Global Exchanges and Markets Committee

NGM Tradeable Quotes Extension

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Document History

Revision	Date	Author	Revision Comments
0.1	March 12, 2010	Mikael Brännström, NGM	Initial
0.2	April 6, 2010	Mikael Brännström, NGM	Updated with comments from GEMC meetings at 25 March and 1 April 2010.
0.3	April 22, 2010	Mikael Brännström, NGM	Updated with comments from GEMC meeting at 19 April.
0.4	May 3, 2010	Mikael Brännström, NGM	Correction of minor typos.
0.5	July 26, 2010	Hanno Klein, Deutsche Börse	Added suggested changes to Volume 7 of the FIX specification
0.5	2011-08-22	Jim N	As Built
	November 27, 2011	L. Taikitsadaporn	Update DD with assigned new enum values Edits to field usage text to clarify usages. Edits to field DD description to be more generic.
	January 2, 2012	R. Shriver	Updated DD to include revision of enum descriptions per standard. Quote Type(537) = 4 (Initially tradeable) QuoteStatus(297) = 22 (Traded and removed) QuoteRequestType(303) = 3 (Confirm quote)
	January 12, 2012	L. Taikitsadaporn	Final clean up: regenerated TOC, replaced TBD in narrative text with assigned values

1 Introduction

FIX 5.0 has support for the tradeable quoting model. This gap analysis suggests a number of extensions to the quote messages to cover the requirements of the Nordic Derivatives Exchange (NDX) operated by the Nordic Growth Market (NGM).

Summary of proposed changes:

- New fields TotalBidSize and TotalOfferSize to convey the total (original) volume of a quote.
- New field SecondaryQuoteID for marketplace assigned quote identifier.
- New enumerations “Traded” and “Traded and Removed” for QuoteStatus to convey reason of unsolicited Quote Status Reports.
- New enumeration “Initially Tradeable” for QuoteType.
- New enumeration “Confirm Quote” for QuoteRequestType.

In this document, primarily the identifiers of single quote messages are discussed. To convert to the mass quote case, use the following translation table:

- QuoteID (single quote) = QuoteEntryID (mass quote). Static quote identifier.
- QuoteMsgID (single quote) = QuoteID (mass quote). Quote message identifier.

2 Business Workflow

2.1 Quote Volume

When quotes are tradeable the quote issuer may receive unsolicited quote fills. To avoid that the volume of the quote is refilled by mistake (overfilled) in following quote updates, the volume is updated using the TotalBidSize and TotalOfferSize fields. When a fill occurs the (available) BidSize and OfferSize fields are updated. This is similar to how the OrderQty and LeavesQty fields are used for orders. Both TotalBidSize/TotalOfferSize and BidSize/OfferSize are supplied in the Quote Status Report.

2.2 Quote Entry vs Modification

The receiver of a Quote message needs to know if the intention of the message is to create a new quote or to modify an existing quote. For example if the quote is completely filled (and deleted) a quote replace could be misinterpreted as a new quote.

It is proposed that when only TotalBidSize and/or TotalOfferSize are specified the quote is being *modified*, in which case a previous quote is expected. When BidSize and/or OfferSize are specified the quote is a quote *entry*, and the previous quote is replaced if it exists (as today). Only one of the two sets of size fields is allowed when entering a new quote or updating an existing quote. This avoids any ambiguity in the quote model (*entry* vs *modification*) being used.

In an Execution Report the TotalBidSize/TotalOfferSize corresponds to the OrderQty while the BidSize/OfferSize corresponds to LeavesQty. In a Quote Status Report the TotalBidSize/TotalOfferSize fields may be sent in addition to BidSize/OfferSize to convey the full state of a quote.

2.3 Quote Validation

Quote validation is the term NGM uses for a kind of quote issuer protection, which involves a quote request to be sent to the quote issuer whenever a fill is imminent. The quote issuer must reply with a new updated price (perhaps the same as previous) before a fill is made. During this phase any new or replaced orders will have the WorkingIndicator field set to ‘N’ and other new or replaced quotes will have the status “Pending” (since the

WorkingIndicator only exists for orders). The quote that needs to be updated is identified with QuoteID and/or SecondaryQuoteID in the Quote Request sent to the quote issuer.

The quote issuer can enable this mechanism for a quote by setting the QuoteType field to “Initially Tradeable”.

2.4 Quote Identification

A marketplace assigned identifier is needed for quotes. A new field SecondaryQuoteID is added for this purpose. It is recommended that this identifier is unchanged throughout the lifetime of the quote.

2.5 Unsolicited Quote Status Report

When a quote is filled or partially filled an unsolicited Quote Status Report may be sent with the current state of the quote. To convey the reason of the Quote Status Report in this case the QuoteStatus field is set to “Traded” or “Traded and Removed”.

3 Issues and Discussion Points

3.1 Quote Request

A new Quote Update Request message could be added as an alternative to the extended Quote Request message.

4 Proposed Message Flow

4.1 Initially Tradeable Quote Model

In the initially tradeable quote model the quote is tradeable upon entry and after a trigger the quote becomes indicative. The point when the quote becomes indicative is a bilateral agreement, but typically it occurs when the quote is entered into the order book or after it has been resting for e.g. 30 seconds. Whenever the quote is modified it becomes tradeable again.

Market maker or specialist		**Market**
Quote Valid initially tradeable quote sent into market	à	Accepts Quote and applies to market
Accepts Quote and updates trading system based upon status reported by market	ß	Based upon market rules or the QuoteResponseLevel a Quote Status Report is sent back to the quote issuer.
	ß	If a fill is imminent when the quote has become indicative a Quote Request for the quote is sent to the quote issuer.
An updated Quote or Quote Cancel with the specified QuoteReqID is sent back to the market.	à	Accepts Quote replace/cancel and applies to market. Fills are reported as normal.

5 FIX message tables

5.1 Quote

Tag	*FieldName*	*Req'd*	*Comments*	*Action*	*Mapping Usage and Comments*
StandardHeader		Y	MsgType = S		
131	QuoteReqID	N	Required when quote is in response to a Quote Request message		
117	QuoteID	Y		MOD	
1751	SecondaryQuoteID	N	Can be used when modifying an existing quote.	ADD	
1166	QuoteMsgID	N	Optionally used to supply a message identifier for a quote.		
693	QuoteRespID	N	Required when responding to the Quote Response message. The counterparty specified ID of the Quote Response message.		
537	QuoteType	N	Quote Type If not specified, the default is an indicative quote		
1171	PrivateQuote	N	Used to indicate whether a private negotiation is requested or if the response should be public. Only relevant in markets supporting both Private and Public quotes. If field is not provided in message, the model used must be bilaterally agreed.		
component block <QuotQualGrp>		N			
301	QuoteResponseLevel	N	Level of Response requested from receiver of quote messages.		
component block <Parties>		N	Insert here the set of "Parties" (firm identification) fields defined in "Common Components of Application Messages"		
336	TradingSessionID	N			
625	TradingSessionSubID	N			
component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields defined in "Common Components of Application Messages"		
component block <FinancingDetails>		N	Insert here the set of "FinancingDetails" (symbology) fields defined in "Common Components of Application Messages"		
component block <UndInstrmtGrp>		N	Number of underlyings		
54	Side	N	Required for Tradeable or Counter quotes of single instruments		
component block <OrderQtyData>		N	Required for Tradeable quotes or Counter quotes of single instruments		
63	SettlType	N			

64	SettlDate	N	Can be used with forex quotes to specify a specific "value date". For NDFs this is required.		
193	SettlDate2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the "value date" for the future portion of a F/X swap.		
192	OrderQty2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the order quantity for the future portion of a F/X swap.		
15	Currency	N	Can be used to specify the currency of the quoted prices. May differ from the 'normal' trading currency of the instrument being quoted		
120	SettlCurrency	N	Required for NDFs to specify the settlement currency (fixing currency).		
component block <RateSource>		N			
component block <Stipulations>		N	Insert here the set of "Stipulations" (repeating group of Fixed Income stipulations) fields defined in "Common Components of Application Messages"		
1	Account	N			
660	AcctIDSource	N			
581	AccountType	N	Type of account associated with the order (Origin)		
component block <LegQuotGrp>		N	Required for multileg quotes		
132	BidPx	N	If F/X quote, should be the "all-in" rate (spot rate adjusted for forward points). Note that either BidPx, OfferPx or both must be specified.		
133	OfferPx	N	If F/X quote, should be the "all-in" rate (spot rate adjusted for forward points). Note that either BidPx, OfferPx or both must be specified.		
645	MktBidPx	N	Can be used by markets that require showing the current best bid and offer		
646	MktOfferPx	N	Can be used by markets that require showing the current best bid and offer		
647	MinBidSize	N	Specifies the minimum bid size. Used for markets that use a minimum and maximum bid size.		
134	BidSize	N	Specifies the bid size. If MinBidSize is specified, BidSize is interpreted to contain the maximum bid size.		
1749	TotalBidSize	N		ADD	
648	MinOfferSize	N	Specifies the minimum offer size. If MinOfferSize is specified, OfferSize is interpreted to contain the maximum offer size.		
135	OfferSize	N	Specified the offer size. If MinOfferSize is specified, OfferSize is interpreted to contain the maximum offer size.		
1750	TotalOfferSize	N		ADD	

110	MinQty	N	For use in private/directed quote negotiations.		
62	ValidUntilTime	N	The time when the quote will expire		
188	BidSpotRate	N	May be applicable for F/X quotes		
190	OfferSpotRate	N	May be applicable for F/X quotes		
189	BidForwardPoints	N	May be applicable for F/X quotes		
191	OfferForwardPoints	N	May be applicable for F/X quotes		
1065	BidSwapPoints	N	Bid swap points of an FX Swap quote.		
1066	OfferSwapPoints	N			
631	MidPx	N			
632	BidYield	N			
633	MidYield	N			
634	OfferYield	N			
60	TransactTime	N			
40	OrdType	N	Can be used to specify the type of order the quote is for		
642	BidForwardPoints2	N	(Deprecated in FIX.5.0)Bid F/X forward points of the future portion of a F/X swap quote added to spot rate. May be a negative value		
643	OfferForwardPoints2	N	(Deprecated in FIX.5.0)Offer F/X forward points of the future portion of a F/X swap quote added to spot rate. May be a negative value		
656	SettlCurrBidFxRate	N	Can be used when the quote is provided in a currency other than the instrument's 'normal' trading currency. Applies to all bid prices contained in this quote message		
657	SettlCurrOfferFxRate	N	Can be used when the quote is provided in a currency other than the instrument's 'normal' trading currency. Applies to all offer prices contained in this quote message		
156	SettlCurrFxRateCalc	N	Can be used when the quote is provided in a currency other than the instruments trading currency.		
13	CommType	N	Can be used to show the counterparty the commission associated with the transaction.		
12	Commission	N	Can be used to show the counterparty the commission associated with the transaction.		
582	CustOrderCapacity	N	For Futures Exchanges		
100	ExDestination	N	Used when routing quotes to multiple markets		
1133	ExDestinationIDSource	N			
775	BookingType	N			
528	OrderCapacity	N			
529	OrderRestrictions	N			
423	PriceType	N			
component block <SpreadOrBenchmarkCurveData>		N			
component block <YieldData>		N			
58	Text	N			
354	EncodedTextLen	N	Must be set if EncodedText field is specified and must immediately precede it.		
355	EncodedText	N	Encoded (non-ASCII characters) representation of the Text field in the encoded		

			format specified via the MessageEncoding field.		
StandardTrailer		Y			

5.2 Quote Status Report

Tag	*FieldName*	*Req'd*	*Comments*	*Action*	*Mapping Usage and Comments*
StandardHeader		Y	MsgType = AI		
649	QuoteStatusReqID	N			
131	QuoteReqID	N	Required when quote is in response to a Quote Request message		
117	QuoteID	N	Maps to QuoteID(117) of a single Quote(MsgType=S) or QuoteEntryID(299) of a MassQuote(MsgType=i).		
1751	SecondaryQuoteID	N		ADD	
1166	QuoteMsgID	N	Maps to QuoteMsgID(1166) of a single Quote(MsgType=S) or QuoteID(117) of a MassQuote(MsgType=i).		
693	QuoteRespID	N	Required when responding to a Quote Response message.		
537	QuoteType	N	Quote Type If not specified, the default is an indicative quote		
298	QuoteCancelType	N			
component block <Parties>		N	Insert here the set of "Parties" (firm identification) fields defined in "Common Components of Application Messages"		
component block <TargetParties>		N	Can be populated with the values provided on the associated QuoteStatusRequest(MsgType=A).		
336	TradingSessionID	N			
625	TradingSessionSubID	N			
component block <Instrument>		N	Conditionally required when reporting status of a single security quote.		
component block <FinancingDetails>		N	Insert here the set of "FinancingDetails" (symbology) fields defined in "Common Components of Application Messages"		
component block <UndInstrmtGrp>		N	Number of underlyings		
54	Side	N			
component block <OrderQtyData>		N	Required for Tradeable quotes of single instruments		
63	SettlType	N			
64	SettlDate	N	Can be used with forex quotes to specify a specific "value date"		
193	SettlDate2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the "value date" for the future portion of a F/X swap.		
192	OrderQty2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the		

			order quantity for the future portion of a F/X swap.		
15	Currency	N	Can be used to specify the currency of the quoted prices. May differ from the 'normal' trading currency of the instrument being quoted		
component block <Stipulations>		N			
1	Account	N			
660	AcctIDSource	N			
581	AccountType	N	Type of account associated with the order (Origin)		
component block <LegQuotStatGrp>		N	Required for multileg quote status reports		
component block <QuotQualGrp>		N			
126	ExpireTime	N			
44	Price	N			
423	PriceType	N			
component block <SpreadOrBenchmarkCurveData>		N			
component block <YieldData>		N			
132	BidPx	N	If F/X quote, should be the "all-in" rate (spot rate adjusted for forward points). Note that either BidPx, OfferPx or both must be specified.		
133	OfferPx	N	If F/X quote, should be the "all-in" rate (spot rate adjusted for forward points). Note that either BidPx, OfferPx or both must be specified.		
645	MktBidPx	N	Can be used by markets that require showing the current best bid and offer		
646	MktOfferPx	N	Can be used by markets that require showing the current best bid and offer		
647	MinBidSize	N	Specifies the minimum bid size. Used for markets that use a minimum and maximum bid size.		
134	BidSize	N	Specifies the bid size. If MinBidSize is specified, BidSize is interpreted to contain the maximum bid size.		
1749	TotalBidSize	N		ADD	
648	MinOfferSize	N	Specifies the minimum offer size. If MinOfferSize is specified, OfferSize is interpreted to contain the maximum offer size.		
135	OfferSize	N	Specified the offer size. If MinOfferSize is specified, OfferSize is interpreted to contain the maximum offer size.		
1750	TotalOfferSize	N		ADD	
110	MinQty	N			
62	ValidUntilTime	N			
188	BidSpotRate	N	May be applicable for F/X quotes		
190	OfferSpotRate	N	May be applicable for F/X quotes		
189	BidForwardPoints	N	May be applicable for F/X quotes		
191	OfferForwardPoints	N	May be applicable for F/X quotes		
631	MidPx	N			
632	BidYield	N			

633	MidYield	N			
634	OfferYield	N			
60	TransactTime	N			
40	OrdType	N	Can be used to specify the type of order the quote is for		
642	BidForwardPoints2	N	(Deprecated in FIX.5.0)Bid F/X forward points of the future portion of a F/X swap quote added to spot rate. May be a negative value		
643	OfferForwardPoints2	N	(Deprecated in FIX.5.0)Offer F/X forward points of the future portion of a F/X swap quote added to spot rate. May be a negative value		
656	SettlCurrBidFxRate	N	Can be used when the quote is provided in a currency other than the instrument's 'normal' trading currency. Applies to all bid prices contained in this message		
657	SettlCurrOfferFxRate	N	Can be used when the quote is provided in a currency other than the instrument's 'normal' trading currency. Applies to all offer prices contained in this message		
156	SettlCurrFxRateCalc	N	Can be used when the quote is provided in a currency other than the instruments trading currency.		
13	CommType	N	Can be used to show the counterparty the commission associated with the transaction.		
12	Commission	N	Can be used to show the counterparty the commission associated with the transaction.		
582	CustOrderCapacity	N	For Futures Exchanges		
100	ExDestination	N	Used when routing quotes to multiple markets		
1133	ExDestinationIDSource	N			
775	BookingType	N			
528	OrderCapacity	N			
529	OrderRestrictions	N			
297	QuoteStatus	N	Quote Status		
300	QuoteRejectReason	N	Reason Quote was rejected		
58	Text	N			
354	EncodedTextLen	N			
355	EncodedText	N			
StandardTrailer		Y			

5.3 Quote Cancel

Tag	*FieldName*	*Req'd*	*Comments*	*Action*	*Mapping Usage and Comments*
StandardHeader		Y	MsgType = Z		
131	QuoteReqID	N	Required when quote is in response to a Quote Request message		
117	QuoteID	N	Conditionally required when QuoteCancelType(298) = 5 (Cancel specified single quote) and SecondaryQuoteID(1751) is	MOD	

			not specified. Maps to QuoteID(117) of a single Quote(35=S) or QuoteEntryID(299) of a MassQuote(35=i).		
1751	SecondaryQuoteID	N	Conditionally required when QuoteCancelType (298) = 5 (Cancel specified single quote) and QuoteID(117) is not specified.	ADD	
1166	QuoteMsgID	N	Optionally used to supply a message identifier for a quote cancel.		
298	QuoteCancelType	Y	Identifies the type of Quote Cancel request.		
537	QuoteType	N	Conditionally required when QuoteCancelType(298)=6(Cancel by type of quote)		
301	QuoteResponseLevel	N	Level of Response requested from receiver of quote messages.		
component block <Parties>		N	Insert here the set of "Parties" (firm identification) fields defined in "Common Components of Application Messages"		
component block <TargetParties>		N	Can be used to specify the parties to whom the Quote Cancel should be applied.		
1	Account	N			
660	AcctIDSource	N			
581	AccountType	N	Type of account associated with the order (Origin)		
336	TradingSessionID	N			
625	TradingSessionSubID	N			
component block <QuotCxlEntriesGrp>		N	The number of securities (instruments) whose quotes are to be canceled Not required when cancelling all quotes.		
StandardTrailer		Y			

6 FIX component blocks

6.1 QuoteReqGrp

Tag	*FieldName*	*Req'd*	*Comments*	*Action*	*Mapping Usage and Comments*
146	NoRelatedSym	Y	Number of related symbols (instruments) in Request		
à	component block <Instrument>	Y	Insert here the set of "Instrument" (symbology) fields defined in "Common Components of Application Messages"		
à	component block <FinancingDetails>	N	Insert here the set of "FinancingDetails" (symbology) fields defined in "Common		

				Components of Application Messages"		
à	component block <UndInstrmtGrp>		N			
à	140	PrevClosePx	N	Useful for verifying security identification		
à	303	QuoteRequestType	N	Indicates the type of Quote Request (e.g. Manual vs. Automatic) being generated.		
à	117	QuoteID	N	Can be used when QuoteRequestType(303) = 3(Confirm quote).	ADD	
à	1751	SecondaryQuoteID	N	Can be used when QuoteRequestType(303) = 3(Confirm quote).	ADD	
à	537	QuoteType	N	Type of quote being requested from counterparty or market (e.g. Indicative, Firm, or Restricted Tradeable) Valid values used by FX in the request: 0 = Indicative, 1 = Tradeable; Absence implies a request for an indicative quote.		
à	336	TradingSessionID	N			
à	625	TradingSessionSubID	N			
à	229	TradeOriginationDate	N			
à	54	Side	N	If OrdType = "Forex - Swap", should be the side of the future portion of a F/X swap. The absence of a side implies that a two-sided quote is being requested. For single instrument use. FX values, 1 = Buy, 2 = Sell; This is from the perspective of the Initiator. If absent then a two-sided quote is being requested for spot or forward.		
à	854	QtyType	N	Type of quantity specified in a quantity field. For FX, if used, should be "0".		
à	component block <OrderQtyData>		N	Required for single instrument quoting. Required for Fixed Income if QuoteType is Tradeable.		
à	110	MinQty	N			
à	63	SettlType	N	For NDFs either SettlType (specifying the tenor) or SettlDate must be specified.		
à	64	SettlDate	N	Can be used (e.g. with forex quotes) to specify the desired "value date". For NDFs either SettlType (specifying the tenor) or SettlDate must be specified.		
à	193	SettlDate2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the "value date" for the future portion of a F/X swap.		
à	192	OrderQty2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the order quantity for the future portion of a F/X swap.		
à	15	Currency	N	Can be used to specify the desired currency of the quoted price. May differ from the 'normal' trading currency of the instrument being quote requested.		

à	120	SettlCurrency	N	Required for NDFs to specify the settlement currency (fixing currency).		
à	component block <RateSource>		N			
à	component block <Stipulations>		N	Insert here the set of "Stipulations" (repeating group of Fixed Income stipulations) fields defined in "Common Components of Application Messages"		
à	1	Account	N			
à	660	AcctIDSource	N			
à	581	AccountType	N			
à	component block <QuotReqLegsGrp>		N			
à	component block <QuotQualGrp>		N			
à	692	QuotePriceType	N	Initiator can specify the price type the quote needs to be quoted at. If not specified, the Respondent has option to specify how quote is quoted.		
à	40	OrdType	N	Can be used to specify the type of order the quote request is for		
à	62	ValidUntilTime	N	Used by the quote initiator to indicate the period of time the resulting Quote must be valid until		
à	126	ExpireTime	N	The time when Quote Request will expire.		
à	60	TransactTime	N	Time transaction was entered		
à	component block <SpreadOrBenchmarkCurveData>		N	Insert here the set of "SpreadOrBenchmarkCurveData" (Fixed Income spread or benchmark curve) fields defined in "Common Components of Application Messages"		
à	423	PriceType	N			
à	44	Price	N	Quoted or target price		
à	640	Price2	N	(Deprecated in FIX.5.0)Can be used with OrdType = "Forex - Swap" to specify the Quoted or target price for the future portion of a F/X swap.		
à	component block <YieldData>		N	Insert here the set of "YieldData" (yield-related) fields defined in "Common Components of Application Messages"		
à	component block <Parties>		N			

7 Appendix A - Data Dictionary

Tag	Field Name	Action	Data type	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
1749	TotalBidSize	NEW	Qty	Specifies the total bid size.	TotBidSz	Add to Quote, Quote Status Report
1750	TotalOfferSize	NEW	Qty	Specifies the total offer size.	TotOfrSz	Add to Quote, Quote Status Report
1751	SecondaryQuoteID	NEW	String	Assigned by the party which accepts the quote. Can be used to provide the quote identifier assigned by an exchange, marketplace or executing system.	QID2	Add to Quote, Quote Status Report, Quote Cancel
537	QuoteType	NEW enum	Int	2 = Restricted tradeable 4 = Initially tradeable		Revised value 2(Restricted tradeable)

297	QuoteStatus	NEW enum	Int	**Update Enumerations:** 0- Accepted 1 - Cancel for Sspecific securities 2 - Canceled for specific SecurityTypes(167) 3 - Canceled forunderlying 4 - Canceled all 5 - Rejected 6 - Removed from market 7 - Expired 8 - Query 9 - Quote not found 10 - Pending 11 - Pass 12 - Locked market warning 13 - Crossed market warning 14 - Canceled due to locked market 15 - Canceled due to crossed market 16 - Active 17 - Canceled 18 - Unsolicited quote replenishment 19 - Pending end trade 20 - Too late to end New Enumerations: 21 - Traded 22 - Traded and removed		Update existing enumerations to comply with naming standards. Correct errors in sort values in enums 16 to 20.
303	QuoteRequestType	NEW enum	Int	3 = Confirm quote		
298	QuoteCancelType	Update		5 = Cancel specified single quote (elaboration: cancel single quote specified in QuoteID(117) or SecondaryQuoteID(1751)) 6 = Cancel by type of quote (elaboration: cancel quotes by type of quote specified in QuoteType(537))		

8 Appendix B - Glossary Entries

Term	Definition	Field where used

9 Appendix C - Usage Examples

9.1 Tradeable Quotes

Example 1

In this example the Quote message is always sent to the market while QuoteStatusReport and ExecutionReport is sent from the market.

New quote:

Quote QuoteID = <new>
BidSize = 100
BidPx = 12
OfferSize = 100
OfferPx = 13

QuoteStatusReport
QuoteID = <same>
SecondaryQuoteID = <new>
QuoteStatus = Accepted
BidSize = 100
TotalBidSize = 100
BidPx = 12
OfferSize = 100
TotalOfferSize = 100
OfferPx = 13

The offer side is filled with 40:

ExecutionReport
SecondaryClOrdID = <QuoteID>
OrderID = <SecondaryQuoteID>
Side = Sell (2)
OrderQty = 100
LastQty = 40
LastPx = 13
CumQty = 40
LeavesQty = 60

QuoteStatusReport
QuoteID = <same>

SecondaryQuoteID = <same>
QuoteStatus = Traded
BidSize = 100
TotalBidSize = 100
BidPx = 12
OfferSize = 60
TotalOfferSize = 100
OfferPx = 13

Replace quote (only update the prices):

Quote QuoteID = <same>
SecondaryQuoteID = <same>
TotalBidSize = 100
BidPx = 12.5
TotalOfferSize = 100
OfferPx = 13.5

QuoteStatusReport
QuoteID = <same>
SecondaryQuoteID = <same>
QuoteStatus = Accepted
BidSize = 100
TotalBidSize = 100
BidPx = 12
OfferSize = 60
TotalOfferSize = 100
OfferPx = 13

9.2 Initially Tradeable Quotes

Example 1:
In this example the Quote message is always sent to the market while QuoteStatusReport and ExecutionReport is sent from the market.

New quote:
Quote QuoteID = <new>
QuoteType = 4 (Initially Tradeable)
BidSize = 100
BidPx = 12
OfferSize = 100
OfferPx = 13

QuoteStatusReport
QuoteID = <same>
SecondaryQuoteID = <new>
QuoteType = 4 (Initially Tradeable)
QuoteStatus = Accepted
BidSize = 100
TotalBidSize = 100
BidPx = 12
OfferSize = 100
TotalOfferSize = 100
OfferPx = 13

The quote becomes indicative, e.g. once it is put into the order book or after e.g. 30 seconds.

An order is entered and is matched against the quote and a fill is imminent. Before the fill is executed a Quote Request is sent to the quote issuer. The WorkingIndicator for the order is set to ‘N’ and the order is queued.

NewOrderSingle
ClOrdID = <new>
Side = 1 (Buy)
Price = 13
OrderQty = 10

ExecutionReport
ClOrdID = <order’s>
WorkingIndicator = N
…

QuoteRequest
QuoteReqID = <new>
NoRelatedSym = 1
QuoteRequestType = 3 (Confirm Quote)
QuoteID = <same>
SecondaryQuoteID = <same>

The quote issuer confirms the quote without changes. Note that the quote issuer may instead update the quote or cancel the quote here.

Quote QuoteReqID = <same>
QuoteID = <same>
SecondaryQuoteID = <same>
QuoteType = 4 (Initially Tradeable)
TotalBidSize = 100
BidPx = 12
TotalOfferSize = 100
OfferPx = 13

QuoteStatusReport
QuoteID = <same>
SecondaryQuoteID = <new>
QuoteType = 4 (Initially Tradeable)
QuoteStatus = Accepted
BidSize = 100
TotalBidSize = 100
BidPx = 12
OfferSize = 100
TotalOfferSize = 100
OfferPx = 13

The WorkingIndicator of the order is changed to ‘Y’ and the order is matched against the confirmed quote.

ExecutionReport
ClOrdID = <order’s>
WorkingIndicator = Y
…

ExecutionReport for the quote fill and TradeCaptureReport for the trade are also sent (as usual).

10 Appendix D – FIX Specification

It is suggested to change the text of the specification in Volume 7, pages 207 – 228 as follows:

Continuous Market Maker Quoting

This section discusses the use of Quote and Mass Quote related messages for continuous quoting by a centralised market.

Quote Identifiers

Quote Entity Identifer

Every individual quote needs a unique identifier. The identifier should refer back to investor and his wish to invest (in the quote case, the quote issuer). In the case of continuous market maker quotes, the quote identifier is preferably static (as the decision to quote does not really change). An important aspect of this identifier is that it can be used on trades as a reference back to the quote (i.e. in Execution Reports and Trade Capture Reports). A further aspect is that the cumulative quantity and other similar properties of the Execution Report are maintained throughout the lifetime of the QuoteID (in practice normally terminated and restarted each day). Note that in the case of Quote Negotiation where the Quote is used to reply to Quote Requests, the quote identifier could have more of an order characteristic, and thereby be assigned a new value for every quote request received.

Quote identifiers are supported through:

- QuoteEntryID (299) in Mass Quote messages
- QuoteID (117) field in single Quote messages

It is recommended that the QuoteEntryID (299) and QuoteID (117) remains static when quote updates are done - in practice the quote identifier value does not change. In cases where a quote issuer is allowed to have multiple simultaneous quotes in the market, the quote identifier identifies which one of those should be updated.

The scope within which the quote identifier is unique varies and details of the identifier model should be bilaterally agreed. Recognized models:

1. ID is unique in context of quote issuer (market maker + Quote ID). Includes model where the ID is unique in itself but embeds the market maker identifier.
2. Separate ID not used at all (a quote is identified by market maker + Security)
3. ID unique in context of quote issuer and security (market maker + Security + Quote ID). This means the ID is always “1” with the following exceptions:
    - In cases where multiple quotes are allowed in a single security
    - When quotes are used in quote negotiations (multiple parallel negotiations in same security).
4. ID unique per market maker + QuoteID + QuoteSetID.

For continuous Market Maker quotes, a marketplace can assign the quote identifier values the Market Maker should use, or leave that to the Market Maker. The former is preferred in cases where the marketplace wants a globally unique quote entry index. This behavior is very similar to the marketplace assigned OrderIDs used in order routing - but assignment is not done through interactive responses, it is done by bilateral agreement/contract.

The marketplace can issue quote identifier values in addition to the quote issuer but needs to use the field SecondaryQuoteID (1751) for this purpose. It can be used on the Quote message in case of a modification or on

a Quote Cancel message in case of a deletion. It is recommended that such an identifier does not change throughput the lifetime of the quote. Conceptually, it corresponds to the OrderID (37) value for orders.

Quote Message Identifier

In cases where participants need an audit trail for quote messages, the Quote and Mass Quote messages need a quote-issuer assigned identifier. The identifier must be unique for every submission of a quote (whether the quote is new, updated or canceled). The primary usage is to serve as a message identifier. Users that so wish can secondarily use the field as a revision count – which, together with the Quote identifier, could be unique. The message identifier is relayed back on outbound messages produced as a result of the Quote. The preferred message identifiers are:

- QuoteID (117) in the Mass Quote message
- QuoteMsgID (1166) for single Quote message

Quote referencing in Market Data, Executions (fills), etc.

Execution Reports, Trade Capture Reports, Market Data and other messages produced as a consequence of a quote may need to refer to the quote. Some markets and users require that the exact revision of the quote is relayed (i.e. the identifier of the message that last updated the quote).

The recommended approach is to:

- Use the ClOrdID (11) for the Quote ~~entity~~ message identifier
- Use the SecondaryClOrdID (526) field for the Quote ~~message~~ entity identifier in cases where it needs to be relayed
- In cases where the OrderID (37) field has no other usage, set it to "[N/A]" or the Quote entity identifier

Details of identifier usage should be bilaterally agreed.

Use of Quote Identifiers

Inbound quote messages can have two identifiers:

- A message identifier that is used to identify each inbound message uniquely. This message identifier has a purpose similar to the ClOrdID used for orders.
- An entity identifier that is used to identify each quote entry over time. This identifier has a purpose similar to the OrderID used for orders, but it should be noted that the receiver of a quote does not assign this identifier - it is expected to be entered by the quote issuer.

The following table illustrates the use of the Quote identifiers in various messages in quote workflows:

Table 1 - Quote Identifiers

Message Type	Identifier Type	Field	Comment
Quote	Message identifier	QuoteMsgID	
	Entity identifier	QuoteID	
Mass Quote	Message identifier	QuoteID	Note that the QuoteID is the message identifier in Mass Quote messages!
	Entity identifier	QuoteEntryID	
Quote Cancel	Message identifier	QuoteMsgID	
	Entity Identiifier	QuoteID	

Message Type	Identifier Type	Field	Comment
Quote Status Report	Message identifier	QuoteMsgID	Note that in the case a Mass Quote was the source of the individual quote – the QuoteID goes into the QuoteMsgID
	Entity identifier	QuoteID	Note that in the case a Mass Quote was the source of the individual quote – the QuoteEntryID goes into the QuoteID
Mass Quote Acknowledgement	Message identifier	QuoteID	Note that in the case of a Quote Cancel - the QuoteMsgID of the Quote Cancel go into the QuoteID. Note that in the case of a Quote Status Request – the QuoteStatusReqID go into the QuoteID
	Entity identifier	QuoteEntryID	Note that in the case a (Single) Quote was the source of the individual quote – the QuoteID goes into the QuoteEntryID
Other messages	Message identifier	ClOrdID	Note that the message identifier of the original Quote/Mass Quote message goes into the ClOrdID for reference
	Entity identifier	SecondaryClOrdID	Note that the entity identifier of the original Quote/Mass Quote message goes into the SecondaryClOrdID for reference

Use of the QuoteSetID Field

There is arguably no value in using the QuoteSetID (302) for any business purposes. The field is mandatory in Mass Quote messages, but reasonably only as it is a delimiter for the Quote Set repeating group. As the QuoteEntryID can be used to uniquely identify the entries, the QuoteSetID can be regarded as a simple sequence number that has no persistence outside the message instance.

Pre FIX 5.0 SP1 versions of FIX assigned the QuoteSetID more importance, the QuoteEntryID for example was defined in the Mass Quote message as:

- "Uniquely identifies the quote as part of a QuoteSet. Must be used if NoQuoteEntries is used"

That definition is considered contrary to the practices used in many implementations. The role of the QuoteSetID (302) is now deemphasized allowing for bilateral agreement of quote identification schemes.

Quote Entry versus Quote Modification

The size of a quote can be defined by using either BidSize(134) and OfferSize(135) or TotalBidSize(1749) and TotalOfferSize(1750) on the Quote or Mass Quote message. Pre FIX 5.0 SP3 versions of FIX only allowed BidSize(134) and OfferSize(135) which represent the remaining quantity, i.e. an existing quote was simply overwritten with the new values. This model is called **Quote Entry** and can lead to an overfill of tradable quotes due to race conditions when a fill occurs concurrently with a quote update. This can be prevented by using TotalBidSize(1749) and TotalOfferSize(1750) instead which is called the **Quote Modification** model. The two sets of size fields are mutually exclusive to convey a clear instruction to the quote receiver.

The receiver of a Quote or Mass Quote message needs to know if the intention of the message is to create a new quote or to modify an existing quote. For example if the quote is completely filled (and deleted) a quote modification could be misinterpreted as a new quote and lead to further fills..

The Quote Entry model is the only available model up to FIX 5.0 SP2 and requires to use BidSize(134) and OfferSize(135). The previous quote is simply overwritten if it exists or a new quote is entered otherwise. Automatic quote replenishment is based on the Quote Entry model.

The Quote Modification model requires to use TotalBidSize(1749) and TotalOfferSize(1750) for the quote being modified, in which case a previous quote is expected. The response message should convey with QuoteStatus (297) when this condition is not met (Quote Not Found). The total quote size is to be used to calculate the remaining quote size for each side based on the quantity executed so far. If the remaining quote size is equal to zero or less than zero, the modification is to be treated like a request to cancel the quote side.

The Quote Status Report message can carry all four size fields to convey the full state of a quote. TotalBidSize(1749) and TotalOfferSize(1750) represent the maximum quantity up to which the quote may be filled whereas BidSize(134) and OfferSize(135) represent the currently remaining quantity.

Quote Acknowledgement and Status

Some markets require that every incoming quote message should have an ack (or reject). This is obvious in cases where marketplace identifiers need to be relayed as they are used in subsequent messages as references to the quote. Quote Ack messages can also be used to limit the re-quoting speed, e.g. to support rules such as “Market Maker is allowed to send one quote update before ack on first quote is received, not more”. An ack message is preferably very lean and should contain minimal information.

Reject messages should also be as lean as possible. In the case of a Mass Quote:

- If the whole message is rejected, only the root part of the Mass Quote is relayed back, i.e. the QuoteID
- If individual Quote Entries are rejected, the root + the individual rejected entries are relayed back, not the accepted entries.

The marketplace by bilateral agreement, or the user by providing the QuoteResponseLevel (301) field, should be able to indicate what quote responses are to be disseminated. Alternatives include:

- **No acks at all**. Meaning neither Mass Quote Acknowledgement nor Quote Status Reports are produced for solicted actions.
- **Rejects only**. Meaning no positive ack’s is produced for solicited actions.
- **Summary Acknowledgement.** Meaning e.g. a Mass Quote Acknowledgement is produced for mass Quote Cancels. The Mass Quote Ack will in those cases show the total number of canceled quotes (per underlying), not the individual quotes. A Mass Quote Ack without specifying the quote entries could also be relayed as an ack to Mass Quote messages.
- **Ack each**. Same as Summary Acknowledgement except that Quote Status Reports are produced for every individual quote entry fill.

As practices vary, FIX does not require a specific default for the QuoteResponseLevel (301) field. This is especially relevant for markets not supporting the field as part of messages (instead using a standard behavior).

Parties can bilaterally agree whether to relay unsolicited Quote Status Reports produced as a result of (example events):

- The quote being exhausted and the marketplace encouraging the quote issuer to re-quote
- Other similar "warnings" to the quote issuer. Note that "locked" and "crossed" market warning are available in the QuoteStatus (297) field.
- Marketplace initiated quote modifications, for example a quote modified based on "out" or replenishment parameters which automatically inserts a new quote (with wider spread) if the quoted quantity is filled.

A reject message should contain a reject reason. Reject reasons may need to include "Quote Locked - Unable to Update/Cancel" to cover for the Quote Cancel case where a quote is locked. For example, a quote may be locked for execution in another marketplace.

The Quote Status of "Active" can be used as a reply to queries where the quote is active in the market. In cases where the Mass Quote Acknowledgement is used to respond to a Quote Status request, the Quote Status needs to be relayed per individual quote entry.

On cancellation, the QuoteCancelType (298) can be echoed in responses and the single Quote Status of "Canceled" be used.

Quote Status Usage Table

The following table shows the recommended use of the QuoteStatus field in the Quote Status Report and the Mass Quote Acknowledgment messages. The list of statuses shown includes the main values.

Request	Response		
	(Single) Quote Quote Status Report	Set of Quotes Mass Quote Acknowledgement	
	Quote Status	Quote Status	Quote Entry Status
Quote Status Request	· Rejected · Active · Canceled · Expired · Traded · Trade and Removed · Removed from Market · Quote Not Found	· Query · Rejected	· Active · Canceled · Expired · Traded · Trade and Removed · Removed from Market · Quote Not Found
Quote	· Accepted · Rejected · Canceled (if both sides = 0)	N/A	N/A
Mass Quote	N/A	· Accepted · Rejected	· Accepted · Rejected · Canceled (if both sides = 0)
Quote Cancel	· Canceled · Rejected	· Accepted · Rejected	· Canceled · Rejected (if "locked")
Unsolicited	· Traded · Traded and Removed · Removed from Market · Unsolicited Quote Replenishment	· Removed from Market · Unsolicited Quote Replenishment	· Traded · Traded and Removed · Removed from Market · Unsolicited Quote Replenishment

Reporting a Mass Cancel

Some marketplaces avoid sending out each individual quote entry on mass cancel. Those markets use an aggregated message instead, showing the underlying for which cancel have been done and the number of quotes removed. This action is used together with the QuoteResponseLevel (301) = Summary Acknowledgement. Example:

- Canceled Quotes
  - IBM – 200
  - APL – 300
  - DELL - 500

When acknowledging a mass cancel (using the Mass Quote Acknowledgement) the number of totally canceled quotes per Quote Set should be relayed. The requirement can be generalized to relay also the total number of accepted quotes and rejected quotes respectively. The following fields are used to relay the number of affected quotes:

- the number of canceled quote entries, TotNoCxldQuotes (1168)
- the number of accepted quote entries, TotNoAccQuotes (1169)
- the number of rejected quote entires, TotNoRejQuotes (1170)

The usage of the Mass Quote Acknowledgement message in response to a mass Quote Cancel should be bilaterally agreed as it means the requestor may have to receive a Quote Status report in the case of a single quote cancel or a Mass Quote Ack in the case multiple quotes where canceled.

Quote Cancel Scope

Market makers often supplies quotes based on a trading desk or some more virtual unit, e.g. in the case where the quoting obligations moves across geography depending on business hours in different parts of the world. At the same time the firm might be organized so various units quotes in various sets of security. One unit is then not allowed to cancel the quotes of another unit. High speed quoting may also require multiple sessions (connections) between each market maker unit and the marketplace. An implication of all this is that quotes are often not “owned” by individual traders or FIX sessions, but rather by that organizational unit.

Pre FIX 5.0 SP1 specification stated that Quote Cancels applied to quotes made by the "current user" (which could be interpreted as a FIX session). The concept of a "quote issuer" (a “unit”) is now introduced - i.e. a concept represented by the <Parties> component.

As an example, a Quote Cancel can limit the scope of a mass cancel by specifying the following PartyRoles:

- PartyRole = “1” – Executing Firm = Market Maker firm
- PartyRole = ”58” – Executing Unit = Trading desk
- PartyRole = “12” – Executing Trader = Individual trader

What party roles and scope limitations are available is bilaterally agreed.

Workflows

Introduction

The following rules are used as the basis for the workflows:

1. A Mass Quote always results in a Mass Quote Acknowledgement unless QuoteResponseLevel (301) = “0” (No Acknowledgement) has been specified. A Mass Quote’s should not result in multiple Quote Status Reports in response.
   a. The only exception to this rule occurs if restatements are needed due to automatic quantity refreshes or similar. In this case, the QuoteID (117) of that Quote Status Report would carry the QuoteEntryID (299) of the previously submitted Mass Quote.

2. A Quote Cancel can result in a Mass Quote Acknowledgement under the following conditions:

    a. Multiple quotes are affected, i.e. the QuoteCancelType (298) is set to “1” (Cancel for Symbol[s]), “2” (Cancel for Security Type[s]), “3” (Cancel for Underlying Symbol) or “4” (Cancel all Quotes)

    b. QuoteResponseLevel (301) has been set to “2” (Acknowledge each quote messages)

    If both conditions are not met then the Quote Status Report should be used. An exception to the rule would be a bilateral agreement to always do one or the other.

3. A Quote Status Request can result in a Mass Quote Acknowledgement under the following conditions:

    a. Multiple quotes are affected. This means that QuoteID (117) should not be provided and <UndInstrmtGrp> or other filters are specified, meaning e.g. that all strikes in a series should be returned. Since this is a query it is assumed that any qualified quote will be reported.

    If the condition is not met then the Quote Status Report should be used. An exception to the rule would be a bilateral agreement to always do one or the other.

The below table defines what messages can be used to relay request responses and unsolicited actions back to the quote issuer. The following abbreviations are used in the Comment column to clarify the mapping between the response and the message of the quote origination:

- Q = Quote
- MQ = Mass Quote
- QSR = Quote Status report
- MQA = Mass Quote Acknowledgement
- QSRq = Quote Status Request

Table 2 - Quote Response messages

INCOMING REQUEST	ACTION	OUTGOING RESPONSE	COMMENT
(Single) Quote	New	Quote Status Report	QSR.QuoteID := Q.QuoteID QSR.QuoteMsgID := Q.QuoteMsgID
Mass Quote	New	Mass Quote Acknowledgement	MQA.QuoteID := MQ.QuoteID MQA.QuoteEntryID := MQ.QuoteEntryID
(Single) Quote	Update	Quote Status Report	QSR.QuoteID := QuoteID QSR.QuoteMsgID := Q.QuoteMsgID
Mass Quote	Update	Mass Quote Acknowledgement	MQA.QuoteID := MQ.QuoteID MQA.QuoteEntryID := MQ.QuoteEntryID
(Single) Quote	Cancel (Size&Qty=0)	Quote Status Report	QSR.QuoteID := Q.QuoteID QSR.QuoteMsgID := Q.QuoteMsgID
Mass Quote	Cancel (Size&Qty=0)	Mass Quote Acknowledgement	MQA.QuoteID := MQ.QuoteID MQA.QuoteEntryID := MQ.QuoteEntryID
Quote Cancel	Cancel	Quote Status Report	Canceling single quote and (subject to bilateral agreement) when cancelling multiple quotes

			QSR.QuoteID := Q.QuoteID or MQ.QuoteEntryID QSR.QuoteMsgID := QC.QuoteMsgID
		Mass Quote Acknowledgement	Canceling multiple quotes (subject to bilateral agreement) MQA.QuoteID := QC.QuoteMsgID MQA.QuoteEntryID := Q.QuoteID or MQ.QuoteEntryID
N/A	Unsolicited State Change	Quote Status Report	Used for unsolicited replenishment of exhausted quote size (subject to bilateral agreement) QSR.QuoteID := Q.QuoteID or MQ.QuoteEntryID QSR.QuoteMsgID := Q.QuoteMsgID or MQ.QuoteID
Quote Status Request	Query	Quote Status Report	Querying for single quotes and (subject to bilateral agreement) when querying for multiple quotes QSR.QuoteID := Q.QuoteID or MQ.QuoteEntryID QSR.QuoteMsgID := QSRq.QuoteStatusReqID
		Mass Quote Acknowledgement	Querying for multiple quotes (subject to bilateral agreement) MQA.QuoteID := QSRq.QuoteStatusReqID MQA.QuoteEntryID := Q.QuoteID or MQ.QuoteEntryID
N/A	Fills	Execution Report (and Trade Capture Reports)	SecondaryClOrdID := Q.QuoteID or MQ.QuoteEntryID ClOrdID := Q.QuoteMsgID or MQ.QuoteID

Single Quote Message Scenarios

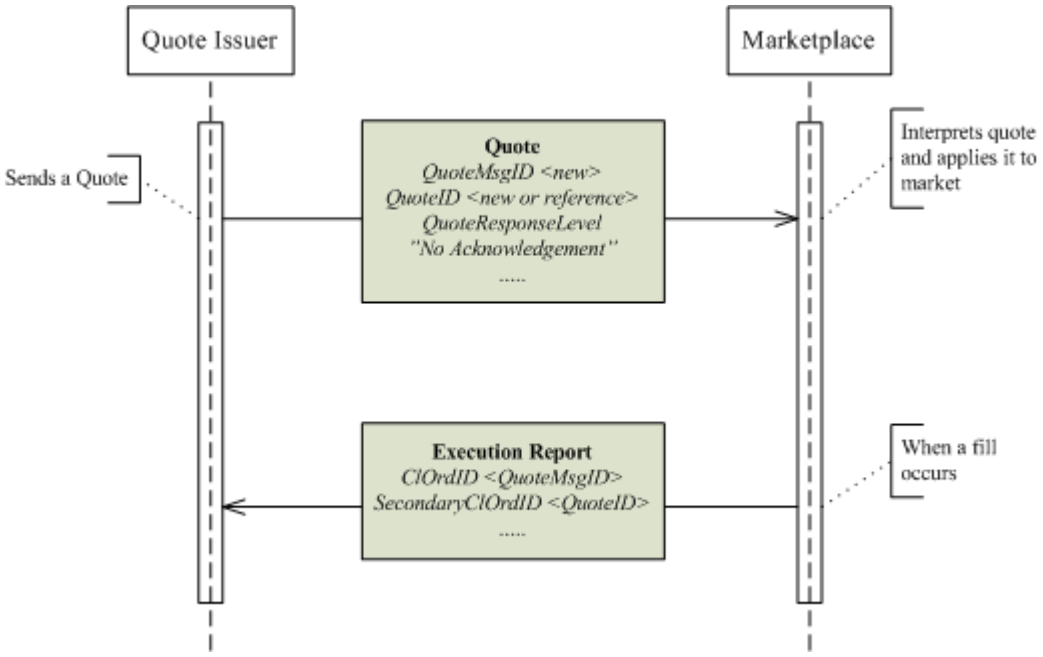
The (Single) Quote message supports:

- Adding individual quotes (if there was no previous quote in the market)
- Updating individual quotes (if there already was a quote in the market)
- Withdrawing (cancelling) individual quotes - if the bid / offer prices and sizes are set to zero in the message

Single Quote with QuoteResponseLevel = 0 (No Ack)

In the first example a Quote is sent from the quote issuer to the marketplace. The quote has the QuoteResponseLevel = 0 or omitted. The marketplace does not acknowledge the receipt of the quote. If the quote is later hit, resulting in a trade, an Execution Report is sent to the first party. The following Figure 1 depicts the workflow.

Figure 1: Single Quote with QuoteResponseLevel=0



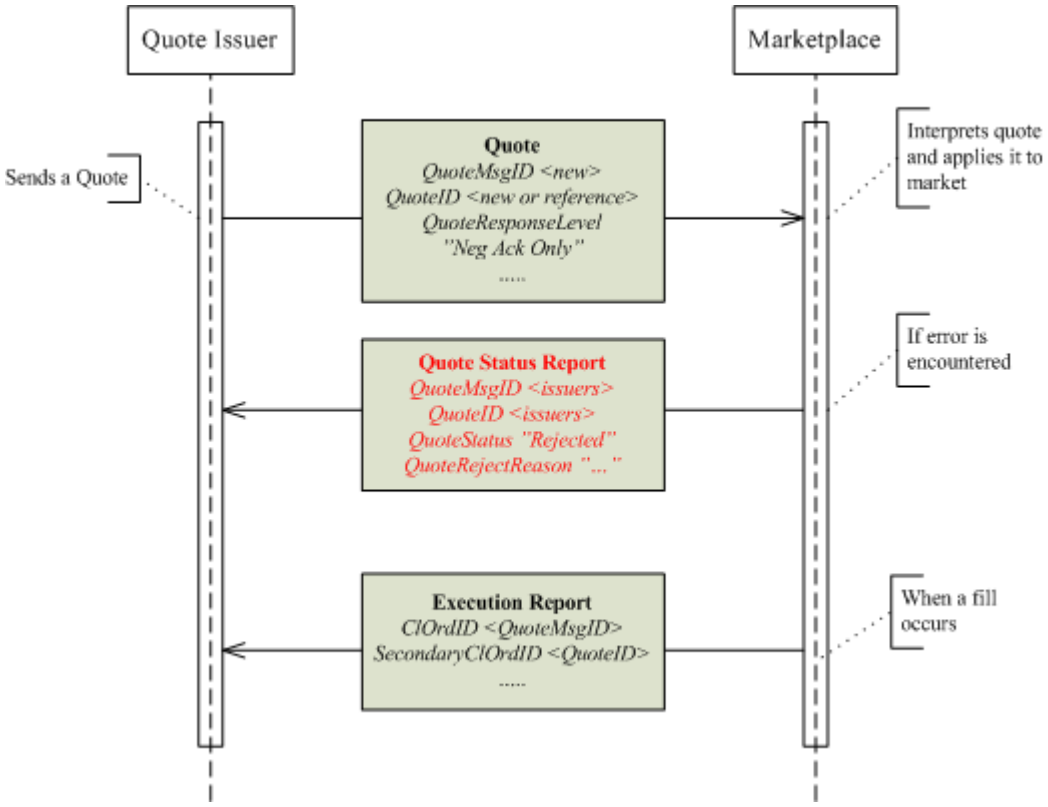
Note that:

- The QuoteMsgID (if used) is renewed for every message sent.
- The QuoteID will contain a new value when a quote is first inserted and that id is then referenced for subsequent updates. The same id can be reused in cases where both sides of the quote are cancelled or exhausted – so a quote issuer can assign a static QuoteID to every quote responsibility (security or options series).

Single Quote with QuoteResponseLevel = 1 (Negative Ack only)

In the second example, illustrated in Figure 2, a Quote is again sent from the quote issuer to the marketplace. The quote has the QuoteResponseLevel = 1. The marketplace only acknowledges the quote if there is an error. If the marketplace encounters an error while processing the quote, a Quote Status Report message is sent with the QuoteRejectReason set to the error encountered.

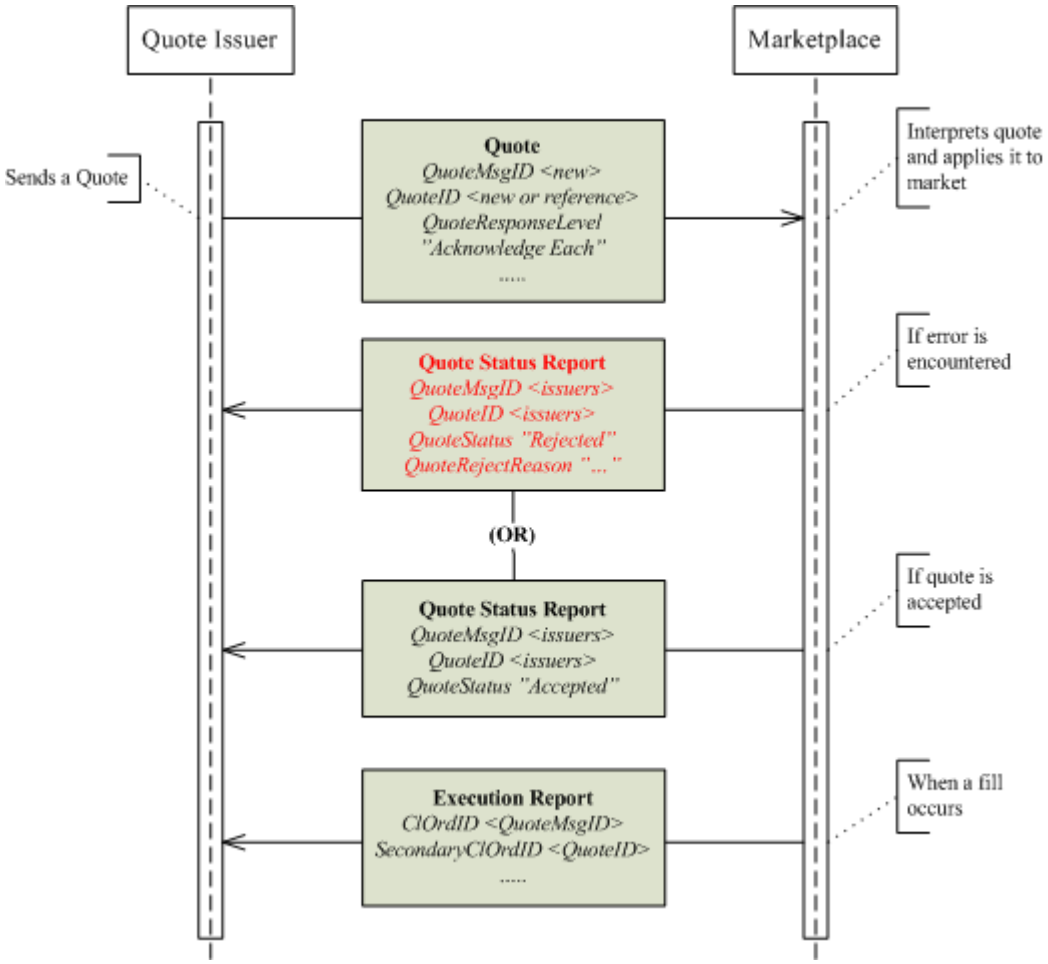
Figure 2: Single Quote with QuoteResponseLevel=1



Single Quote with QuoteResponseLevel = 2 (Ack each)

In the third example, shown in , a (Single) Quote is sent from the quote issuer to the marketplace. The quote has the QuoteResponseLevel = 2. The marketplace acknowledges each quote.

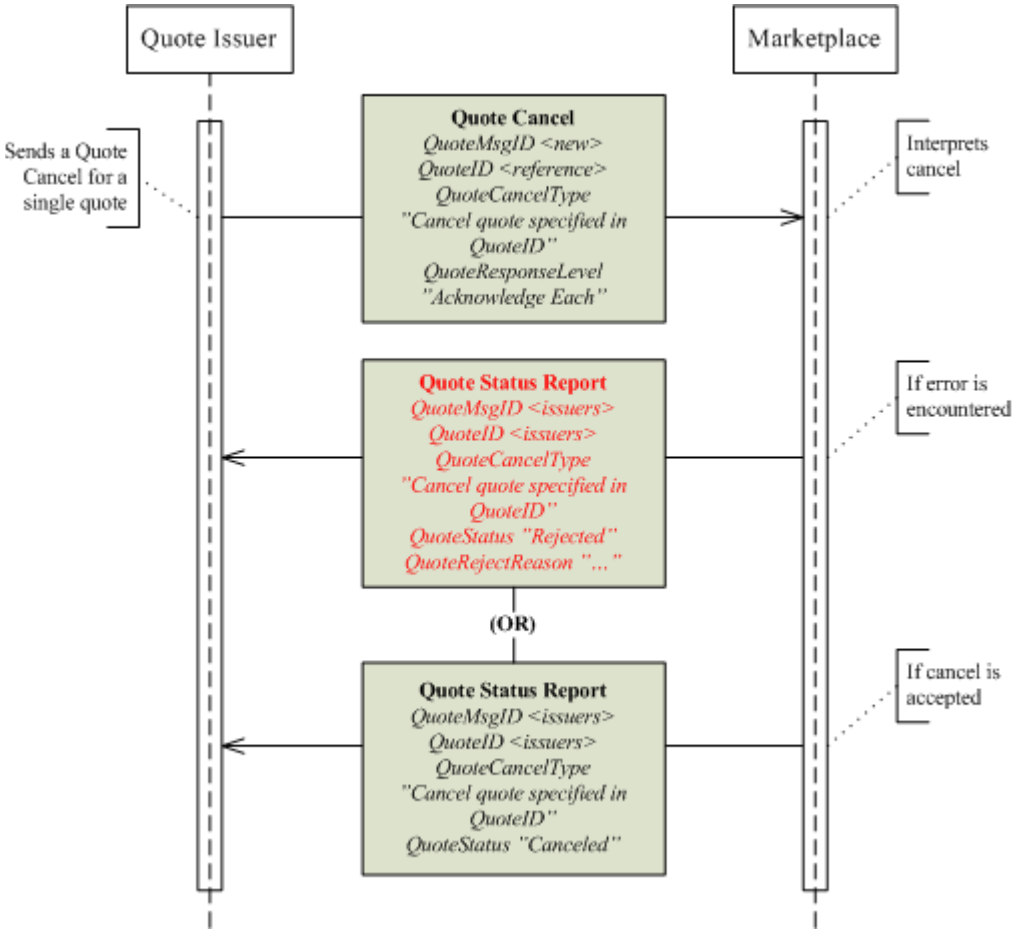
Figure 3: Single Quote with QuoteResponseLevel= 2



Single Quote Cancel

Figure 4 shows an example of a Quote Cancel identifying a single quote to be cancelled is sent.

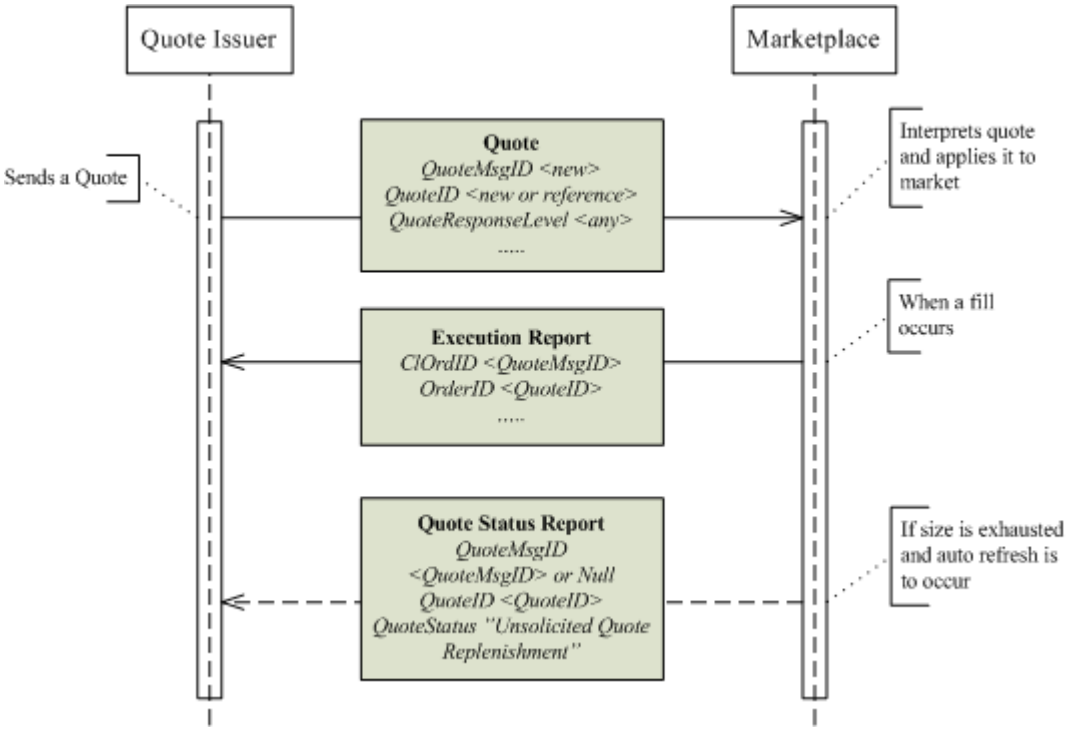
Figure 4: Single Quote Cancel



Unsolicited Actions - Single Quote Restatement

Some marketplaces, when the quote size is exhausted, support the automatic replenishment with a pre-defined quantity (and moving the price). In such cases a restatement of the quote is appropriate.

Figure 5: Single Quote Restatement



Query for Single Quote

Figure 6 shows a Quote Status Request identifying a single quote is sent.

Figure 6: Query for Single Quote