAST Security Definition (tag 35-MsgType=d) message have differences.**

CME Group recommends using the TCP order entry iLink Security Definition (tag 35-MsgType=d) as an acknowledgment and the FIX/FAST Security Definition (tag 35-MsgType=d) REPLAY message as the instrument definition.

4.14.2 iLink Security Definition Request (tag 35-MsgType=c) Message

CME Group customers use the iLink Security Definition Request (tag 35-MsgType=c) message to create an options spread on the CME Globex platform. The iLink Security Definition Request message requires a repeating group of user-populated tags for instrument included in the option spread.

CME Globex validates all required tags; the message is rejected if a required tag:

- is not included
- is empty
- contains spaces
- exceeds the character limit

Note: **If an iLink Security Definition Request (tag 35-MsgType=c) is rejected as "Contract is invalid" due to an existing, identical spread instrument definition sent in tag 107-SecurityDesc.**

It is strongly recommended that the client system reload all FIX/FAST Security Definition (tag 35-MsgType=d) messages from the Replay channel.

Refer to the iLink Message Specification for the message definition.

4.14.3 iLink Security Definition (tag 35-MsgType=d) Message

CME Globex sends the order entry iLink Security Definition (tag 35-MsgType=d) Acknowledgment message in response to a iLink Security Definition Request (tag 35-MsgType=c) message.

If the iLink Security Definition Request message is accepted, the CME Globex platform processes the option combination in the iLink Security Definition Request message to generate a unique option spread

and sends a iLink Security Definition (tag 35-MsgType=d) message to the customer system with tag 323-SecurityResponseType = 2 (Accepted).

If the iLink Security Definition Request message is rejected, the iLink Security Definition message will contain tag 323-SecurityResponseType = 5 (Reject), tag 58-Text containing the reason for the reject, and tag 107-SecurityDesc containing the security description of the existing (identical) contract.

Only CME Globex unrecognized spreads have the repeating groups in the iLink Security Definition (tag 35-MsgType=d) message returned in the same order as submitted in the iLink Security Definition Request (tag 35-MsgType=c) message.

Refer to the iLink Message Specification for further information.

4.15 Recursive Spread

A recursive spread type is a spread which has at least 1 leg that is a user defined options spread. Only one level of recursion is allowed.

The following is an example of a recursive spread:

Recursive Spread Example

Side	Quantity	Leg
Buy	1	OZQF0 P9818
Sell	2	OZQF0 P9812
Buy	1	UD:FO: BO 0506960673

4.15.1 Display Names for a Recursive Spread

For a recursive spread, the display name must be constructed from related FIX/FAST Security Definition messages.

For this recursive spread example, the display names for this spread would be obtained from the FIX/FAST Security Definition (tag 35-MsgType=d) messages for Spread 1's component legs:

1. Spread 1: UD:U$: GN 0306123410. Based on the lookup of the legs, the spread contains the following legs.
   - Leg 1: GEM9 C9100
   - Leg 2: GE:VT 9200-9300
1. Spread 2: UD:U$: BO 0306123089. Based on the lookup of the legs, the spread contains the following legs.
   - Leg 1: GEM9 C9100
   - Leg 2: GEM9 C9200
   - Leg 3: GEM9 C9300

A possible display name in this example is GE: GN: GE: BO.

4.16 Covereds

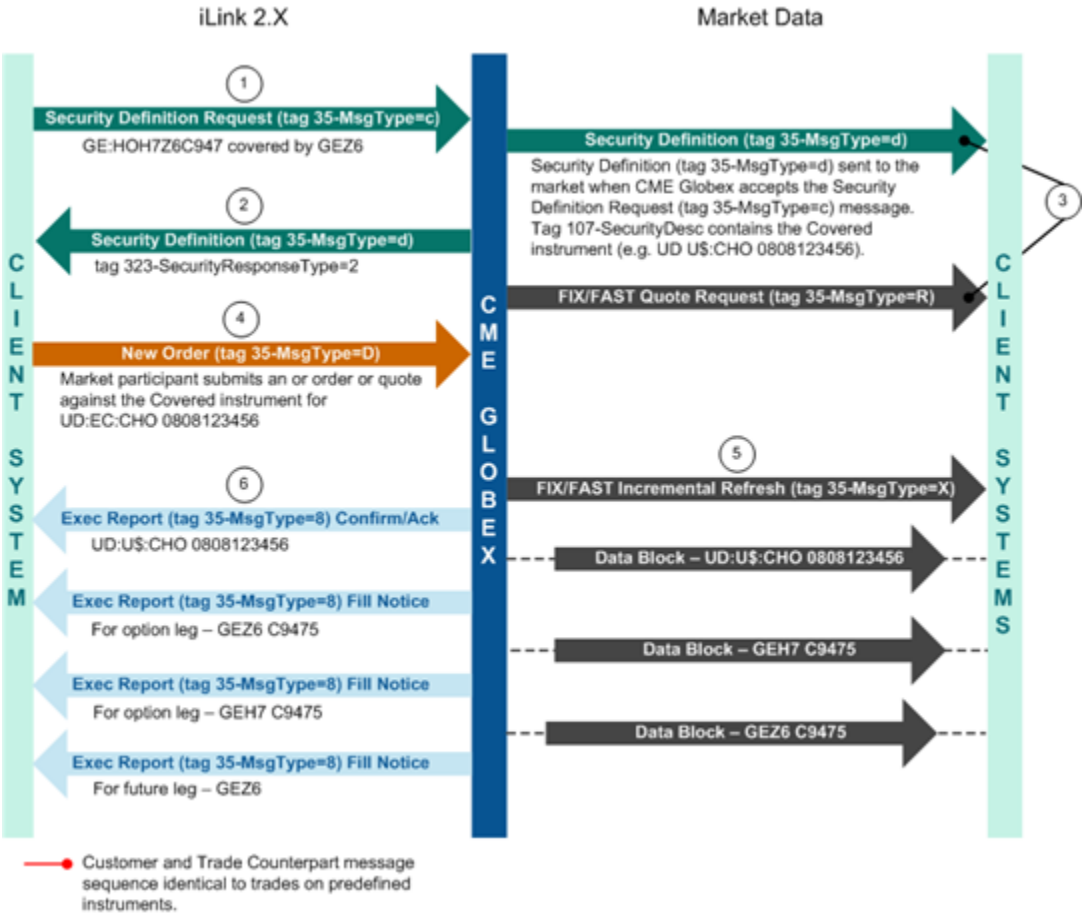
The term **Covered** denotes an option spread instrument created by combining an outright option or option spread with up to 39 outright future instruments.

Using the iLink Security Definition request (tag 35-MsgType=c) message, a customer can create an instrument whereby the Eurodollar option H9 Call 96.50 (delta = 0.30) is covered with Eurodollar future GEH9 at a price of 96.00.

4.16.1 Covered Option Spread Process

This section provides an overview of CME Globex processing for Covered instruments. The diagram below shows the message sequence for Covered instrument creation and notification of market participants of Covered instrument availability.

A description of each step in the sequence follows the diagram.



Procedure:

1. A client system submits an iLink Security Definition Request (tag 35-MsgType=c) message.
2. If the iLink Security Definition Request (tag 35-MsgType=c) message is accepted, CME Globex sends the customer system an iLink Security Definition (tag 35-MsgType=d) message with tag 323-SecurityResponseType=2 (accept).

Accepted

3. After accepting the iLink Security Definition Request (tag 35-MsgType=c) message and the creation of the Covered instrument, CME Globex broadcasts a FIX/FAST Security Definition (tag 35-MsgType=d) message containing the Instrument Code and ISIN code of the new Covered instrument.

   - CME Globex will also broadcast a FIX/FAST Request for Quote (tag 35-MsgType=R) message for the new Covered instrument immediately following the FIX/FAST Security Definition (tag 35-Msg-Type=d) message.

Note: **The auto-generated Quote Request type is limited to the standard Quote Request (i.e. does not support side, quantity, or indicative).**

4. A market participant submits an order or quote against the Covered instrument.

Note: **Tag 167-SecurityType is not required for the following message types submitted on or against a Covered instrument.**

   - New Order (tag 35-MSgType=D)
   - Cancel (tag 35-MsgType=F)
   - Cancel/Replace (tag 35-MsgType=G)
   - Order Status (tag 35-MsgType=H)
   - Mass Quote (tag 35-MsgType=i)
   - Block (tag 35-MsgType=s)
   - Request for Cross (tag 35-MsgType=s)

5. If the Covered instrument trades, CME Globex transmits the corresponding execution report and market data messages.

Note: **No FIX/FAST Incremental Refresh (tag 35-MsgType=X) is sent for the future leg.**

Rejected

- If rejected**,** for example, due to a Paused or Closed market or because the Covered instrument already exists, the iLink Security Definition (tag 35-MsgType=d) message will contain tag 323-SecurityResponseType=5 (reject) and the reject reason in tag 58-Text. No FIX/FAST Security Definition (tag 35- MsgType=d) message will be broadcast.
- If rejected due to invalid message format or content, the client system will receive an iLink Business Level Reject (tag 35-MsgType=j) message.

4.16.2 iLink Security Definition Request (tag 35-MsgType=c) Message

The iLink Security Definition Request (tag 35-MsgType=c) message defines a unique combination of option or option spread instrument, future instrument(s), future side(s), and delta value(s) to create Covered instruments on the CME Globex platform.

Note: **This message will be rejected if a required tag is submitted empty or filled with spaces, exceeds the character limit, or is missing.**

4.16.2.1 Repeating Groups

The iLink Security Definition Request (tag 35-MsgType=c) message requires a repeating group of user-populated tags for each option and future instrument comprising the Covered instrument. Repeating groups are blocks of tags that define the outright option or option spread and the future or futures covering the option instrument. An iLink Security Definition Request message defining a Covered can only contain one repeating group for an outright option or option spread.

Covereds can be defined with a maximum of 39 futures instruments within the CME Group defined range of the 40 instrument maximum for Covered instruments (i.e. a Covered instrument with 39 futures must have one option outright leg).

Example:

Covered Butterfly Spread UD:U$:CBO 0306123410 consists of:

Leg 1 GE:BOU9 C958 963

Leg 2 GEU9

Note: **The following three tags have different processing rules for the option repeating group and the future repeating group as indicated in the message specification.**

- Tag 624-LegSide
  - Required for option repeating group, must equal ‘1’ (Buy).
  - Required for future repeating group; can equal ‘1’ (Buy) or ‘2’ (Sell).
- Tag 566-LegPrice – not allowed for Covered option repeating group.
- Tag 1017-LegOptionDelta – not allowed for Covered option repeating group.

4.16.2.2 Market State Validation

The iLink Security Definition Request (tag 35-MsgType=c) message will only be accepted during the Open market state.

Option instruments defined in the iLink Security Definition Request (tag 35-MsgType=c) message are valid only during the Open market state for that option instrument and instrument group.

A Covered instrument either expires with the earliest expiration of its component leg instruments or at end of the trading session as specified in tag 866-EventDate in the Security Definition (tag 35-MsgType=d) message.

4.16.3 Option Instrument Availability

All listed CME Group outright options and option spreads are available for creating Covered spreads.

The option contract of the Covered instrument is limited to either:

- One outright option or
- One option spread.

4.16.3.1 Covered Option Contract

An iLink Security Definition Request (tag 35-MsgType=c) message can contain only CME Group outright option or option spread instruments obtained from the Security Definition (tag 35-MsgType=d) message. To submit a Covered with multiple option legs, the legs must be submitted as an option spread instrument—CME Globex will reject an iLink Security Definition Request containing multiple option legs rather than an option spread.

The following table lists the option-specific repeating group tags used to generate a unique Covered Security Definition.

The (➔) symbol designates repeating groups within the message.

Covered Option Parameters

Tag	FIX Name	Req	Type	Description
➔600	LegSymbol	Y	String (6)	Instrument group of the option contract (e.g. E$)
➔602	LegSecurityID	N	String (12)	Unique identifier of the instrument defined in tag 620. If invalid or not present,this tag will be corrected in the Security Definition (tag 35-MsgType=d) response.
➔603	LegSecurityIDSource	N	String (1)	Identifies class or source of the tag 48-SecurityID value. 8=Exchange symbol.
➔620	LegSecurityDesc	Y*	String (20)	Instrument Code of the Option contract. This is the primary tag used to identify the contract and is obtained from the Security Definition (tag 35-MsgType=d) message.
➔624	LegSide	Y*	Char (1)	Must = 1 (Buy). **Note:** All UDS contracts are defined from the buy side.

Y: Mandatory by FIX, Y*: Required by CME (not by FIX protocol), N: Not required

Note: **For an outright option or option spread, tag 624-LegSide is required and must be set to '1' (Buy). An iLink Security Definition Request message submitted with tag 624-LegSide set to '2' for an outright option or option spread will be rejected.**

4.16.4 Future Instrument Availability

All eligible contracts are listed at: http://www.cmegroup.com/resources-for/futures-traders.html.

All listed outright future contracts are available as a covering future.

- When the option contract is a spread and the spread has only one expiration, then only one Covering future is accepted.

- When the option contract is a spread in which the options deliver into two or more different futures, then the customer can submit one covering future or two different Covering futures.
- No covering future may be specified in the iLink Security Definition Request more than once.

4.16.4.1 Covering Future Contract(s)

An iLink Security Definition Request (tag 35-MsgType=c) message can contain only valid CME Group outright futures instrument obtained from the Security Definition (tag 35-MsgType=d) message. The message can contain up to 39 future repeating groups.

The following table lists the future-specific repeating group tags of the Security Definition request message that will generate a unique Covered Security Definition.

The (➔) symbol designates repeating groups within the message.

Covered Future Parameters

Tag	FIX Name	Req	Type	Description
➔600	LegSymbol	Y	String (2)	Instrument group of the Future contract (GE).
➔602	LegSecurityID	N	String (6)	Unique identifier of the instrument defined in tag 620. If invalid or not present, this tag will be correct in the Security Definition (tag 35-MsgType=d) response.
➔603	LegSecurityIDSource	N	Char (1)	Identifies class or source of the tag 48-SecurityID value. 8=Exchange symbol.
➔620	LegSecurityDesc	Y*	String (20)	Instrument Code of the Future contract. This is the primary tag used to identify the contract and is obtained from the Security Definition (tag 35-MsgType=d).
➔624	LegSide	Y*	Char (1)	This tag can equal 1 (Buy) or 2 (Sell).
➔566	LegPrice	Y*	Price (15)	Price of the futures contract. If this field contains 16 or more digits, the Security Definition Request message will be rejected.
➔1017	LegOptionDelta	Y*	Float (6.2)	Delta used to calculate the quantity of futures used to cover the option or option strategy. Six-byte field that can accommodate two decimal places.

Y: Mandatory by FIX, Y*: Required by CME (not by FIX protocol), N: Not required

Note: **For the covering future repeating group, tag 624-LegSide is required and may have a value of 1 (Buy) or 2 (Sell).**

4.16.5 Futures Match Assignment

At trade execution of a Covered options instrument, futures allocation is determined according to variables defined in the instrument as follows.

4.16.5.1 Quantity

During the match process for orders on Covered instruments, CME Globex determines the Covering future quantity by multiplying the outright option or option spread quantity by the absolute value of delta (defined in tag 1017-LegOptionDelta) and then rounding according to the rules specific to incoming and resting orders. Please note that CME Globex does not validate delta values for user-defined Covered instruments. The client system must manage the total value of all deltas defined for the Covered instrument.

4.16.5.2 Side

CME Globex determines future Buy/Sell assignment according to the value specified in tag 624-LegSide (1 = buy 2 = sell) in the iLink Security Definition Request (tag 35-MsgType=c) message as follows:

Future Buy/Sell Assignment

Future Repeating Group / Tag 624 LegSide Value	Covering Future Match Determination
1 = Buy	Future bought by Covered instrument buying party or
	Future sold by Covered instrument selling party
2 = Sell	Future sold by Covered instrument buying party or
	Future bought by Covered instrument selling party

WARNING

While CME Globex does not factor the sign of delta in Covered futures allocation, CME Globex only accepts a non-zero, positive delta value in tag 1017-LegOptionDelta. An iLink Security Definition Request (tag 35-MsgType=c) message submitted with a negative (-) delta value will be rejected.

Valid values for tag 1017-LegOptionDelta are as follows:

- **Spreads -** For a Covered option spread instrument, CME Globex validates tag 1017-LegOptionDelta for a value between +0.01 and +40.00.
- **Outrights -** For a Covered outright option instrument, CME Globex validates tag 1017-LegOptionDelta for a value between +0.01 and +1.00.

4.16.5.3 At-the-Money Outright Call Option Example

An at-the-money outright call option will have a delta of 0.50 and an at-the-money outright put option will have a delta value of 0.50.

Price

CME Globex validates that the future price specified in the Covered Security Request is at a valid tick as defined in the Security Definition (tag 35-MsgType=d) message and performs a price reasonability check to ensure that the price is within a CME-specified number of ticks above or below the future's settlement price.

Note: **For an option spread covered with 2 futures, the customer system must ensure correct assignment of covering future side for each expiration; CME Globex does not validate future(s) repeating group vs. option repeating group.**

4.16.5.4 Covered Outright Repeating Groups

The following example shows the repeating group tags and sample values required to define a Covered outright option.

Repeating Group Tags and Sample Values - Covered Outright Option

Tag	Repeating Group	Description	Sample Value
600-LegSymbol	Option	Outright option instrument group	ZE
620-LegSecurityDesc		Outright option	GEH6 C9650
624-LegSide		Must =1 (Buy)	1
600-LegSymbol	Future	Future instrument group	GE
620-SecurityDesc		Covering future contract	GEH6
566-LegPrice		Covering future price	9600
624-LegSide		Covering future side	1
1017-LegOptionDelta		Leg delta	0.30

4.16.5.5 Covered Spread Repeating Groups

The following example shows the repeating group tags and sample values required to define a Covered instrument.

Repeating Group Tags and Sample Values - Covered Outright Option

Tag	Repeating Group	Description	Sample Value
600-LegSymbol	Option	Option spread instrument group	E$
620-LegSecurityDesc		Option spread instrument	GE:HOH7Z6C947
624-LegSide		Must =1 (Buy)	1
600 LegSymbol	Future	Future instrument group	GE

Repeating Group Tags and Sample Values - Covered Outright Option

Tag	Repeating Group	Description	Sample Value
620-SecurityDesc		Covering future instrument	GEH7
566-LegPrice		Covering future price	9475
624-LegSide		Covering future side	2
1017-LegOptionDelta		Leg delta	0.35
600-LegSymbol	Future	Future instrument group	GE
620-SecurityDesc		Covering future instrument	GEH6
566-LegSide		Covering future side	1
624-LegPrice		Covering future price	9550
1017-LegOptionDelta		Leg delta	0.25

4.16.6 iLink Security Definition (tag 35-MsgType=d) Message

The iLink Security Definition (tag 35-MsgType=d) message is sent by CME Globex in response to an iLink Security Definition Request (tag 35-MsgType=c) message. If the iLink Security Definition Request message is accepted, the CME Globex platform will process the instrument combination in the iLink Security Definition Request message to generate a unique Covered instrument and send a Covered Security Definition (tag 35-MsgType=d) message to the customer system with tag 323-SecurityResponseType=2 (Accepted with revisions). If the Security Definition Request message is rejected, the Security Definition message will contain tag 323-SecurityResponseType=5 (Reject) and tag 58-Text containing the reason (e.g. “Error creating contract: Contract is invalid: 'UD:U$:CVT 0311250005' is identical to 'UD:U$:CVT 0311250004'') for the reject.

Note: **If an iLink Security Definition Request (tag 35-MsgType=c) is rejected as “Contract is invalid” due to an already existing identical Covered instrument definition, it is strongly recommended that the client system reload all Security Definition messages.**

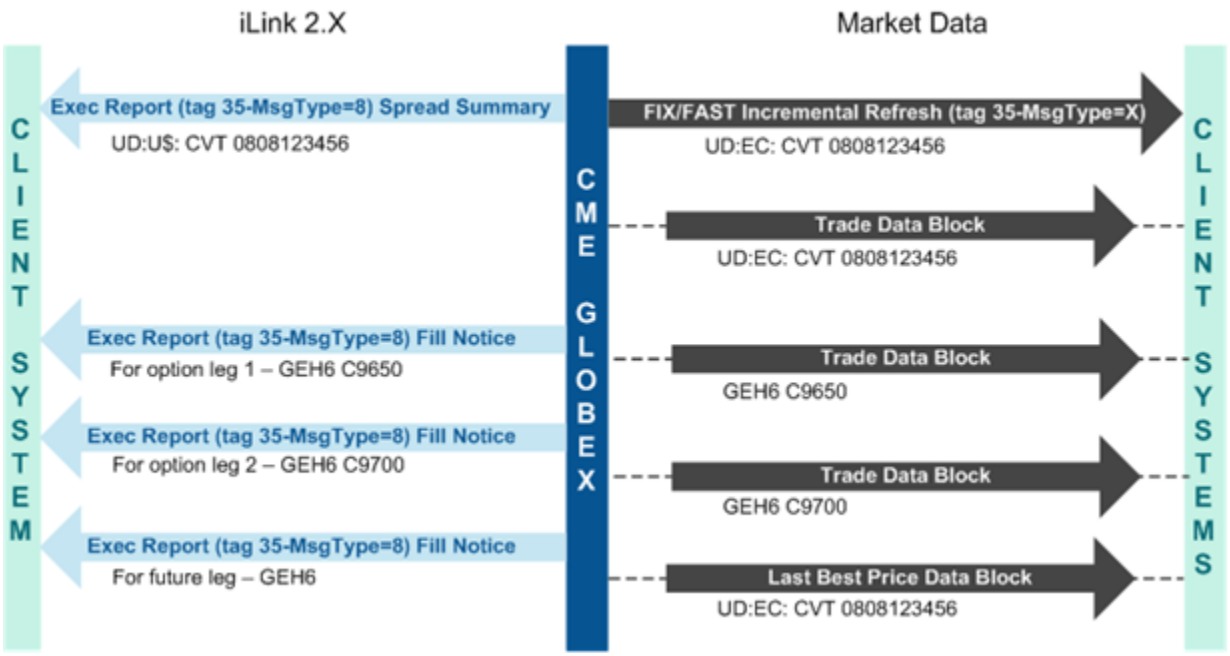
The repeating groups in the Security Definition message must be arranged in the following order:

1. Outright option or option spread
2. Future (earlier expiration)
3. Future (latest expiration – when applicable)

4.16.7 Covered Trade Notification

When a Covered instrument trades, CME Globex broadcasts Execution Reports for the Covered instrument and each leg of the Covered instrument to the trade counterparties and broadcasts market data messages to notify the market.

Note: **Tag 167-SecurityType will not be included in Execution Reports for the Covered instrument but will contain ‘OPT’ or ‘FUT’ in the Execution Report for each leg comprising the Covered instrument.**



Note: **In some cases it will be possible that no Execution Report – Fill is received for the future repeating group of a Covered instrument if rounding rules result in no futures.**

4.16.8 Business-Level Reject (tag 35-MsgType=j) Message

In certain cases when an iLink Security Definition Request (tag 35-MsgType=c) message is submitted with erroneous content or structure, the CME Globex platform will reject the message with a Business-Level Reject. In such an instance, tag 380-BusinessRejectReason will contain the reason for the rejection.

Note: **If an iLink New Order (tag 35-MsgType=D) message sent on a Covered instrument is rejected with a Business Level Reject message and the client system subsequently submits an Order Status Request (tag 35-MsgType=H) for the rejected New Order, the Execution Report – Order Status Report (tag 35-MsgType=8) message will contain a value of 'N/A' in tag 55-Symbol.**

4.16.9 Covered Match Algorithms

For options, current match algorithms apply. Future matching occurs after option matching. Please note that in certain circumstances it may be possible for a resting order for a covered to receive zero futures.

Futures allocation for the Covered is determined by multiplying the delta times the total number of matched options. CME applies different futures rounding rules to the incoming order versus the resting order(s) since the product of the delta times the option quantity can result in a decimal.

For the incoming order, decimal futures are always rounded to the nearest integer (i.e. allocated futures are rounded up if the calculated futures decimal is 0.50 or greater; rounded down for 0.49 or less).

For resting orders, decimal futures are always rounded down. Any remaining future(s) are allocated in 1-lots in priority of highest to lowest calculated futures decimal (e.g. a resting order with a 0.88 futures decimal is allocated a remaining 1-lot future before a resting order with a 0.52 futures decimal).

In instances when multiple resting orders have the same calculated futures decimal, then the remaining futures allocation priority is based on timestamp with earliest arriving order receiving the 1-lot future.

Example 1: Outright Option Covered with One Future

Option: GE0Z6 C9620 LegOptionDelta: .55 Future Leg 1: Dec06					
Status	Bid Qty	Bid $	Ask $	Ask Qty	Status
Incoming	**50**	**12.0**	12.0	10	Resting
			12.0	10	Resting
			12.0	10	Resting
			12.0	10	Resting
			12.0	10	Resting

INOF = Incoming Number of Futures

RNOF = Resting Number of Futures

INOF = LegOptionDelta * Matched Incoming Option Quantity

- *LegOptionDelta = 0.55*
- *Matched Incoming Option Quantity = 50*

INOF = (0.55 * 50)

INOF = 27.5

- Round 27.5 up to 28

INOF = 28

RNOF = LegOptionDelta * Matched Resting Option Quantity

- *LegOptionDelta = 0.55*
- *Matched Resting Option Quantity (per match) = 10*

RNOF = (0.55 * 10)

RNOF = 5.5

- Round 5.5 down to 5

RNOF = 25

Allocate remaining futures

- RNOF (25) < INOF (28)

"Add one future to each RNOF based on highest calculated futures decimal. Since all resting orders have same calculated futures decimal, then 1-lot futures are allocated based on timestamp

(oldest to newest/most recent) until RNOF = INOF

Allocation Summary

Time Priority	Allocated Options Qty	Allocated Futures Qty	Option Delta	Over/Under Covered
10:00:01	10	6	5.50	0.50 Over
10:00:02	10	6	5.50	0.50 Over
10:00:03	10	6	5.50	0.50 Over
10:00:04	10	5	5.50	0.50 Over
10:00:05	10	5	5.50	0.50 Over

Example 2: Option Spread Covered with Two Futures

Option Spread: GE0:HOM6H6C980					
LegOptionDelta 1: .45 Future Leg 1: Jun06					
LegOptionDelta 2: .28 Future Leg 2: Mar06					
Status	Bid Qty	Bid $	Ask $	Ask Qty	Status
Incoming	**100**	**12.0**	12.0	20	Resting
			12.0	20	Resting
			12.0	20	Resting
			12.0	20	Resting
			12.0	20	Resting

INOF #1 = LegOptionDelta * Matched Incoming Option Quantity

- *LegOptionDelta 1 = 0.45*
- *Matched Incoming Option Quantity = 100*

INOF #1 = (0.45 * 100)

INOF #1 = 45

- No Rounding needed

INOF #2 = LegOptionDelta * Matched Incoming Option Quantity

- LegOptionDelta 2 = 0.28
- Matched Incoming Option Quantity = 100

INOF #2 = (0.28 * 100)

INOF #2 = 28

- No rounding needed

RNOF #1 = LegOptionDelta * Matched Resting Option Quantity

- *LegOptionDelta #1 = 0.45*
- *Matched Resting Option Quantity = 20*

RNOF #1 = (0.45 * 20)

RNOF #1 = 9

- No rounding needed

RNOF #2 = LegOptionDelta * Matched Resting Option Quantity

- *LegOptionDelta #2 = 0.28*
- *Matched Resting Option Quantity = 20*

RNOF #2 = (0.28 * 20)

RNOF #2 = 5.6

- Round 5.6 down to 5

Allocate remaining futures

- Totaled RNOF #1 is equal to INOF #1
  - (RNOF #1= 9 + 9 + 9 + 9 + 9 = 45) = (INOF #1 = 45)
- Totaled RNOF #2 is less than INOF #2
  - (RNOF #1= 5 + 5 + 5 + 5 + 5= 25) < (INOF #2 = 28)

Add one future to each RNOF based on highest calculated futures decimal. Since all RNOF have the same calculated futures decimal, then allocate futures in 1-lot increments (oldest to newest/most recent) until RNOF #1 = INOF #1

Time Priority	Allocated Options Qty	Allocated Future Leg 1 (Jun06) Qty	Option Delta	Over/Under Covered	Allocated Future Leg 2 (Mar06) Qty	Option Delta	Over/Under Covered
10:00:01	20	9	9	0.0 Over	6	5.6	0.40 Over
10:00:02	20	9	9	0.0 Over	6	5.6	0.40 Over
10:00:03	20	9	9	0.0 Over	6	5.6	0.40 Over
10:00:04	20	9	9	0.0 Over	5	5.6	0.60 Under
10:00:05	20	9	9	0.0 Over	5	5.6	0.60 Under

Example 3: Zero Futures Assigned to Resting Order

Option: GE0Z6 C9620 LegOptionDelta: 0.04 Future Leg 1: Dec06					
Status	**Bid Qty**	**Bid $**	**Ask $**	**Ask Qty**	**Status**
Incoming	**100**	**12.0**	12.0	600	Resting #1
			12.0	100	Resting #2
			12.0	100	Resting #3
			12.0	100	Resting #4
			12.0	100	Resting #5

INOF = LegOptionDelta * Matched Incoming Option Quantity

- *LegOptionDelta = 0.04*
- Matched Incoming Option Quantity = 100

INOF = (0.04 * 100)

INOF = 4

RNOF = LegOptionDelta * Matched Resting Option Quantity

- LegOptionDelta = 0.04
- Resting #1 Matched Resting Option Quantity (per match) = 60
- 60 options = (600 / 1000) * 100

RNOF = (.04 * 60)

RNOF = 2.40

Round 2.40 down to 2

- Resting #2 thru #5 Matched Resting Option Quantity (per match) = 10
- 10 options = (100/1000) * 100

RNOF = 0.04 * 10

RNOF = 0.40

- Round 0.40 down to 0

RNOF = 0

Allocate remaining futures

RNOF (2) < INOF (4)

Add one future to each RNOF based on highest calculated decimal futures. Since all RNOF have the same calculated decimal futures, then allocate futures in 1-lot increments (oldest to newest/most recent) until RNOF = INOF.

Time Priority	Allocated Options Qty	Allocated Futures Qty	Option Delta	Over/Under Covered
10:00:01 Resting #1	60	3	.04	0.60 Over
10:00:02 Resting #2	10	1	.04	0.60 Over
10:00:03 Resting #3	10	0	.04	0.40 Under
10:00:04 Resting #4	10	0	.04	0.40 Under
10:00:05 Resting #6	10	0	.04	0.40 Under

4.17 UDS Expiration

This section provides the messaging conventions for options spread instrument expiration and expiration extension given the possible leg configurations and order types.

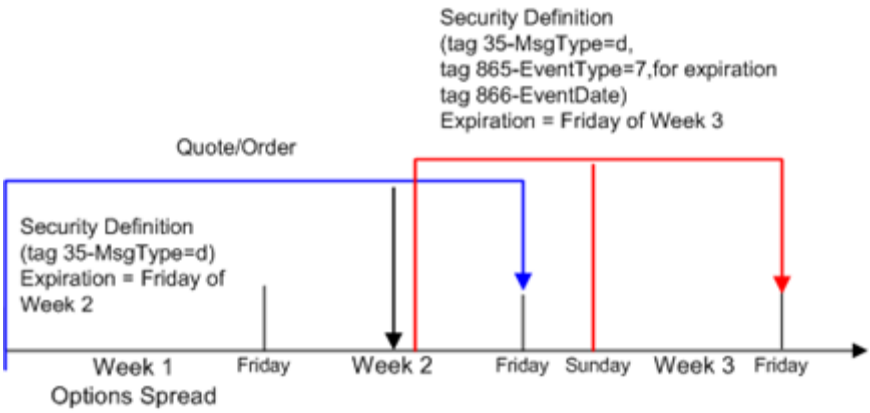
An options spread will remain an active contract on Globex for two weeks or until the leg with the shortest maturity expires. If there is activity in the options spread during the second week of its life, the life will extend an additional week. This extension can repeat as many times as necessary until expiration.

CME Globex assigns UDS expiration date and time as either the earliest leg expiration OR the end of the following trading week, whichever occurs first. Tag 866-EventDate contains this ExpirationDate/Time in the Market Data Platform FIX/FAST Security Definition (tag 35-MsgType=d) message.

Note: **Tag 866-EventDate will only be updated at Sunday start.**

Quote or order activity on a UDS during the defined week of expiration extends instrument expiration an additional trading week.

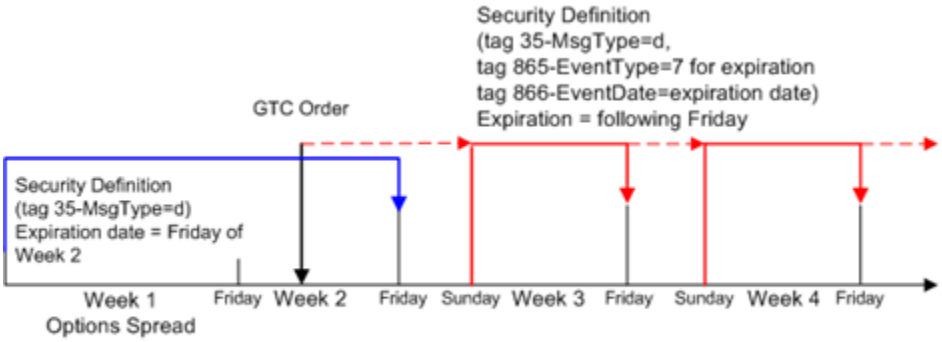
Note: **If the client system disconnects over the weekend, then upon reconnection, the client system must monitor the appropriate channel for options spread instruments that have had their expiration extended.**



4.17.1 Extension for GTC or GTD Options Spreads

GTC and GTD orders affect options spreads expiration as follows:

- GTD – extends expiration to specified ‘Good till’ date.
- GTC – extends expiration to earliest leg expiration.

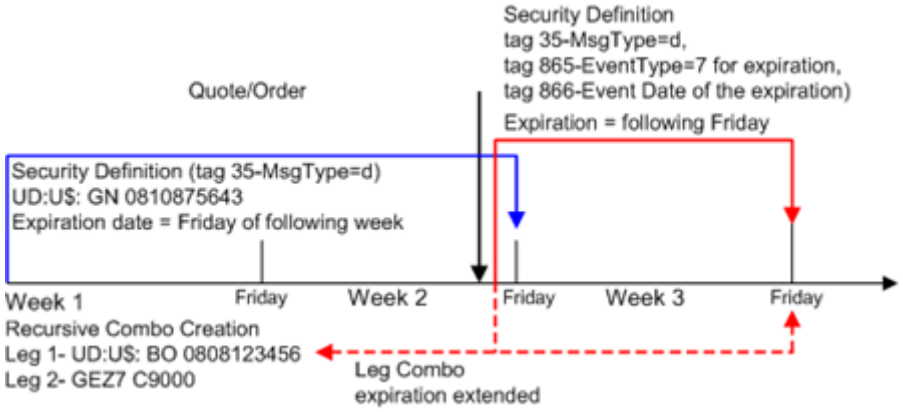


The GTC order automatically extends options spread expiration with a new Security Definition (tag 35-MsgType=d) message sent each Sunday until earliest leg expiration or cancellation.

4.17.2 Extension for Recursive Spreads

A recursive expiration extension follows these rules:

- The leg which has the earliest expiration controls the extension of the entire spread.
- If the leg expiration of the recursive spread is extended, all legs in the user defined recursive spread are extended.



Note: **A covered options spread expires at the end of the trading session in which it has been created.**

5. Futures

CME Group futures instrument is a standardized contract electronically traded on CME Globex. Futures trading on CME Globex is almost entirely supported by the implementation of CME Globex core functionality.

This section describes any exceptions to core functionality or special features the customer must be aware of when electronically trading futures on CME Globex.

5.1 CME Futures Spreads

A futures spread instrument represents the simultaneous sale and/or purchase of two or more individual (outright) futures instruments*. For example, a New Order (tag 35-MsgType=D) message to buy (tag 54-Side=1) a one-year Eurodollar futures pack having front month March 2010 (tag 107=SecurityDes=GE:PK 01Y H0) represents a Buy order placed simultaneously for GEH0, GEM0, GEU0, GE2 instruments.

At order acceptance, CME Globex sends a single Execution Report - Order Accepted (tag 35-MsgType=8, tag 39-OrdStatus=0) message for the futures spread order.

Upon trade execution, CME Globex sends an Execution Report - Fill Notice (tag 35-MsgType=d) message for each leg composing the spread instrument, in addition to an Execution Report - Fill Notice for the spread itself.

CME Globex also sends FIX/FAST Market Data Incremental Refresh (tag 35-MsgType=X) message for the spread and for each leg of the spread.

*Depending upon the strategy (spread) type.

5.2 Implied Spreads and Order Execution

For complete details regarding implied spreads on CME Globex, refer to Electronic Trading Concepts. This section describes the messaging features that support CME Globex implied trading functionality only.

An implied order is a ‘synthetic’ order CME Globex generates from existing orders in the market. CME Globex creates implied (IN) spread order from existing orders in the outright market and also creates outright orders (OUT) from the legs of existing spread orders.

Instruments eligible for implied trading are designated in the FIX/FAST Security Definition (tag 35-MsgType=d, tag 1144-ImpliedMarketIndicator=3) message.

6. Market Maker Protections

Market Maker Protections provide additional risk protection based on transaction match events for Market Makers using Mass Quote functionality for CME Group options. By default, these protections are not enabled.

Note: **Market Makers should initially contact CME Group Global Account Manager (GAM) for set up information on Market Maker Protections. To modify Market Maker Protections contact either GAM or the Globex Control Center (GCC).**

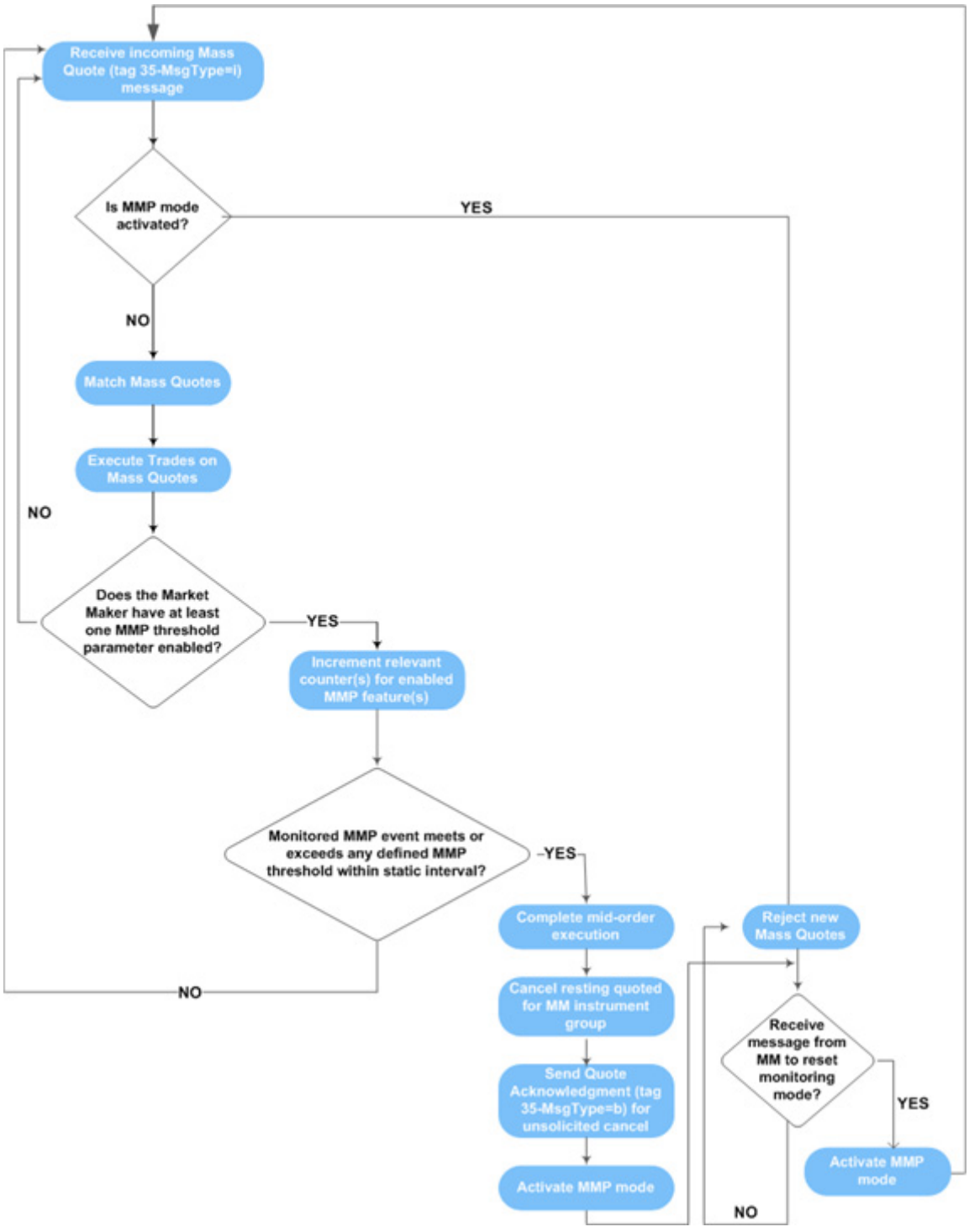
The protections apply to:

- Resting quotes that match with incoming quotes and orders.
- Incoming quotes that match against resting orders and quotes.

Note: **When a quote matches, each side of each quote in an arriving or resting quote is considered a separate match event. Market Maker Protection applies only to one- and two-sided quotes submitted through a Mass Quote (tag 35-MsgType=i) message. Orders submitted through a Single Order (tag 35-MsgType=D) message are not subject to limitations when Market Maker Protection mode is active.**

6.1 How Market Maker Protections Work

The following diagram illustrates how Market Maker Protections work.



6.1.1 Configuring Market Maker Protection Parameters

By default, none of the customer-defined protections are enabled for any of a Market Maker's permissioned Instrument Groups. Market Makers must communicate by telephone the threshold values for any combination of New Quote Fill, Trade Execution, and Traded Quantity Protection parameters for each Instrument Group they want to protect. Market Makers can communicate changes (changes to the status of the features as well as changes to the parameter values) at anytime; changes take effect immediately. When a Market Maker Protection feature is enabled, the CME Globex platform begins monitoring quotes for the Market Maker's configured Instrument Groups. These values are compared with the count of qualifying events that occurred within a static time interval.

6.1.2 Market Maker Protection Monitoring Mode

The CME Globex platform evaluates individual quotes (the corresponding element is the instrument associated with a quote) that make up a Mass Quote (the corresponding element is the Mass Quote messages associated with a quote id). Each Market Maker's Instrument Group has a separate counter that corresponds to a different protection parameter. For example, Market Maker 123 has a unique counter for its Instrument Group EZ New Quote Fill Protection parameter.

The CME Globex platform activates Market Maker Protection mode for New Quote Fill, Execution, and Traded Quantity protection using a consistent methodology based on the comparison of the enabled feature's threshold parameter against the corresponding event counter.

Note: **The counters never decrement. Therefore, a Mass Quote cancel message does not affect the value of an enabled Market Maker Protection counter.**

6.1.3 Time Interval Parameter

The CME Globex platform determines the time interval values in each of the protection features and maintains these values per Market Maker as well as per instrument group. There are two types of time intervals relevant to Market Maker Protections:

- **Static interval—**This time period is defined by the CME Globex platform and commences with the start-up of the trading day. Typically, with normal levels of market activity, this interval is in use.
- **Variable interval—**The variable time interval is also known as a "rolling" value. If there are no market events (i.e., no executions, no order entries, etc.), the CME Globex platform does not restart a new static interval until a market event takes place. If the elapsed time between the previous market event and most recent market event is greater than the static interval value, the CME Globex platform resets the protection counters of the enabled Market Maker Protections features to 0.

The variable interval is based on a heartbeat established by the CME Globex platform. The heartbeat starts randomly at trading day start-up.

6.1.4 Market Maker Protection Mode

In Market Maker Protection mode, the CME Globex platform cancels the resting quotes for all instruments associated with the Market Maker's Instrument Group. Therefore, if a Mass Quote message contains multiple quotes and one of the quotes activates Market Maker Protection mode, then the CME Globex platform cancels the remaining quotes in the message as well as all resting quotes for that Instrument Group. The CME Globex platform then sends Quote Acknowledgment messages with tag 9775-UnsolicitedCancelType=F (Market Maker Protection).

In this mode, the CME Globex platform also rejects any additional incoming Mass Quote messages from the Market Maker for the protected instrument group. The CME Globex platform is able to resume accepting Mass Quote messages only if the Market Maker sends a Mass Quote message containing instructions to revert to Market Maker Monitoring mode.

6.1.5 Resetting to Market Maker Protection Monitoring Mode

After the Market Maker has verified that the Market Maker's Mass Quotes for the protected Instrument Group are appropriate for the market and the Market Maker is ready to resume submitting Mass Quote messages, the Market Maker must instruct the CME Globex platform to revert to Market Maker Protection Monitoring mode. This Market Maker Protection Monitoring mode allows the CME Globex platform to be able to accept the Market Maker's Mass Quote messages.

To notify the CME Globex platform to revert to Market Maker Protection Monitoring mode:

Send a Mass Quote message with tag 9773-MMProtectionReset set to 'Y'.

- Tag 297-QuoteAckStatus=5
- Tag 300-QuoteRejectReason=98 (Market Maker Protection)

The CME Globex platform returns a quote acknowledgment. Tag 9773-MMProtectionReset is present in the quote acknowledgment only if the Market Maker Protection Monitoring mode has been successfully reset.

6.2 Types of Market Maker Protection

Market Maker Protection mitigates transaction match event risk by limiting the Market Maker's total execution exposure and rejecting additional Mass Quote messages when predefined protection values are met or exceeded within certain time intervals.

6.2.1 Quote Fill Protection

The Market Maker specifies a threshold for the number of new quote fills against instruments associated with an Instrument Group Code. As soon as the New Quote Fill threshold is breached, the CME Globex platform initiates protection of the Market Maker's quotes for all instruments associated with that Instrument Group Code.

This example shows which market events increment the New Quote Fill Protection counter when the New Quote Fill Protection parameter has been defined by the Market Maker. This example also shows when a market event activates Market Maker Protection. Assume the following:

- New Quote Fill Protection parameter = 12 (as set by the Market Maker)

Note: **In the example below, New Quote Fill Protection is abbreviated as NQFP.**

6.2.1.1 Example Quote Fill Protection

Quote Fill Protection

NQFP Interval for ES	Mass Quote ID	Fill Event #	Bid Fill Events in NQFP Interval	Offer Fill Events in NQFP Interval	New Quote Fill Count (Cum)	Quote Entry ID	Instrument	Bid Qty	Bid Price	Offer Price	Offer Qty
static interval		1	1	--	1	00001	ES Z6 C1115	100	50	51	100
		2	--	1	2						
		3	1	--	2						
	1234	4	--	1	3	00002	ES Z6 C1130	100	34	36	100
		5	1	--	4						
		6	1	--	4						
		7	1	--	5	00003	ES Z6 C1150	100	14	16	100
		8	1	--	5						
	1235	9	1	--	6	00004	ES Z6 C1115	250	38	40	250
		10	--	1	7						
		11	--	1	7						
		12	1	--	8	00005	ES F7 C1150	250	16	18	250
		13	--	1	9						
		14	--	1	10	00006	ES Z6 C1150	200	14	16	50
		15	1	--	11						
		16	1	--	11						
		17	--	1	11						
	1236	18	1	--	12	00007	ESF7 C1130	250	19	21	250

The table above describes which fill events increment the counter for the corresponding Instrument Group (ES). Only the first fill of each side (see fill events 1, 2, 4, 5, 7, 9, 10, 12, 13, 14, 15, 18) of an instrument's resting quote increments the counter. Therefore, the first bid fill and first offer fill (events 1 and 2) against quote entry 00001 ES Z6 C1115 increment the counter, but the subsequent bid fill (fill event 3) against this instrument does not increment the counter. Because the CME Globex platform interprets the Mass Quotes of instruments currently on the books as new quotes, the initial fills for the instruments in the Mass Quote message 1235 (fill events 9, 10, 12, 13, 14, 15) also increment the counter. As of fill event 15, the counter value is at 11 for the current interval, which is below the threshold of 12 set for this parameter.

With event 18, the NQFP counter reaches the threshold. At this point, the CME Globex platform auto-cancels all resting quotes associated with the ES Instrument Group on behalf of the Market Maker.

6.2.2 Execution Protection

The Market Maker specifies a threshold for the number of executions on an Instrument Group Code level. As soon as the Execution Protections threshold is met or exceeded, the CME Globex platform initiates protection of the Market Maker's quotes for instruments associated with the Instrument Group Code. The CME Globex platform allows this protection to be exceeded in instances when a single outbound quote matches with several resting quotes or orders. The CME Globex platform does not stop the match process during a single match event.

Note: **For details regarding scenarios in which the CME Globex platform allows the protection parameter to be exceeded, See "Mid-Order Execution Protection" on Page 74.**

When a threshold is reached (or exceeded in certain scenarios), CME Globex initiates the Market Maker Protection mode, which rejects the Mass Quote messages against all instruments associated with the particular Instrument Group Code and cancels resting quotes, as well as remaining quotes, in the same Mass Quote message that contains the quote that activated Market Maker Protection mode.

The workflow above illustrates how the CME Globex platform implements Market Maker Protection. Notice that the flow of action varies depending on whether the Market Maker has enabled Market Maker Protection monitoring mode and whether Market Maker Protection mode has been activated by a current or previous market event.

6.2.3 Traded Quantity Protection

The Market Maker specifies a threshold for the number of traded quantities of contracts. As soon as the Traded Quantity Protection threshold is reached or exceeded, the CME Globex platform initiates protection of the Market Maker's quotes for instruments associated with the Instrument Group Code. The CME Globex platform allows this protection to be exceeded in instances when a single outbound quote matches with several resting quotes or orders. The CME Globex platform does not stop the match process during a single match event.

The CME Globex platform auto-cancels the Market Maker's quotes for instruments associated with a specific Instrument Group Code when the number of total quantity executions (in absolute value terms) occurs for the Instrument Group in the CME Globex platform's Traded Quantity Protection Interval.

6.2.3.1 Example Traded Quantity Protection

This example shows which market events increment the Traded Quantity Protection counter when the Traded Quantity Protection parameter has been defined by the Market Maker. This example also shows when a market event activates Market Maker Protection. Assume the following:

- Traded Quantity Protection parameter = 200 (as set by the Market Maker).

Note: **In the following example, Traded Quantity Protection is abbreviated as TQP.**

Traded Quantity Protection (TQP)

TQP Interval for ES	Mass Quote ID	Fill Event #	Bid Traded Quantity in TQP Interval	Offer Traded Quantity in TQP Interval	TQP Count (Cum)	Quote Entry ID	Instrument	Bid Qty	Bid Price	Offer Price	Offer Qty
static interval	1234	1	20	--	20	00001	ES Z6 C1115	100	50	51	100
		2	--	20	40						
		3	30	--	70						
		4	--	20	90	00002	ES Z6 C1130	100	34	36	100
		5	10	--	100						
		6	10	--	110						
		7	10	--	120	00003	ES Z6 C1150	100	14	16	100
		8	10	--	130						
	1235	9	10	--	140	00004	ES Z6 C1115	250	38	40	250
		10	--	10	150						
		11	--	10	160						
		12	10	--	170	00005	ES F7 C1150	250	16	18	250
		13	--	10	180						
		14	--	10	190	00006	ES Z6 C1150	200	14	16	50
		15	30	--	220						

The example above describes which fill events increment the counter for the corresponding Instrument Group (ES). For this feature, contract quantities for all executions, regardless of size, side, or chronology, increment the counter for the Instrument Group.

With event 15, the counter exceeds the Traded Quantity Protection parameter of 200 in the Traded Quantity Protection Interval for ES. The CME Globex platform executes the trade for the entire quantity of 30. The CME Globex platform cancels the remaining quotes in the Mass quote message that contained the individual quote that activated Market Maker Protections mode and auto-cancels all resting quotes associated with the ES Instrument Group on behalf of the Market Maker. The CME Globex platform rejects any new incoming Mass Quotes for this Instrument Group until the Market Maker has sent a message instructing the CME Globex platform to set the feature to Market Maker Protection Monitoring mode.

6.2.3.2 Mid-Order Execution Protection

Individual Mass Quotes that exceed the Execution Protection or Traded Quantity Protection thresholds during the execution of a single match event is fully executed. Market Maker Protections mode is not activated until the order that activates Market Maker Protections is completed.

Examples of mid-order execution scenarios that activate Market Maker Protections mode include:

- **Execution Protection**. Market Maker Protection is triggered by a Mass Quote message executing multiple resting orders already in the book. In this case, there are several different traders already in the book at a price and cumulative quantity that is executed by the incoming Mass Quote message. Although the Execution Protection is exceeded during the execution of the Mass Quote message, all orders that are currently on the book (that match with that specific instrument) are completely executed.
- **Trade Quantity Protection**. Market Maker Protections is triggered by a Mass Quote message executing an order of size larger than the protection is set to. The order is completed regardless of the value of Trade Quantity Protection parameter.

Market Makers must communicate by telephone the threshold values for all new protection parameters for each Instrument Group.

6.2.4 Example of Quote Fill / Execution / Traded Quantity Protections

The following table shows the threshold values set by the Market Maker for each type of protection for Instrument Group ES.

Market Maker 1 Protections Values for Instrument Group ES

New Quote Fill Protection	Execution Protection	Traded Quantity Protection
5	10	100

The following table shows the effect of the three Market Maker's Protections on an instrument group.

Market Events on Market Maker 1's Mass Quote Messages for Instrument Group ES

Incoming Quote						Market Maker's Protection Counts		
Quote No.	Instrument	Match Qty	Bid	Offer	Executed	New Quote Fill Protection	Execution Protection	Traded Quantity Protection
Static Interval #1 begins						CME Globex platform resets all counters		
1	ES Z6 C1115	25		50	25	1	1	25
1	ES Z6 C1115	25		50	25	1	2	50
2	ES Z6 C1130	10		34	10	2	3	60
Static Interval #2 begins						CME Globex platform resets all counters		
3	ES Z6 C1115	50	51		50	1	1	50
4	ES F7 C1130	10		38	10	2	2	60

Market Events on Market Maker 1's Mass Quote Messages for Instrument Group ES

Incoming Quote						Market Maker's Protection Counts		
Quote No.	Instrument	Match Qty	Bid	Offer	Executed	New Quote Fill Protection	Execution Protection	Traded Quantity Protection
5	ES Z6 C1150	15	16		15	3	3	75
6	ES F7 C1130	25	40		40	4	4	115

This example shows how defined Market Maker Protection parameters are used to monitor market events and determine the need for activating Market Maker Protection.

The table above shows the events that took place related to the Mass Quote messages sent by Market Maker 1. This trading session for a Market Maker (named "Market Maker 1") consists of two static time intervals.

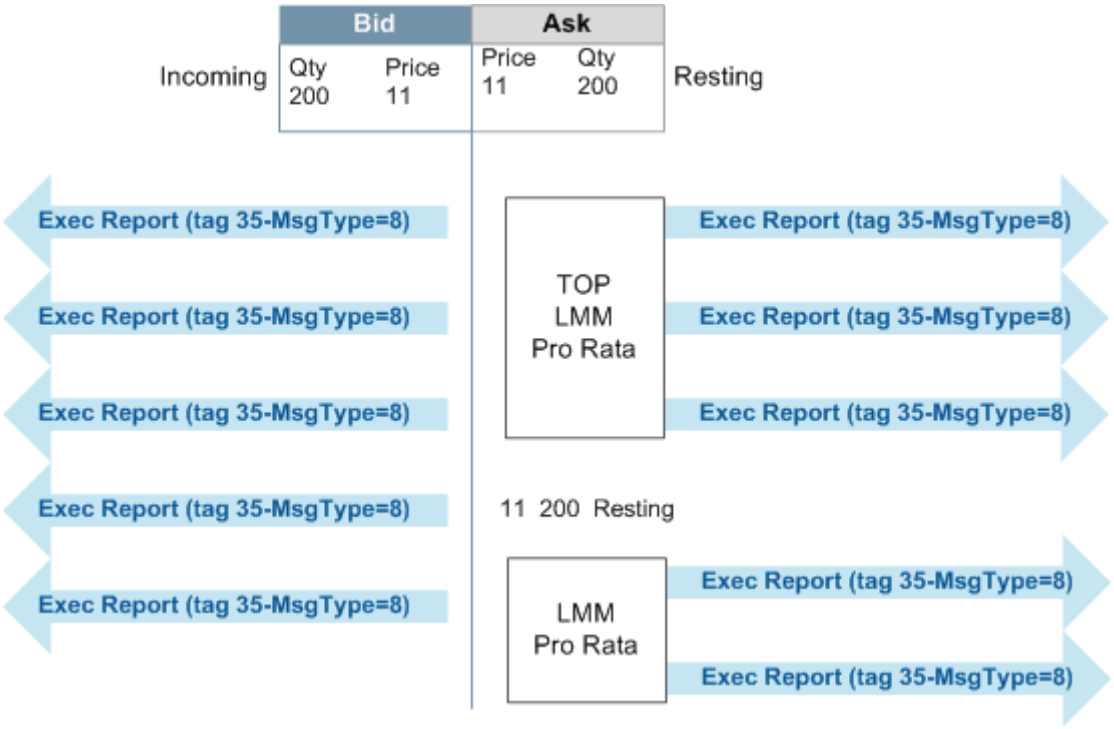
During the first interval, no protection parameter values are met or crossed; therefore, the CME Globex platform does not activate Market Maker Protection mode. During the second interval, the Traded Quantity Protection counter value 115 exceeds Market Maker 1's threshold of 100. After the CME Globex platform executes order #6, it cancels all of Market Maker 1's resting Mass Quotes from previous Mass Quote messages, as well as those validated and placed on the books in the current Mass Quote message that contains the quote that activated Market Maker Protections mode. Additionally, the CME Globex platform rejects new quotes for Market Maker 1's ES group.

Note: **Although order #6 increments the Traded Quantity Protection counter 15 units above the Traded Quantity Protection parameter threshold, the order is executed completely as required by mid-order executions.**

6.2.5 Static Time Interval Protection

The CME Globex platform auto-cancels Market Maker quotes for a specific Instrument Group when the number of quote executions for that Instrument Group meets or exceeds the threshold value within the CME Globex platform's static time interval. Since resting option orders can be eligible for multiple allocations (Top, LMM, Pro Rata), multiple executions may occur for a single match event and thereby trigger the Execution Protection.

The following diagram illustrates how a single match event can generate multiple Execution Reports due to Market Maker allocation rules. This condition applies to both resting and incoming orders.



- **Resting orders** can receive a maximum of 3 Execution Report (tag 35-MsgType=8) messages per match event.
- **Incoming orders** can receive greater than 3 Execution Report (tag 35-MsgType=8) messages per match event.
- **If the Execution parameter is met or exceeded**, the client system will also receive the following Execution Report message canceling all resting quotes.
  - Execution Report: Positive Acknowledgment (tag 35-MsgType=8) will All Quotes Rejected.
  - Tag 9775-UnsolicitedCancelType=F.
  - Tag 297-QuoteAckStatus=3 (cancel per Instrument Group).

6.2.6 Delta Protection

The CME Globex platform triggers Delta Protection for both premium and volatility quoted markets when the absolute value of the Delta Protection parameter is greater than or equal to the value defined by the mass quoter.

Delta Protection compares a Delta Counter Value (W) with a Delta Static Value. If the absolute value of W increments or decrements to a value great than or equal to the Delta Static Value within Time Interval (N), then The Market Maker Protection is triggered.

- **Delta Static Value** is a minimum/maximum delta protection value defined the the mass quoter per instrument group. One value is assumed to be positive and negative, i.e. 300 means +300 delta and -300 deltas.
- **Delta Counter Value** (W) increments and decrements deltas per instrument group per mass quoter.
  - Buying calls and selling puts increments W by each contract's delta value.

- Selling calls and buying puts decrements W by each contract's delta value.

- **Time Interval** (N) where N time interval is defined as 15 seconds. N resets W to zero every15 seconds unless the Market Maker Protection is triggered.

6.2.7 Buy/Sell Protection

The CME Globex platform triggers Buy/Sell Protection when the absolute value of the Buy/Sell Protection parameter is greater than or equal to the value defined by the mass quoter.

The Buy/Sell Protection parameter counts the number of contracts traded in an instrument group within an exchange-defined time frame. Buys and sells are determined at the outright leg level for exchange-defined spreads and UDS covereds/combos. Buy trades increase the buy/sell count by one and Sell trades decrease the buy/sell count by one.

The Buy/Sell Protection count is reset every time a new time interval starts.

6.2.8 Product Line Protection

The Product Line Protection parameter aggregates individual Market Maker Protection counts per product line. A product line is exchange defined and consists of outrights, spreads, midcurves and UDS. The CME Globex platform triggers Product Line Protection when the Market Maker Protection count for all instrument groups within a product line is greater than or equal to the mass quoter-defined protection level.

6.2.8.1 Example Product Line Protection

A mass quoter sets all Market Maker Protection values per instrument. The mass quoter also sets a Product Line Protection value per Market Maker Protection.

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MMP Parameter	Instrument Groups						Product Line
	ZE	E$	E0	E2	E5	U$	Eurodollar (ZE, E$, E0, E2, E5, U$)
New Fill	10	10	10	10	10	10	40
Execution	30	30	30	30	30	30	100
Quantity	100	100	100	100	100	100	400
Delta	500	500	500	500	500	500	2000
Buy/Sell	200	200	200	200	200	200	500

Buy/Sell Protection - a protection counter increments when contracts are bought and decrements when contracts are sold.

A mass quoter receives the following fills:

- Buy 15 ZE contracts, the buy/sell protection counter for ZE is now +150 and the Eurodollar product line counter is now +150.

- Buy 150 E$ contracts, the buy/sell protection counter for E$ is now +150 and the Eurodollar product line is now +300.

- Sell 50 E0 contracts, the buy/sell protection counter for E0 is now -50 and the Eurodollar product line counter is now +250.
- Buy 150 E2 contracts, the buy/sell protection counter for E2 is now +150 and the Eurodollar product line counter is now +400.
- Buy 150 E0 contracts, the buy/sell protection counter for E0 is now +100 and the Eurodollar product line counter is now +550.

Since the Eurodollar product line protection counter is greater than or equal to the mass quoter defined Eurodollar product line protection level, all quotes for all instruments in the Eurodollar product line will be cancelled.

6.2.9 Combined Group Product Line Protection

The Combined Group Product Line Protection parameter extends supported Market Maker protections for all instrument groups within a product line when a single Market Maker Protection is triggered for a given instrument group within the product line.

If a currently supported Market Maker Protection is triggered for a product line, all new mass quotes for the instrument groups within the product line are rejected.

When the Market Maker Protection reset flag (tag 9773 in the Mass Quote message tag 35-MsgType=i) is set to ‘Y’ (reset) for an instrument group, the reset flag for all instrument groups within the product line are also set to ‘Y’.

7. Mass Quotes for Market Makers

Authorized CME Globex platform Market Makers use Mass Quoting to submit bid/ask pairs and generate two-sided markets for multiple instruments for CME Group options. Mass Quoting functionality allows Market Makers to create and maintain a market on a large number of contracts more efficiently by enabling Market Makers to:

- Create and update their position on up to 100 contracts utilizing a single message.
- Cancel all active quotes across all contracts, cancel all active quotes within one Instrument Group, or cancel a list of specific quotes by submitting a single message.
- Utilize Market Maker protection to eliminate positions upon logout, disconnect, or trading activity exceeding predefined parameters.

The following iLink 2.X messages support Mass Quoting:

- The Mass Quote (tag 35-MsgType=i) message contains a set of quotes for a given *Instrument Group Code*. This message is used to enter new quotes, modify quotes, and cancel quotes.
- The Quote Cancel (tag 35-MsgType=Z) message is used to cancel all quotes or a partial set of quotes submitted during a specific session.
- The Quote Acknowledgment (tag 35-MsgType=b) message is used to positively and negatively acknowledge Mass Quote and Quote Cancel messages.
- An Execution Report (tag 35-MsgType=8) message notifies Market Makers of fills and trade cancellations resulting from quotes.

Quotes from Mass Quote messages are disseminated as top of book only.

7.1 iLink 2.X Summary

To utilize Mass Quote functionality, Market Maker systems must be able to submit outbound Mass Quote (tag 35-MsgType=i) messages and Quote Cancel (tag 35-MsgType=Z) messages to the CME Globex platform and receive inbound Quote Acknowledgment (tag 35-MsgType=b) messages. Additionally, the Execution Report (tag 35-MsgType=8) – Fill Notice and Trade Cancellation messages from the CME Globex platform include the Quote Entry ID in tag 11-ClOrdID to notify Market Makers when a fill results from a quote.

The following table provides a summary of these CME iLink 2.X message features:

CME iLink 2.X Message Features

FIX Function/Component	Functionality
Mass Quote (tag 35-MsgType = i) message	Allows Market Makers to submit two-sided quotes for one or more instruments.
Quote Cancel (tag 35-MsgType=Z) message	Allows Market Makers to: • Cancel all active quotes • Cancel all active quotes for an Instrument Group Code • Cancel individual quotes

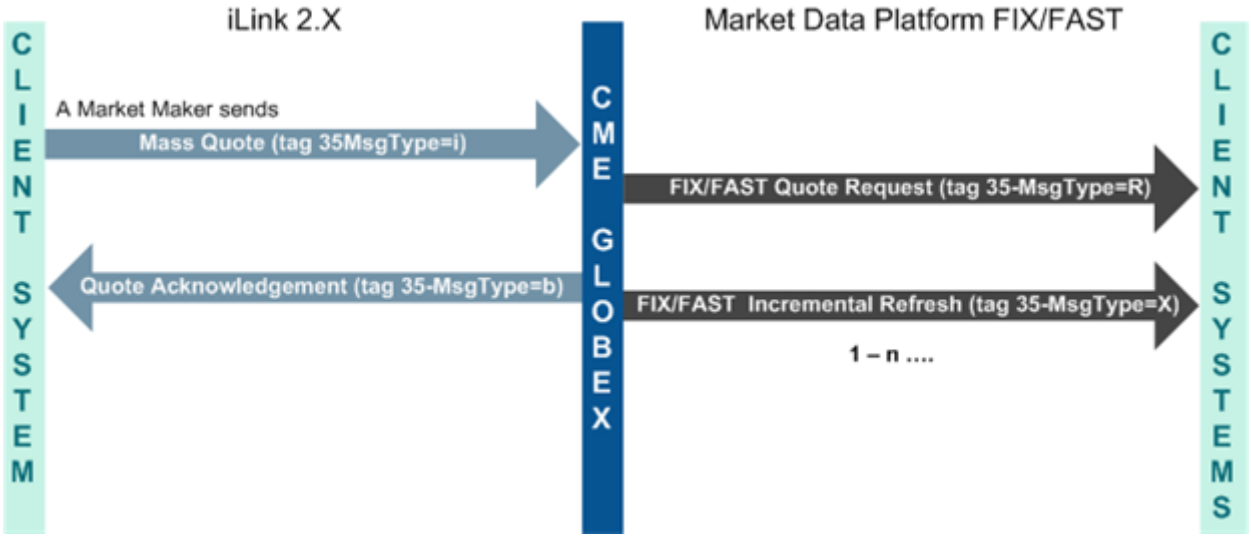
CME iLink 2.X Message Features

FIX Function/Component	Functionality
Quote Acknowledgment (tag 35-MsgType=b) message	Sent in response to: • Mass Quote • Quote Cancel • Quote Request
Execution Report (tag 35-MsgType=8) message	Confirms receipt of a quote, confirms changes to an existing quote, relays quote status information, relays fill information, quote rejection. Enhanced to include QuoteEntryID in tag 11-ClOrdID to indicate: • Fill notice resulting from a quote • Trade Cancellation

7.2 Processing Overview

This section is structured according to the sequence of Mass Quote message processing between CME Group designated Market Maker systems and the CME Globex platform.

The processing sequence begins with submission of an outbound Mass Quote (tag 35-MsgType=i) message from a Market Maker system to the CME Globex platform. The sequence is completed when the Market Maker system receives a Quote Acknowledgment (tag 35-MsgType=b) message from the CME Globex platform. After the initial Mass Quote is acknowledged by the CME Globex platform, the Market Maker system can modify the Mass Quote or cancel the Mass Quote.



7.2.1 Processing Rules

Only designated Market Makers are permissioned by their iLink 2.X session ID to submit Mass Quote messages for designated products at the Instrument Group level (i.e., E-mini S&P outright options). Market Makers cannot submit quotes for futures via this options path. Mass Quote messages from other market participants are rejected.

Mass Quote messages are accepted only during the *Continuous Trading* market state. All resting quotes are cancelled during post-session processing.

7.2.1.1 Quote Parameters

1. A Mass Quote message can contain up to 100 quotes on multiple instruments.
2. A Mass Quote message can only contain quotes for instruments belonging to the same Instrument Group Code. The instrument group of the Mass Quote message is determined by the first quote of the message. The CME Globex platform rejects all quotes belonging to a different instrument group than that defined in the initial quote in the message.
3. CME Globex platform rejects Mass Quote messages if the first quote has an invalid tag 107-SecurityDesc.
4. If a Market Maker submits a Mass Quote with several quotes on the same contract, only the first quote is accepted; all other quotes are rejected.
5. A Market Maker can only have one active resting quote per instrument (no laddering supported).
6. Quotes are treated as atomic operations. If one side of a quote is invalid, the full quote is rejected.
7. Quotes can be submitted with either one or both sides (buy/sell). Each side can have a different price or size.
8. Successfully accepted quotes act as limit session orders.

7.2.1.2 Quote Modification

1. The Market Maker can modify their resting quotes by sending in another Mass Quote message with the same tag 107-SecurityDesc and tag 299-QuoteEntryID.
2. Unique Quote IDs
   - Tag 299-QuoteEntryID must be unique per session per day. This unique identifier is the responsibility of the customer and is not validated.
   - Tag 117-QuoteID must be unique per session per day.
   - Tag 302-QuoteSetID must be unique per message.
3. CME Globex platform rejects incoming quotes if there is a resting quote from the same Market Maker with a different tag 299-QuoteEntryID.
4. Incoming quotes replace resting quotes from the same Market Maker provided they have the same tag 299-QuoteEntryID.
5. A modification of a quote entails changing either or both of the values associated with the price and quantity of one or more sides of a quote.
6. If you modify price and quantity of a quote by setting both to ‘0’, the quote is cancelled.
7. Market Makers may perform the following types of modifications:
   - Modify both sides of an existing quote.
   - Modify one side of an existing quote and leave the opposite side unchanged.
   - Cancel one side of a resting quote and leave the opposite side unchanged.
   - Cancel one side of a resting quote and modify the opposite side.
   - Cancel both sides of a resting quote.

8. Modify only one side (bid or sell) of a resting quote by using the appropriate bid or offer quantity and price tags in a new Mass Quote Entry message.

The following scenario illustrates how original quote entries and subsequent modifications are maintained in the customer's order book.

A Market Maker submits a quote message with three quote entries. See the quote message details below:

Original Quote Entries Submitted Within Quote Message 0001

Quote ID	Quote Set ID	Quote Entry ID	Instrument	Tag 132-BidPx	Tag 134-BidSize	Tag 133-OfferPx	Tag 135-Offer-Size	Status of Quote Entry
111	1	00001	ES Z6 C1115	50	100	51	100	Original quote entry
		00002	ES Z6 C1130	34	100	36	100	Original quote entry
		00003	ES Z6 C1150	14	100	16	100	Original quote entry

Later, the Market Maker submits another quote message containing modifications. See the quote modification details below:

Quote Modifications Submitted Within Quote Message 0002

Quote ID	Quote Set ID	Quote Entry ID	Instrument	Tag 132-BidPx	Tag 134-BidSize	Tag 133-OfferPx	Tag 135-Offer-Size	Status of Quote Entry
112	1	00001	ES Z6 C1115	50	250			Modification of bid side quantity for quote entry 00001 (submitted in quote message 0001/ quote set 1111); original offer side is not affected.
		00002	ES Z6 C1130	34	100	0	0	Cancellation of offer side of quote 00002 (submitted in quote message 0001/ quote set 1111).
		00003	ES Z6 C1150	30	100	16	175	Modification of bid side price and offer side quantity for quote entry 00003 (submitted in quote message 0001/ set ID 1111).

Following the validation of quote modifications submitted in quote message 0002, the values in the customer's book for the instruments are:

Customer's Order Book Quantity and Price Values

Quote Entry ID	Instrument	Bid Price	Bid Qty	Offer Price	Offer Qty
00001	ES Z6 C1115	50	250	51	100
00002	ES Z6 C1130	34	100	0	0
00003	ES Z6 C1150	30	100	16	175

Note: **For description of Quantity and Price field validation scenarios, see Table on Page 90.**

7.2.2 Client to CME Globex Message Structure

The Mass Quote message allows authorized Market Makers to generate two-sided markets on assigned options instruments. A single Mass Quote message can include up to 100 two-sided quotes for single or multiple instruments within the same Instrument Group Code. For the complete header specification, please see the iLink 2.X Message Specification.

7.2.2.1 Mass Quote (tag 35-MsgType=i) Message

The Mass Quote message contains two levels of repeating groups. The first group, a *Quote Set*, contains information for a set of underlying contracts (e.g. ESU6). The second group is nested within the Quote Set and contains the individual quote entries. Individual quote entries are identified by tag 299-QuoteEntryID.

CME iLink 2.X Message Features

FIX Function/Component	Quote Set	Quote Entry
Mass Quotes	Quote Set "ESU6"	Quote Entry "ESU6 C1200"
		Quote Entry "ESU6 P1100"
	Quote Set "ESZ6"	Quote Entry "ESZ6 P1100"
	Quote Set "ESM6"	Quote Entry "ESM6 C1300"

Within the Mass Quote message, there are three identifiers that Market Maker systems must ensure have unique values that contain no space characters:

- QuoteID
- QuoteSetID
- QuoteEntryID

The Mass Quote message contains the following custom FIX tags:

Mass Quote Message Custom FIX Tags

Tag	FIX Name	Description
9771	MMAccount	Market Maker account ID
9773	MMProtectionReset	See “Market Maker Protections” on Page 67.

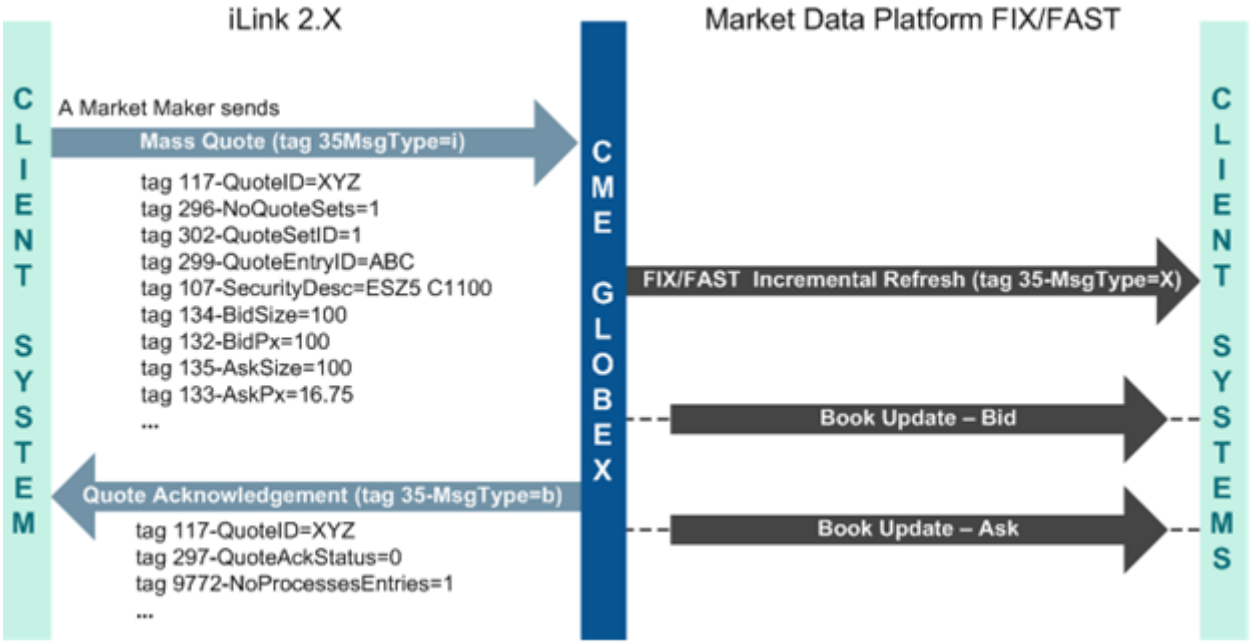
7.2.2.2 Message Parameters

A Mass Quote message is rejected if it exceeds either of the following parameters:

- Maximum of 100 quote entries
- Maximum of 20 quote sets

7.2.2.3 Mass Quote Submission Example

The diagram below illustrates a sample message content passed between the Market Maker and CME Globex during a Mass Quote message submission.



7.2.3 CME Globex to Client Message Structure

Mass Quote (tag 35-MsgType=i) messages are acknowledged with a Quote Acknowledgment (tag 35-MsgType=b) message from the CME Globex notifying the Market Maker of accepted and rejected quotes. In some cases, the response to a Mass Quote message is a business-level reject message (See “Other Responses to Mass Quote Message” on Page 92.). For the complete header specification, please see the iLink 2.X Message Specifications.

7.2.3.1 Quote Acknowledgment (tag 35-MsgType=b) Message

The Quote Acknowledgment message provides users with positive or negative acknowledgment of the processing status for each Mass Quote message. The Quote Acknowledgment message contains the number of successfully processed quotes and a list of rejected quotes identified by tag 299-QuoteEntryID.

Note: **Accepted quotes are not listed in the acknowledgment.**

To accommodate multiple quotes for an Instrument Group Code, the Quote Acknowledgment message can contain two additional levels of repeating information for a total of three tiers within the message (as shown in the Mass Quote message section of the iLInk Message Specification.

If the Mass Quote message is completely accepted or completely rejected, the corresponding Quote Acknowledgment message has only one tier (“thin ack”).

If, however, some quotes within the Mass Quote message are accepted and others rejected or all individual quotes are rejected, the corresponding Quote Acknowledgment utilizes 3 tiers to transmit the quote rejection information (“fat ack”).

The Quote Acknowledgment message therefore has three possible formats when received in response to a Mass Quote message:

- Positive acknowledgment with all quotes accepted – 1 tier/thin ack
- Positive acknowledgment with some or all quotes rejected – 3 tiers/fat ack
- Negative acknowledgment with all quotes rejected – 1 tier/thin ack

The following Custom FIX tag is implemented in the Quote Acknowledgment message to support Mass Quotes:

Custom FIX Tag in Quote Acknowledgment Message to Support Mass Quotes

Tag	FIX Name	Comments
9772	NoProcessedEntries	Response to Mass Quote message: number of quotes accepted.

7.2.3.2 Quote Rejection Levels

A quote may be rejected at the following levels:

- Session Level Reject (tag 35-MsgType=3)
- Business Level Reject (tag 35-MsgType=j)
- Message Level Reject (tag 35-MsgType=b) Quote Acknowledgment
- Quote Level Reject (tag 35-msgType=b) Quote Acknowledgment

7.2.3.3 Quote Acknowledgment Types

These specification formats are presented according to the three possible Quote Acknowledgment types described above.

1. Positive acknowledgment with all quotes accepted (Thin Ack)

Positive Acknowledgement - All Quotes Accepted (Thin Ack)

Tag	FIX Name	Req	Type	Description
131	QuoteReqID	N	String (23)	Same as tag 131-QuoteReqID from the corresponding Mass Quote message.
297	QuoteAck-Status	Y	Int (2)	'0' (accepted)
117	QuoteID	Y*	String (10)	Tag 117-QuoteID of the corresponding Mass Quote message.
9771	MMAccount	Y*	String (12)	Tag 9771-MMAccount of the corresponding Mass Quote message.
9772	NoProcessedEntries	Y*	Int (5)	Number of quotes that have been accepted from the corresponding Mass Quote message.
9773	MMProtectionReset	N	Char (1)	This tag is sent and set to 'Y' on the first quote acknowledgment sent after the Market Maker protection has been reset by CME Globex platform.

Y = FIX required Y* = CME Group required N = Not required

2. Positive acknowledgment with some or all quotes rejected (Fat Ack)

Repeating groups are designated within the message by the (➔) symbol. Nested repeating groups are designated by (➔➔).

Positive Acknowledgment - All Quotes Rejected (Fat Ack)

Tag	FIX Name	Req	Type	Description
131	QuoteReqID	N	String (23)	Same as tag 131-QuoteReqID from the corresponding Mass Quote message.
297	QuoteAckStatus	Y	Int (2)	0: Accepted 5: Rejected for containing more than 100 rejected quotes
117	QuoteID	Y*	String (10)	Tag 117-QuoteID of the corresponding Mass Quote message.
300	QuoteRejectReason	N	Int (2)	Contains reason (error code) the corresponding Mass Quote message has been rejected (see section 3a below). When this tag is returned, all quotes in the corresponding Mass Quote message are rejected.
9771	MMAccount	Y*	String (12)	Tag 9771-MMAccount of the corresponding Mass Quote message.
9772	NoProcessedEntries	Y*	Int (5)	Number of quotes that have been accepted from the corresponding Mass Quote message.
9773	MMProtectionReset	N	Char (1)	This tag is sent and set to 'Y' on the first quote acknowledgment sent after the Market Maker protection has been reset by CME Globex platform.
58	Text	N	String (150)	Contains reason (error text) the corresponding Mass Quote message has been rejected.
296	NoQuoteSets	Y*	Int (3)	Number of sets containing rejected quotes (>0).
➔302	QuoteSetID	Y*	String (3)	Tag 302-QuoteSetID containing invalid quotes in the corresponding Mass Quote message.
➔304	TotQuoteEntries	Y*	Int (3)	Always identical to tag 295-NoQuoteEntries.

Positive Acknowledgment - All Quotes Rejected (Fat Ack)

Tag	FIX Name	Req	Type	Description
➔295	NoQuoteEntries	Y*	Int (3)	The number of invalid quotes for this underlying contract (QuoteSet).
➔➔299	QuoteEntryID	Y*	String (10)	Uniquely identifies a quote (and option contract). **Note:** CME recommends that client applications supporting options instruments limit the length of this string to 8 characters to avoid observing discrepancies in outbound messages.
➔➔55	Symbol	N	String (6)	Instrument Group of the contract.
➔➔107	SecurityDesc	N	String (20)	Contract description i.e. **GE0H5 C980**
➔➔167	SecurityType	N	String (3)	'OPT' or 'FUT'
➔➔48	SecurityID	Y*	Int (12)	Identifier of the instrument defined in tag 107.
➔➔22	SecurityIDSource	N	Char (1)	Identifies class or source of the tag 48-SecurityID value. 8=Exchange symbol.
➔➔368	QuoteEntryRejectReason	Y*	Int (2)	This tag contains the reason (error code) why the quote has been rejected (see section 2a below).

Y = FIX required Y* = CME Group required N = Not required

2a) Tag 368–Quote Level Reject (tag 35-MsgType=b)

If a positive acknowledgment contains quotes rejected at the quote level (e.g. due to price banding - error code = 8, invalid price), the Mass Quote Acknowledgment (tag 35-MsgType=b) message contains 3 tiers of quote-level information. The reject reason is contained in tag 368-QuoteRejectReason in the 3rd tier. Tag 9772-NoProcessedEntries in the 1st tier contains the number of accepted quotes. Codes are listed in the table below.

Note: **Quote level rejections do not contain error text.**

Reject Codes

Rejection Codes for tag 368-QuoteEntryRejectReason	Description
1	Unknown Symbol (Security)

Reject Codes

Rejection Codes for tag 368-QuoteEntryRejectReason	Description
2	Exchange (Security) closed
3	Quote exceeds limit
5	Unknown quote
6	Duplicate quote
7	Invalid bid/ask spread
8	Invalid price
9	Not authorized to quote security
51*	Unknown symbol (Security) and cancel resting quote
52*	Exchange (Security) closed and cancel resting quote
53*	Quote exceeds limit and cancel resting quote
54*	Too late to enter and cancel resting quote
55*	Unknown quote and cancel resting quote
56*	Duplicate quote and cancel resting quote
57*	Invalid bid/ask spread and cancel resting quote
58*	Invalid price and cancel resting quote
59*	Not authorized to quote security and cancel resting quote
98*	Market Maker Protection
99*	Other
2137	Order price is outside daily limit
2179*	Order price is outside bands

*CME Group-defined

The following table contains the most common price and validation scenarios in which the CME Globex platform rejects quotes at the quote level:

Common Scenarios in which CME Globex Platform Rejects Quotes at Quote Level

Reject Scenario	tag 368-QuoteEntryRejectReason
Incoming quote received with the same tag 107-SecurityDesc as a resting quote from the same Market Maker but with a different tag 299-QuoteEntryID.	5

Common Scenarios in which CME Globex Platform Rejects Quotes at Quote Level

Reject Scenario	tag 368-QuoteEntryRejectReason
An incoming quote has an invalid tag 107-SecurityDesc.	1
An incoming quote has invalid quantity information.	3 OR 53* (if resting quote)
An incoming quote has invalid price information.	8 OR 58* (if resting quote)
A Mass Quote message contains quotes with a different Instrument Group Code than the first valid quote in the message.	1
An incoming quote has crossed prices.	7 OR 57* (if resting quote)

*CME Group -defined

3. Negative acknowledgment with all quotes rejected (Thin Ack)

The client will receive this type of acknowledgment when all quotes are rejected.

Negative Acknowledgment - All Quotes Rejected (Thin Ack)

Tag	FIX Name	Req	Type	Description
131	QuoteReqID	N	String (23)	Same as tag 131-QuoteReqID from the corresponding Mass Quote message.
297	QuoteAckStatus	Y	Int (2)	’5’ (Rejected)
117	QuoteID	Y*	String (10)	Tag 117 – QuoteID of the corresponding Mass Quote message.
300	QuoteRejectReason	Y*	Int (2)	This tag contains the reason (error code) why the corresponding Mass Quote message has been rejected (see section 3a below). When this tag is returned, all quotes in the corresponding Mass Quote message are rejected.
9771	MMAccount	Y*	String (12)	Tag 9771-MMAccount of the corresponding Mass Quote message.
9772	NoProcessedEntries	Y*	Int (5)	‘0’ (All quotes rejected)
58	Text	Y*	String (150)	This tag contains the reason (error text) why the corresponding Mass Quote message has been rejected.

Y = FIX required Y* = CME Group required N = Not required

3a) Tag 300 - Message Level Reject (tag 35-MsgType=b)

If the entire Mass Quote message is rejected (e.g. missing account number, market closed), then the Mass Quote Acknowledgment message only contains Tier 1 level information and does not list the rejected quotes individually. The reject reason is contained in tag 300-QuoteRejectReason.

Reject Codes

Rejection Codes - tag 300	Text - tag 58
1	Unknown symbol (Security)
2	Exchange (Security) closed
3	Quote Request exceeds limit
5	Unknown quote
6	Duplicate quote
7	Invalid bid/ask spread
8	Invalid price
9	Not authorized to quote security
20*	Too many rejects and cancel instrument group
98*	Market Maker Protection
99*	Missing account number; Other

*CME Group-defined

The following table contains the most common scenarios when the CME Globex platform rejects quotes at the message level:

Common Scenarios in which CME Globex Platform Rejects Quotes at Message Level

Reject Scenario	tag 300-QuoteRejectReason	tag 58-Text
Mass Quote message is received during a market state other than Continuous Trading.	2	Exchange (security) closed.
Mass Quote message is sent by a non-designated Market Maker.	9	Not authorized to quote security.

7.2.3.4 Other Responses to Mass Quote Message

Business Level Reject (tag 35-MsgType=j)

This message is submitted when a Mass Quote message is rejected by the CME Globex platform and sends a business-level reject message if a repeating group (i.e., tier 2 and 3) within an incoming Mass Quote message contains invalid tags or tags that belong to a different tier according to the FIX 4.2 protocol. The CME Globex platform ignores Custom tags and misplaced tags included in tier 1 of the Mass Quote message.

In such an instance, a business-level reject message is sent with tag 380-BusinessRejectReason containing a value from the table below.

Business Level Reject

Tag	FIX Name	Req	Type	Description
45	RefSeqNum	N	SeqNum (10)	Tag 34-MsgSeqNum of the message being rejected.
372	RefMsgType	Y	String (2)	Tag 35-MsgType of the message being rejected.
379	BusinessRejectRefID	N	String (32)	Identifier of the message being rejected. Tag 117 - QuoteID if the message is a Mass Quote or Quote Cancel message.
380	BusinessRejectReason	Y*	Int (2)	Code to identify the reason of the rejection: 0 = Other 1 = Unknown ID 2 = Unknown Security 3 = Unsupported Message Type (message type not in use) 4 = Application Not Available 5 = Conditionally Required Field Missing 6 = Not Authorized 7 = Delivery To Firm Not Available At This Time
58	Text	Y*	String (80)	Additional information on the reject reason.

Y = FIX required Y* = CME Group required N = Not required

Example: If a Mass Quote is sent with an invalid tag 107-SecurityDesc in the initial quote of the message, the CME Globex platform will reject the message using a business level reject (tag 35-MsgType=j) message with tag 380-BusinessRejectReason=2.

Note: **If the submitted Mass Quote message does not conform to FIX session-level rules, the message is rejected with a session-level reject (tag 35-MsgType=3) message.**

7.2.4 Quote Cancel Processing

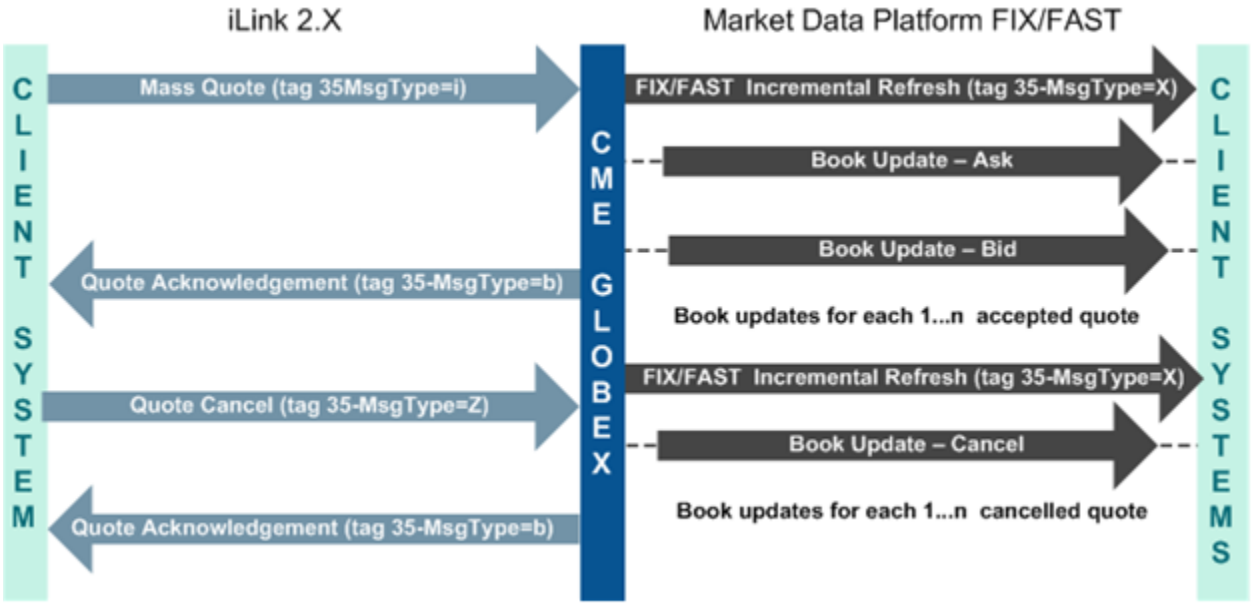
The Quote Cancel (tag 35-MsgType=Z) message allows Market Makers to cancel previously submitted quotes. The Quote Cancel message supports cancellation of quotes at three levels:

- All resting quotes
- All quotes for a given Instrument Group Code (for example, ES)
- All quotes for a list of given contracts (for example, ESH5 C1200, ESM5 P1500)

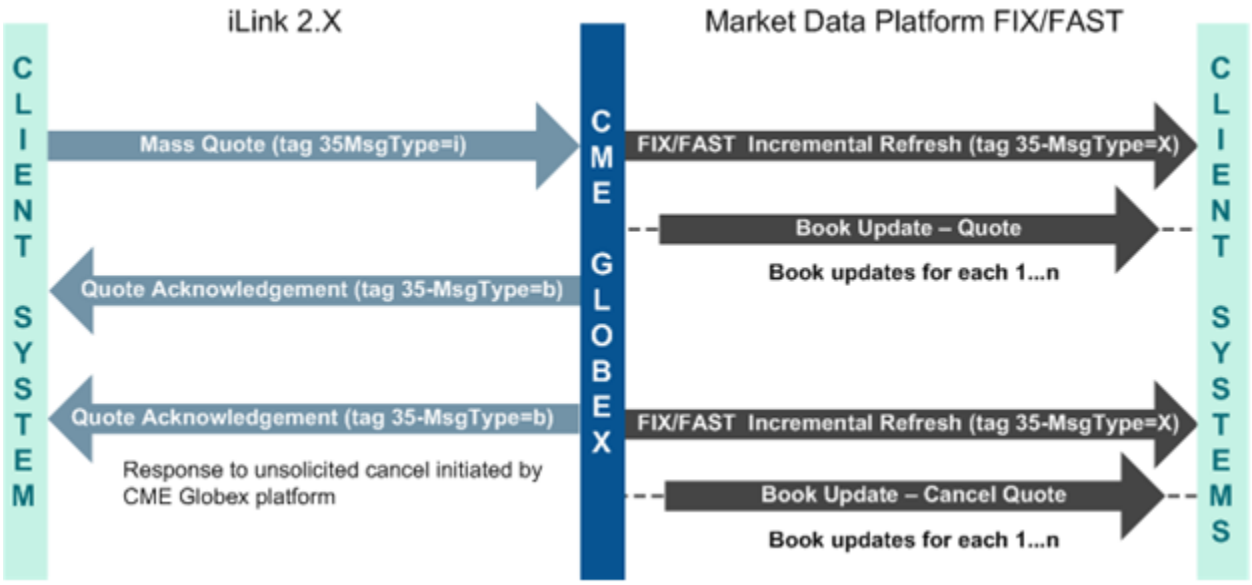
Quote Cancel messages are processed upon receipt by the CME Globex platform, regardless of whether the corresponding resting quotes are completely or partially filled.

This section is structured according to the sequence of Quote Cancel message processing between CME Group designated Market Maker systems and the CME Globex platform.

The processing sequence begins with submission of an outbound Quote Cancel message from a Market Maker system to the CME Globex platform. The sequence is completed when the Market Maker system receives a Quote Acknowledgment (tag 35-MsgType=b) message from the CME Globex platform.Message Flow for Quote Cancel Initiated by Market Maker.



Market events or GCC can also cause the CME Globex platform to initiate quote cancels. See “Unsolicited Cancel Acknowledgment Messages” on Page 100. for more information on this type of quote cancel. Message Flow for Unsolicited Cancel Initiated by CME Globex Platform.



7.2.4.1 Processing Rules

- Quote Cancel with tag 298–QuoteCancelType=1, to cancel all quotes associated to a list of individual instruments.
- Quote Cancel with tag 298–QuoteCancelType=3, to cancel all quotes associated to a specific Instrument Group.
- Quote Cancel with tag 298–QuoteCancelType=4, to cancel all resting quotes.

7.2.4.2 Client to CME Globex - Quote Cancel (tag 35-MsgType=Z) Message

Market Makers are able to use the Quote Cancel (tag 35-MsgType=Z) message to cancel quotes at the three levels described in the Processing Rules above. The tables in the following three sections provide the specifications for the three types of Quote Cancel messages. See the Quote Cancel Processing section of Core Functionality for the complete Quote Cancel message specification.

1. Cancel All Resting Quotes

   1.a This message will cancel all of the Market Maker's active quotes across all products.

   1.b Market Makers will receive one response per permissioned Instrument Group Code.

Repeating groups are designated within the message by the (➔) symbol.

Quote Cancel - Cancel by Group Resting Quotes

Tag	FIX Name	Req	Type	Description
117	QuoteID	Y*	String (10)	Must be unique for all Mass Quote messages for one session.
298	QuoteCancelType	Y	Int (1)	Always '3' (Cancel per Instrument Group)
295	NoQuoteEntries	Y*	Int (3)	Should always be set to '1' for a Cancel per Instrument Group.
➔55	Symbol	Y	String (6)	Must be the first tag in the repeating group.
➔107	SecurityDesc	N	String (20)	

Y = FIX required Y* = CME Group required N = Not required

2. Cancel All Quotes for an Instrument Group

   2.a Only one instrument group can be cancelled per Quote Cancel message.

   2.b If more than one Instrument Group Code is listed in the message, the entire message is rejected.

   2.c A Quote Acknowledgment message confirms unsolicited cancels (See "Unsolicited Cancel Acknowledgment Messages" on Page 100.) for each Instrument Group the Market Maker is authorized for, even if the Market Maker does not have resting quotes for the Instrument Group.

Note: **To conserve bandwidth, use Quote Cancel – per Instrument Group as much as possible.**

Repeating groups are designated within the message by the (➔) symbol.

Quote Cancel - Cancel All

Tag	FIX Name	Req	Type	Description
117	QuoteID	Y*	String (10)	This is the identifier of the Quote Cancel message. It should be unique per trading session.
298	QuoteCancelType	Y	Int (1)	'4' (Cancel All) Can be 'A' or 'B' if triggered by disconnect or logout.
295	NoQuoteEntries	Y*	Int (3)	Number of groups to be cancelled.
➔55	Symbol	Y	String (6)	Always [N/A] Must be the first tag in the repeating group.
➔107	SecurityDesc	N	String (20)	

Y = FIX required Y* = CME Group required N = Not required

3. Cancel Quote for an Instrument

   3.a This message can contain up to 100 instruments.

   3.b The first instrument listed in the message determines the Instrument Group Code of the message. If the first instrument listed in the message has an invalid tag 107-SecurityDesc, the entire message is rejected.

   3.c All instruments listed in the message must belong to the same Instrument Group. All instruments belonging to a different Instrument Group Code are rejected.

Repeating groups are designated within the message by the (➔) symbol.

Cancel Quote - Cancel Instrument

Tag	FIX Name	Req	Type	Description
117	QuoteID	Y*	String (10)	This is the identifier of the Quote Cancel message. It should be unique per trading session.
298	QuoteCancelType	Y	Int (1)	Always '1' (Cancel per Instrument)
295	NoQuoteEntries	Y*	Int (3)	The number of contracts to be cancelled.
➔55	Symbol	Y	String (6)	Instrument Group of the contract. **Must be the first tag in the repeating group.**
➔107	SecurityDesc	Y*	String (20)	Contract to be cancelled, i.e. ESZ5 C1115.

Y = FIX required Y* = CME Group required N = Not required

7.2.4.3 CME Globex to Client - Quote Acknowledgment (tag 35-MsgType=b) Message

Quote Cancel messages will also be acknowledged with a Quote Acknowledgment (tag 35-MsgType=b) message from the CME Globex platform notifying the Market Maker of accepted and rejected cancellations. In some cases, the response to a Quote Cancel message is a business-level reject message (See “Other Responses to Mass Quote Message” on Page 92.).

The Quote Acknowledgment message provides users with positive or negative acknowledgment of the processing status for each Quote Cancel message. The Quote Acknowledgment message contains the number of successfully processed cancellations and a list of rejected cancellations.

Note: **Accepted cancellations are not listed in the acknowledgment.**

The Quote Acknowledgment message will have one of three formats when received in response to a Quote Cancel message:

- Positive acknowledgment with all cancels accepted – 1 tier/thin ack
- Positive acknowledgment with some or all cancels rejected – 2 tiers/fat ack
- Negative acknowledgment with all quotes rejected – 1 tier/thin ack

The following custom FIX tags are implemented for the Quote Acknowledgment message to support quote cancellation:

Quote Acknowledgment Message - Custom FIX Tags

Tag	FIX Name	Description
9722	NoProcessedEntries	If response to Quote Cancel message: number of quotes successfully cancelled.
9775	UnsolicitedCancelType	Type of cancel acknowledged (A-F) if cancel initiated by CME Globex platform (See “Unsolicited Cancel Acknowledgment Messages” on Page 100.).
9774	CancelledSymbol	Instrument Group Code being cancelled.

Quote Acknowledgment (tag 35-MsgType=b) Message - Response to Quote Cancel

These specifications are presented according to the three possible Quote Acknowledgment message formats described in the Quote Acknowledgment (tag 35-MsgType=b) message section of:

iLink 2.X Globex Message Specification

1. Positive acknowledgment with list of individual rejected cancels

Repeating groups are designated within the message by the (➔) symbol.

Quote Acknowledgment - Response to Quote

Tag	FIX Name	Req	Type	Description
297	QuoteAckStatus	Y	Int (2)	1: Cancel per instrument accepted 3: Cancel per Instrument Group accepted 4: Cancel All accepted 5: Rejected
117	QuoteID	Y*	String (10)	Tag 117 - QuoteID of the corresponding Quote Cancel message.
300	QuoteRejectReason	N	Int (2)	This tag contains the reason (error code) why the corresponding Quote Cancel message has been rejected.
9774	CancelledSymbol	Y*	String (2)	Instrument Group of the contract being cancelled.
9772	NoProcessedEntries	Y*	Int (5)	Number of quotes successfully cancelled.
9775	UnsolicitedCancelType	N	Char (1)	Type of cancel acknowledged (A-F) if cancel initiated by the CME Globex platform. See “Unsolicited Cancel Acknowledgment Messages” on Page 100.
58	Text	N	String (150)	This tag contains the reason (error text) why the corresponding Quote Cancel message has been rejected.
304	TotQuoteEntries	Y*	Int (3)	Always identical to tag 295-NoQuoteEntries.
295	NoQuoteEntries	Y	Int (3)	The number of invalid cancels.
➔299	QuoteEntryID	Y*	String (10)	This tag contains the QuoteEntryID of the quote that failed to be cancelled or ‘CME’ if the quote could not be found (e.g. attempt to cancel an invalid contract).
➔55	Symbol	N	String (6)	Instrument Group of the quote that failed to be cancelled.
➔107	SecurityDesc	N	String (20)	Contract of the quote that failed to be cancelled, i.e. ESV4 C1115.
➔167	SecurityType	N	String (3)	‘OPT’ or ‘FUT’

Quote Acknowledgment - Response to Quote

Tag	FIX Name	Req	Type	Description
➔48	SecurityID	Y*	Int (12)	Identifies class or source of the tag 38-SecurityID value. 8=Exchange symbol.
➔22	SecurityIDSource	N	String (1)	Always ’4’
➔368	QuoteEntryRejectReason	Y*	Int (2)	This tag contains the reason (error code) why the cancellation failed

Y = FIX required Y* = CME Group required N = Not required

2. Positive acknowledgment - all cancels accepted

Positive Acknowledgment - All Cancels Accepted

Tag	FIX Name	Req	Type	Description
297	QuoteAckStatus	Y	Int (2)	1 - Cancel per instrument accepted 3 - Cancel per Instrument Group accepted 4 - Cancel All accepted
117	QuoteID	Y*	String (10)	Tag 117-QuoteID of the corresponding Quote Cancel message.
9774	CancelledSymbol	Y*	String (2)	Instrument Group of the contract being cancelled.
9775	UnsolicitedCancelType	N	Char (1)	Type of cancel acknowledged (A-F) if cancel initiated by CME Globex platform (See “Unsolicited Cancel Acknowledgment Messages” on Page 100.).
9772	NoProcessedEntries	Y*	Int (5)	Number of quotes successfully cancelled.

Y = FIX required Y* = CME Group required N = Not required

3. Negative acknowledgment - message rejected

Negative Acknowledgment - Message Rejected

Tag	FIX Name	Req	Type	Description
297	QuoteAckStatus	Y	Int (2)	5 - Rejected
117	QuoteID	Y*	Sring (10)	Tag 117 - QuoteID of the corresponding Quote Cancel message.
300	QuoteRejectReason	Y*	Int (2)	This tag contains the reason (error code) why the corresponding Quote Cancel message has been rejected.

Negative Acknowledgment - Message Rejected

Tag	FIX Name	Req	Type	Description
9774	CancelledSymbol	Y*	String (2)	Instrument Group of the contract being cancelled.
9772	NoProcessedEntries	Y*	Int (5)	'0' (All Cancellations failed).
58	Text	Y*	String (150)	This tag contains the reason (error text) why the corresponding Quote Cancel message has been rejected.

Y = FIX required Y* = CME Group required N = Not required

Other Responses

See "Other Responses to Mass Quote Message" on Page 92. for a description of these responses.

- Session Level Reject
- Business Level Reject

7.2.4.4 Unsolicited Cancel Acknowledgment Messages

In addition to Quote Acknowledgment messages received in response to Quote Cancel messages, Market Makers can also receive unsolicited Quote Acknowledgment messages in response to cancels initiated by the CME Globex platform. The unsolicited cancel code is contained in tag 9775-UnsolicitedCancelTypes; the reason text will not be sent in the message.

Unsolicited Cancel Acknowledgment Messages

Unsolicited Cancel Codes for tag 9775-UnsolicitedCancelTypes	Reason
A	Hard disconnect (cancel all)
B	Client logout (cancel all)
C	Eliminated All (CME Globex platform -initiated; all resting quotes cancelled)
D	Eliminated Group (CME Globex platform -initiated)
E	Expired – transition out of Continuous Trading state
F	Cancellation has been triggered by Market Maker Protection

Unsolicited Cancel (tag 9775-UnsolicitedCancelType=A) Message

In the event of any Market Maker hard disconnect, all resting quotes are cancelled. Upon reconnect, the Market Maker will receive a Quote Acknowledgment message confirming cancellation.

Unsolicited Cancel–tag 9775-UnsolicitedCancelType=B

In the event of any Market Maker logout, all resting quotes are cancelled. Upon reconnect, the Market Maker receives a Quote Acknowledgment message confirming cancellation.

Unsolicited Cancel–tag 9775-UnsolicitedCancelType=C

The GCC has the ability to cancel all resting quotes. In this event, the Market Maker receives a Quote Acknowledgment message for each instrument group for which they are permissioned confirming cancellation for each instrument group.

Unsolicited Cancel–tag 9775-UnsolicitedCancelType=D

The GCC has the ability to cancel all resting quotes for an instrument group. In this event, the Market Maker receives a Quote Acknowledgment message confirming cancellation for this instrument group.

Unsolicited Cancel–tag 9775-UnsolicitedCancelType=E

If the market transitions out of the continuous trading state as indicated in a FIX/FAST Security Status (tag 35-MsgType=f) message, the CME Globex platform cancels all resting quotes when the instrument group enters the “closed” state.

For all instrument groups, the Market Maker subsequently receives a Quote Acknowledgment message confirming cancellation for each instrument group that changed state and for which they are permissioned. For complete details on instrument states, refer to the FIX/FAST SDK.

Unsolicited Cancel–tag 9775-UnsolicitedCancelType=F

The Market Maker receives a Quote Acknowledgment message with tag 9775-UnsolicitedCancelType=F when the cancellation has been triggered by Market Maker Protection.

7.2.4.5 Quote Cancel–iLink 2.X Gateway Logoff and Failure Scenarios

CME Group provides a quote cancellation program for the benefit of Market Makers whereby the CME Globex Control Center (GCC), on a best-efforts basis, attempts to send Quote Cancel messages on behalf of Market Makers in the following two situations:

1. The CME Globex platform detects a system failure that does not automatically cancel Market Maker quotes when the Market Maker logs off of an iLink 2.X session. If the Market Maker is experiencing difficulties with their logoff attempt, GCC will attempt to send Quote Cancel messages for the Market Maker.
2. During certain CME Globex platform connectivity failure situations, GCC will attempt to send Quote Cancel messages on behalf of the Market Maker.

When a disconnect is detected without preceding Quote Cancel messages, the GCC will attempt to cancel resting quotes on behalf of the Market Maker. CME Group cannot guarantee that all failure scenarios will necessarily generate the appropriate Quote Cancel messages and/or alert mechanisms. Therefore, Market Makers must always explicitly cancel all quotes before logging off. In the case of a disconnection, Market Makers must verify their quote status either by immediately reconnecting and logging in to confirm the quote cancellation, or by calling the GCC to request resubmission of Quote Cancel messages on their behalf.

7.2.4.6 Cancellation Exception - Out-of-Sequence Cancel All Message

Scenario

Under normal market conditions, the CME Globex platform evaluates inbound messages in the order that they are received. However, it is possible, though highly unlikely that the CME Globex platform may evaluate a Cancel All message prior to evaluating its corresponding Mass Quote message even if the Mass Quote is sent in before the Cancel All.

CME Globex platform cancels all quotes on the book and sends a confirmation back to the user. However, the quote cancelled from the book does NOT include the quotes in the Mass Quote message that the CME Globex platform evaluates AFTER the Cancel All message. CME Globex platform removes the quotes from the Mass Quote message without recording these in the book or sending a cancel confirmation to the user.

Example

A customer sends messages in the following order:

1. Mass Quote 1 to add 50 quotes to the book.
2. Mass Quote 2 to add 25 more quotes to the book (none are cancel/replace).
3. Cancel All. This message is sent almost simultaneously with Mass Quote 2 due as the result of either a hard disconnect or a user entry.

CME Globex platform evaluates the messages in the following order:

1. Mass Quote 1 - CME Globex adds 50 quotes to the system.
2. Cancel All - CME Globex cancels all 50 quotes for Mass Q1 from the book and sends a cancellation confirmation.
3. Mass Quote 2 - CME Globex ignores the quotes in this message. **The customer receives no acknowledgement or cancellation information for these 25 quotes**.

Comparison of Out-of-Sequence Events

Message Type	Sent Sequence	Eval. Sequence	Number of Quotes	Description	Number of Quotes in Book
Mass Quote 1	1	1	50	Objective of inbound message: Add 50 quotes to the customer's book. **Evaluation result**: System adds 50 quotes to the customer's book.	50

Comparison of Out-of-Sequence Events

Message Type	Sent Sequence	Eval. Sequence	Number of Quotes	Description	Number of Quotes in Book
Mass Quote 2	2	3	25	Objective of inbound message: Add 25 quotes to the customer's book (none are cancel/replace). **Evaluation result**: Because the timestamp indicates that is being evaluation out of sequence, the system ignores the quotes in this message.	0
Cancel All	3	2	N/A	Objective of inbound message: Cancel All resting quotes from Mass Quote 1 and Mass Quote 2 messages. **Evaluation result**: The system cancels the 50 quotes Mass Quote 1 on the book and sends a Cancel message to the customer confirming that 50 quotes were cancelled.	0

7.2.4.7 Receiving an Execution Report (tag 35-MsgType=8) Message

The Execution Report includes the QuoteEntryID to indicate:

- Fill Notice if a trade is the result of a quote.
- Trade cancellation (trade "busted" by CME Global Control Center).

Execution Report Fields Relevant to Mass Quotes

Tag	FIX Name	Description
1	Account	*Account Number
11	ClOrdID	QuoteEntryID
54	Side	*Side. The parameter values are: 1=buy 2=sell
55	Symbol	*Instrument group of the contract

Note: **Tags 1-Account, 54-Side and 55-Symbol are used for all Trade Cancellation notices involving both Mass Quote related messages and orders.**

Execution Reports received for quotes and orders are structurally identical. An execution report for a quote contains the QuoteEntryID in tag 11-ClOrdID. Market Maker systems must be able to correlate quotes with execution reports using the tag 11-QuoteEntryID as the key.

7.3 Volatility-Quoted Options

7.3.1 Mass Quote (tag 35-MsgType=i)

Mass quote functionality for volatility-quoted instruments is identical to that described in the Quoting Function volume of the iLink SDK with the following exceptions:

➔➔ indicates nested repeating group

Exception Tags for Volatility-Quoted Mass Quotes Instruments

Tag	FIX Name	Req	Type	Description
➔➔132	BidPx	N	Int (8)	This value must be expressed in volatility terms.
➔➔133	OfferPx	N	Int (8)	This value must be expressed in volatility terms.

Quote Acknowledgment (tag35-MsgType=b)

Quote Acknowledgment Tag for Volatility-Quoted Mass Quotes Instruments

Tag	FIX Name	Req	Type	Description
368	QuoteEntryRejectReason	Y*	Int (4)	2179 Price exceeds current price band

Y* = CME required

8. Mass Quote Governor

Mass Quote Governor functionality is detailed in this document. CME Group continuously monitors the number of quote entries sent during the evaluation period of 3 seconds. By default, CME Group measures quotes as a bid/ask pair = 1 quote. If a customer quotes only one side, it will still be counted as one quote.

As soon as the number of quote entries exceeds the quote allocation pool available for each evaluation period, session level rejects will be triggered and all resting quotes will be cancelled. The time-out 'wait' period will be 3 seconds or less (remainder of the evaluation period) upon threshold violation.

The Mass Quote Governor application will also trigger subsequent actions (such as logout) if a customer continues to violate high QPS levels after initial threshold levels are breached.

8.1 Certification Requirements

Certification is not required for Mass Quote Governor enhancements. Complete testing is strongly recommended.

8.2 Overview

Mass Quote Governor provides CME Group the ability to limit the rate at which sessions can submit mass quote messages and quote entries. Excessive messaging and quotes can impact CME Group trading engines and result in excessive amounts of market data, which impacts all customers. Mass Quote Governor eases the bandwidth and processing constraints on CME Group and firms receiving market data.

Mass Quote Governor measures the number of quote entries per second (QPS) for each Market Maker mass quote enabled iLink session. You can have up to 99 entries per mass quote message.

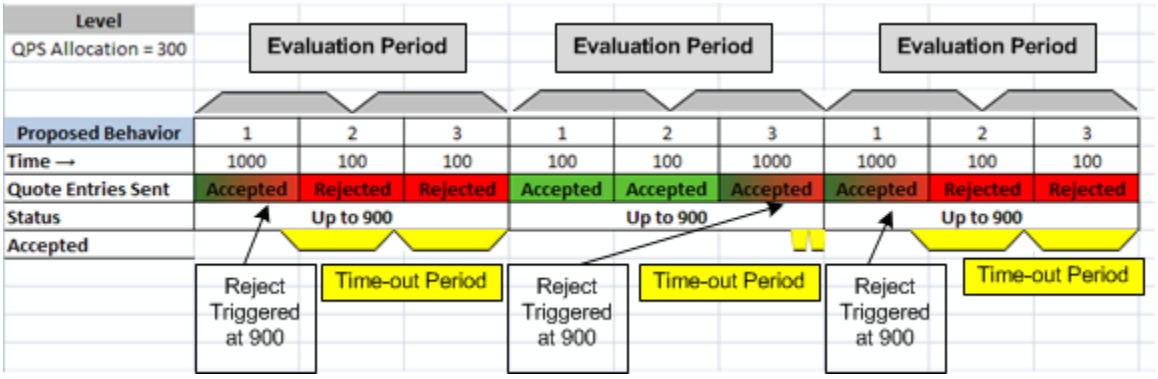
- Each session's QPS allocation, as determined by the CME Group Products and Services Product Manager, is configured by CME Group Global Account Management. The QPS allocation x 3 is equal to the quote allocation pool. The quote allocation pool is available for use during the evaluation period. For example, if a session QPS allocation is 300 QPS, the maximum number of quotes that can be sent during the evaluation period is 900. This maximum number represents the gross number of quote entries sent, without regard as to whether some of those quote entries are cancelled.
- An evaluation period is 3 seconds long, and begins when the first quote is sent. If subsequent quotes are not sent during the 3 seconds, new quotes sent will begin a new evaluation period.
- If the number of quote entries does not exceed the quote allocation pool, Mass Quote Governor will not be triggered.
- As soon as the number of quote entries exceeds the quote allocation pool, Mass Quote Governor is triggered, session level rejects will be triggered, all resting quotes will be cancelled, and a time-out "wait" period will be started. The duration of the time-out 'wait' period will be the remainder of the current 3 second evaluation period.
- After sending reject messages, CME Globex will immediately cancel all quote messages for that iLink session. Client Systems will receive unsolicited mass quote cancel acknowledgments for each product group regardless of whether the iLink session has resting quotes in that product group or not.
- A session will be logged out, disconnected and the port will be disabled if high threshold levels are breached. Threshold settings are constantly reevaluated. For more information on threshold settings contact Global Account Management.
- When the Mass Quote Governor is triggered, mass quote cancel is not rejected.

8.3 Functionality Examples

The following are examples based on the 3 second evaluation period.

Note: **The examples in this document show the logic used to calculate inbound mass quote entries or messages. Customers can receive rejects on mass quote messages due to either of the two violations (whichever occurs first). The reject code and text describes the reason.**

Examples:



During the Evaluation Period

As soon as the number of quote entries exceeds the session allocation pool, session level rejects will be triggered and all resting quotes will be cancelled. The duration of the time-out 'wait' period will be the remainder of the current 3 second evaluation period.

CME Group will continue to count the quotes received in this period.

8.4 Quote Governor Actions

Session Level Reject

As soon as the number of quote entries exceeds the session allocation pool, session level rejects will be triggered and all resting quotes will be cancelled. The duration of the time-out 'wait' period will be the remainder of the current 3 second evaluation period.

Tag 58-text will identify the appropriate error for a session level reject error message when Mass Quote Governor is triggered.

Session Logout and Closed Port

A session will be logged out, disconnected, and the port will be disabled if high threshold levels are breached. In this scenario, you will be required to call CME Global Control Center at 312.456.2391 to reactivate the port.

If you use your session ID for mass quotes *and* order entry, once a session is logged out and the port is closed, orders are canceled if Cancel on Disconnect functionality is enabled.

Refer to CancelOnDisconnect for more information on disconnection functionality.

9. Order Status Query

The Order Status functionality provides iLink 2.X users with the capability to request the current state of their orders. The following sections describe the inbound and outbound Order Status messages.

9.1 Inbound Order Status Request

Order Status Requests can be used to obtain the current state of orders entered in previous weeks (e.g., GT orders). If an order is not found, or if the Order Status Request is not built according to the SDK specification, the message is rejected with a Session-Level - Reject (tag 35-MsgType=3) message.

- An Order Status Request should only be used to check order status [e.g., weekend startup Order Status Request for a GT order when the weekly sequence number (tag 34-MsgSeqNum) count has restarted (week = Sunday thru Friday)].
- Resend Requests (tag 35-MsgType=2) should be used for message recovery.

The following tags are required for an Order Status Request:

- tag 11-ClOrdID

Note: **Tag 11-ClOrdID for Order Status Requests MUST be equal to the most recent tag 11-ClOrdID value of the order for which status is being requested.**

- tag 37-OrderID
- tag 107-SecurityDescription

9.2 Outbound - Execution Report - Order Status

The following are key tags in the outbound Execution Report - Order Status message:

- Order Status (tag 39-OrdStatus)
- Execution Type (tag 150-ExecType)
- Cumulative Quantity (tag 14-CumQty)
- Execution ID (tag 17-ExecID)

9.3 Order Status

The Order Status (tag 39-OrdStatus) contains the following values:

- **1** - Partially Filled
- **2** - Filled
- **3** -Session level reject
- **4** - Cancelled
- **5** - Replaced
- **6** - Pending Cancel (result of Order Cancel Request)

- **8** - Rejected
- **A** - Pending New
- **C** - Eliminated
- **E** - Pending Replace (result of Order Cancel/Replace Request
- **J** - Business Level Reject

9.3.1 Execution Type

The Execution Type, tag 150-ExecType, is set to 'I' to indicate the nature of the Execution Report - Order Status Response Message.

9.3.2 Execution ID

To comply with FIX protocol, the Execution ID, tag 17-ExecID, is set to '0' for the Execution Report - Order Status Response message. According to the FIX protocol, nothing is actually executed only reported.

9.4 Execution Report - Status Response Tags

The following table displays the Execution Report - Status Response (tag 35-MsgType=8, tag 150-ExecType=I) message tags. This message is used to communicate the current state of an order. CME Group sends this message in response to an Order Status Request Message (tag 35-MsgType=H).

Tag	FIX Name	Req	Valid Values	Format	Description
1	Account	Y*		String (12)	Executing account mnemonic as agreed between the broker and the clearing member firm.
6	AvgPx	Y	0	Price (20)	This tag is always set to 0.
11	ClOrdID	Y*		String (32)	CME Globex returns the tag 11-CLOrdID from the original order message (up to 32 bytes).
14	CumQty	Y		Qty (9)	The cumulated traded quantity does not reset when the order is cancel/replaced.
17	ExecID	Y	0	String (40)	This tag is always set to '0' for Order Status Acknowlegment.
20	ExecTransType	Y	3 = Status	Char (1)	Identifies Transaction Type as Status.
37	OrderID	Y		String (17)	Unique identifier of the queried order. This identifier is managed by the party receiving the order (CME Globex).

Tag	FIX Name	Req	Valid Values	Format	Description
38	OrderQty	Y*		Qty (9)	Order quantity submitted by the client.
39	OrdStatus	Y	0 = New 1 = Partial 2 = Filled 4 = Canceled 6 =Pending Cancel 8 = Rejected A = Pending New C = Expired E = Pending Rep	Char (1)	Current status of the queried order on CME Globex.
40	OrdType	Y*	1 = Market *order (with protection)* 2 = Limit *order* 3 = Stop *order (with protection)* 4 = Stop Limit *order* K = Market-Limit *order*	Char (1)	Current order type of the queried order on CME Globex. Please see the Core Functionality section of the iLink 2.x SDK for complete details regarding this tag.
44	Price	Y*		String (20)	Original price of the order when submitted: • Market price for market-limit order • Market price + or - protection points for market orders.
48	SecurityID	Y*		Int (12)	Instrument Identifier.
54	Side	Y	1 = Buy 2 = Sell	Char (1)	Side submitted by the client.
55	Symbol	Y		String (6)	This tag contains the product group of an instrument specified by the individual entering the order, cancel/ replace or cancel.
58	Text	N		String (150)	Free format text string.

Tag	FIX Name	Req	Valid Values	Format	Description
59	TimeInForce	N	0 = Day 1 = Good Till Cancel (GTC) 3 = Fill And Kill *(Immediate or Cancel)* 6 = Good Till Date (GTD)	Char (1)	Specifies how long the order remains in effect. If not present, DAY order is the default. If the value of this tag is GTD, then ExpireDate tag is **required**.
60	TransactTime	Y*		UTCTime Stamp (21)	Time at which the order status request is replied to by CME Globex.
75	TradeDate	N		LocalMarket Date (8)	Date at which the message was generated by CME Globex.
99	StopPx	N		Price (20)	Stop trigger price specified on order or cancel/replace.
107	SecurityDesc	Y*		String (20)	Instrument identifier.
110	MinQty	N		Qty (9)	Minimum quantity of an order to be executed. This tag is used only when TimeInForce = Fill and Kill (Immediate or Cancel). This field is used in conjuntion with TineInForce to replicate FOK functionality in CME Globex. If TimeInForce is set to FAK, the value of MinQty must equal the value of OrderQt. The format of this field is different from FIX protocol specifications. This field must an int.
150	ExecType	Y*	I = Status Report	Char (1)	Describes the reason for the Execution report while OrdStatus identifies the status of the order.
151	LeavesQty	Y		Qty (9)	This field must an Int.
167	SecurityType	N	FUT = Future OPT = Options	String (3)	Type of instrument.
210	MaxShow	N		Qty (9)	Maximum displayed quantity for this order on CME Globex.

Tag	FIX Name	Req	Valid Values	Format	Description
432	ExpireDate	N		LocalMarket Date (8)	Required only if tag 59-TimeInForce = Good Through Date (GTD). CME ilink 2.X does not support the tag 126-ExpireTime. Only expiration date can be set. Orders will expire at the end of trading session on this date.
9717	CorrelationClOrdID	Y*		String (20)	The first ClOrdID in an order chain. This tag contains the ClOrdID as it appeared on the original New Order message.

9.4.1 Order Status Request on Order Rejected with a Business Level Reject (tag 35-MsgType=j) Message

If a New Order (tag 35-MsgType=D) message sent on a Covered instrument is rejected with a Business Level Reject message and the client system subsequently submits an Order Status Request (tag 35-MsgType=H) for the rejected New Order, the Execution Report – Order Status Report (tag 35-MsgType=8) message will contain a value of ‘N/A’ in tag 55-Symbol.

10. Give-Ups

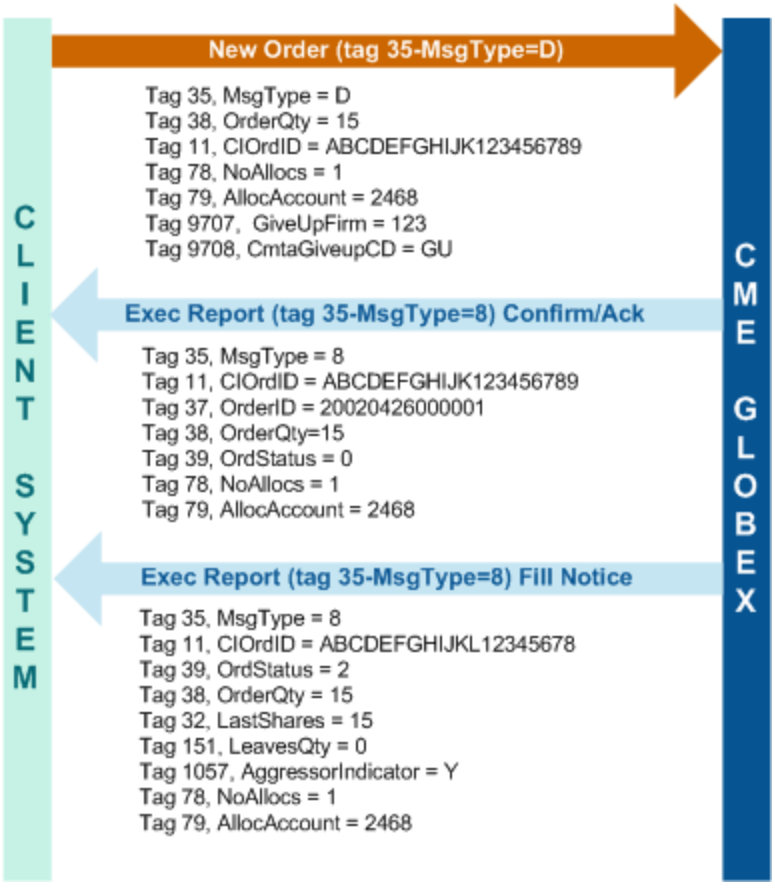
Note: **The updated functionality in this section does not apply to BM&FBOVESPA products.**

For give-up functionality, tag 9708-CmtaGiveupCD=GU and tag 9707-GiveUpFirm are set to the give-up firm ID. Tag 9707-GiveUpFirm identifies the clearing member firm to which the fill is given up. Tag 9708-CmtaGiveupCD indicates if the order is a give up or a mutual offset.

In New Order (tag 35-MsgType=D) messages, Order Cancel/Replace (tag 35-MsgType=G) messages, and corresponding Execution Report (tag 35-MsgType=8) messages, tag 78-NoAlloc and tag 79-AllocAccount support give-up functionality at the account level. This repeating group allows users to provide only one give-up account.

To take full advantage of new tags 78 and 79, and to ensure proper functioning of tags 78, 79, 9707, and 9708, tags 78 & 79 must be used in conjunction with 9707 & 9708. Tag 9707 indicates the give-up firm and tag 79 indicates the account within that firm.

The following diagram illustrates how tags 78 and 79 are returned on outbound messages:



Reject Rules

Sending tag 78-NoAllocs and tag 79-AllocAccount without sending tag 9707-GiveUpFirm and tag 9708-CmtaGiveupCD is not recommended, but CME Globex does not send a reject message if this occurs. The initial information that CME Clearing needs is the firm followed by which account to give the transaction to

based on the account provided. CME Group will not reject the order in Globex since this scenario is based on clearing information.

Tag 78-NoAllocs has a length of 1 byte, while tag 79-AllocAccount is 11 bytes long. These tags must be used in conjunction with each other or the following reject scenarios occur:

- If tag 78-NoAllocs is sent without tag 79-AllocAccount, a Session Level Reject (tag 35-MsgType=3) message is returned.
  - Example reject message for an option:

    8=FIX.4.2|9=158|35=3|34=1528993|69=41090|52=20080926-15:19:52.933|49=CME|50=G|56=qa4648P|57=648|45=41090|**58=Business Reject: Required Field Missing 'Required Tag 79 missing'**|10=085

  - Example reject message for future:

    8=FIX.4.2|9=107|35=3|34=1336383|69=40587|52=20080922-20:15:07.356|49=CME|50=G56=qa4648P|57=648|45=40587|**58=Missing Tag 79**|10=251

- If tag 79-AllocAccount is sent without tag 78-NoAllocs, a Session Level Reject (tag 35-MsgType=3) message is returned.
  - Example reject message for an option:

    8=FIX.4.2|9=158|35=3|34=1360823|69=40617|52=20080922-21:03:47.334|49=CME|50=G|56=qa4648P|57=648|45=40617|**58=Business Reject: Required Field Missing 'Required Tag 78 missing'**|10=063

  - Example reject message for a future:

    8=FIX.4.2|9=107|35=3|34=1344513|69=40596|52=20080922-20:17:48.643|49=CME|50=G|56=qa4648P|57=648|45=40596|**58=Missing Tag 78**|10=250

- If tag 78-NoAllocs is sent with a value other than ‘1’, a Session Level Reject (tag 35-MsgType=3) message is returned.
  - Example reject message for an option:

    8=FIX.4.2|9=179|35=3|34=1358783|69=4061452=20080922-21:00:18.374|49=CME|50=G|56=qa4648P|57=648|45=40614|**58=Business Reject: Required Field Missing 'Value is incorrect (out of range) for Tag 78'**|10=032

  - Example reject message for a future:

    8=FIX.4.2|9=129|35=3|34=1342473|69=40593|52=20080922-20:16:50.529|49=CME|50=G|56=qa4648P|57=648|45=40593|**58=Invalid NO_ALLOCS. Tag 78 must be 1**|10=044

11. Volume Controls

To protect all market participants from the negative effects of extraordinary administrative messaging from runaway automated trading systems (ATS), CME Group is implementing volume controls for iLink administrative messaging.If an iLink session exceeds an average of 100 administrative messages per second (MPS) over a three-second window, subsequent administrative messages will be rejected via a Session Level Reject (tag 35-MsgType=3) message until the administrative MPS rate falls below the threshold.

Normally, administrative messaging from customers does not approach the 100 MPS threshold.

Implementing this volume control for administrative messaging at 100 MPS is designed to:

Support valid trading activity: and,

Prevent a malfunctioning trading system from impacting the markets.

This launch will have no impact on application messages. Order routing messages will not be counted towards the messaging threshold or be subject to rejection.

iLink administrative messages are:

- Logon (tag 35-MsgType=A)
- Heartbeat (tag 35-MsgType=0)
- Test Request (tag 35-MsgType=1)
- Resend Request (tag 35-MsgType=2)
- Session Level Reject (tag 35-MsgType=3)
- Business Level Reject (tag 35-MsgType=j)
- Sequence Reset (tag 35-MsgType=4)
- Logout (tag 35-MsgType=5)

The volume controls for administrative messaging are available in New Release for customer testing.

Note: **For more information, contact the Globex Control Center at 312.456.2391.**

12. Revision History

Initial Release	Version	Last Update	Author	Description
10/25/2010	2.0	N/A	AB/CR/DT	Incorporated Client Impact document functionality that is launched to-date. Modified or corrected tags, values, descriptions, and message flows throughout.
10/25/2010	2.1	11/26/2010	DT	Added “Give-Ups” on Page 112.
10/25/2010	2.2	1/12/2011	CR	Added two missing values for tag-368-QuoteEntryRejectReason See “2a) Tag 368– Quote Level Reject (tag 35-MsgType=b)” on Page 89.
10/25/2010	2.3	3/7/2011	CR	Updated figure in Quote Governor.
10/25/2010	2.4	3/16/2011	CR	Added new section on Volume Controls.