



Global Fixed Income Committee

Multi-Dealer Quote Contribution and Negotiation Extensions

August 16, 2012

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Table of Contents

1	Introduction	5
1.1	Summary of Changes	5
2	Business Workflows	9
2.1	Inquiry Timers Workflows.....	9
2.2	Inquiry Timers Diagram.....	13
2.3	Multi-Dealer Inquiry Workflow.....	14
2.4	Quote Contribution to Central Limit Order Book Workflows	18
3	Issues and Discussion Points	20
3.1	Inquiry Timers.....	20
3.2	Multi-Dealer QuoteRequest Inquiry.....	20
3.3	Quote Contribution to Central Limit Order Book.....	20
4	Proposed Message Flow	21
4.1	Multi-Dealer QuoteRequest Inquiry.....	21
4.2	Quote Contribution to Central Limit Order Book	27
5	FIX message tables.....	31
5.1	FIX Message QuoteResponse	31
5.2	FIX Message ExecutionReport	31
5.3	FIX Message Quote.....	32
6	FIX component blocks.....	33
6.1	FIX Component QuotReqGrp	33
	Appendix A - Data Dictionary.....	34
	Appendix B - Glossary Entries	38
	Appendix C – Abbreviations	38

Document History

Revision	Date	Author	Revision Comments
0.1	May 14, 2012	Yuval Cohen (Etrading Software)	Initial revision
0.2	June 08, 2012	Yuval Cohen (Etrading Software)	Updated Business Workflow section Updated FIX message tables section
0.3	July 13, 2012	Yuval Cohen (Etrading Software)	Added Quote Contribution to CLOB
0.4	July 30, 2012	Yuval Cohen (Etrading Software)	Modified following Lisa T.'s review & comments
0.5	Aug 7, 2012	Yuval Cohen (Etrading Software)	Modified following Lisa T.'s review & comments
0.6	Aug 15 2012	Yuval Cohen (Etrading Software)	Correct the description of ExpireTime (in QuotReqGrp)
0.7	Aug 16 2012	Yuval Cohen (Etrading Software)	Further to GTC meeting 16/Aug/2012: <ul style="list-style-type: none"> • Replace Wire Time Period with ExposureDuration • Added Issue and Discussion Point for the Display Time • Renamed field: CompetitorCount to NumOfCompetitors • Renamed field: DisplayTime to QuoteDisplayTime
ASBUILT	Aug. 31, 2012	L. Taikitsadaporn	ASBUILT created
	Sept. 4, 2012	R. Shriver	Assigned TBD values
	Sept. 12, 2012	L. Taikitsadaporn	Clarification edits to Data Dictionary descriptions and field usage descriptions.

1 Introduction

In 2011, the Global Fixed Income Committee produced a set of best practices documents (4 volumes) for trading IRS & CDS products, *Best Practices: FIX Message Flows and Usage for Interest Rate Swaps (IRS) and Credit Default Swaps (CDS)*. This document set was ratified by the FPL community in January 2012.

This year, the Global Fixed Income Committee has been creating a similar set of best practices documents (4 volumes) for the cash bond market; *Best Practices for Trading Fixed Income Instrument – cash bonds*. This set of best practices documents focuses on the use of FIX 5.0 SP2 for the pre-trade and trading activities of cash bond securities between the banks (dealers) and execution venues. As a result of this exercise some gaps have been identified in the FIX 5.0 SP2 specification and these are presented in this gap analysis proposal to the Global Technical Committee.

1.1 Summary of Changes

1.1.1 Inquiry timers

During the discussions on the requirements for FIX message flows for the quote/negotiation model between execution venues and dealers, it was uncovered that many execution venues use five different time periods relevant to quote/negotiation models. The following are the timer concepts commonly used:

1. **Response Time** - The time by which the quote should arrive at the execution venue. The Response Time is expressed in UTC absolute time. If a quote does not arrive at the execution venue by this time, the execution venue sends QuoteResponse(35=AJ) with QuoteRespType(694)=Timed_Out(8) to terminate the negotiation.
2. **Quote Display Time** - The time by which the execution venue will forward (reveal) the quote to the customer. The Quote Display Time is expressed in UTC time. Some execution venues refer to this time as 'Curtain Time'.
3. **Wire Time Period** - The period after which a tradeable (i.e. On-The-Wire) quote becomes indicative (i.e. Off-The-Wire). The Wire Time Period is usually expressed in number of seconds. Execution venues may send this value as a suggested, minimum or dictated period. The dealer sends the actual wire time period in each Quote(35=S) message. When the quote becomes indicative, the execution venue sends a QuoteResponse(35=AJ) with QuoteRespType(694)=Expire(3)
4. **Expire Time** - The time when the negotiation dialog will expire. The Expire Time is expressed in UTC absolute time. When the negotiation dialog expires, the execution venue sends QuoteResponse(35=AJ) with QuoteRespType(694)=Timed_Out(8) to terminate the negotiation.
5. **Order Time** - The time when the QuoteResponse(35=AJ) with either QuoteRespType(694)=Hit/Lift(1) or QuoteRespType(694)=Counter(2) expires. The Order Time is expressed in UTC absolute time in tag ValidUntilTime(62) in the QuoteResponse(35=AJ) message. If the execution venue does not receive a meaningful response, the execution venue sends QuoteResponse(35=AJ) with QuoteRespType(694)=Timed_Out(8) to terminate the negotiation.

Proposal:

To support the above inquiry timers, GFIC Technical Subcommittee proposes:

- **ResponseTime(1914**td**)** be added as a new tag of type UTCTimestamp to QuotReqGrp component and documented as: *the time by which the quote should arrive at the execution venue*
- **Quote DisplayTime(1915**td**)** be added as a new tag of type UTCTimestamp to QuotReqGrp component and documented as: *The time by which the execution venue will forward the quote to the customer*
- **ExposureDuration (1629)** be added to Quote(35=S) message and to QuotReqGrp component to accommodate the wire time period. Add to the description of ExposureDuration(1629) the following: *For Quotes: The period after which a tradeable (i.e. on-the-wire) quote becomes indicative (i.e. off-the-wire)*
 - The field usage description in QuotReqGrp component should read: *The (minimum or suggested) period after which a tradeable quote becomes indicative (i.e. off-the-wire). Some execution venues permit extending the on-the-wire period in the Quote(35=S) message.*
- **ExposureDurationUnit(1916**td**)** be added as a new enumerated tag of type int to Quote(35=S) message and to QuotReqGrp component and documented as: *Unit of time associated with the ExposureDuration(1629).. Default values may be pre-agreed by the counterparties. Additional values may be used by mutual agreement of the counterparties.*
 - The enumerated values and their descriptions are identical to the values and descriptions of tag OrderDelayUnit(1429)

In addition, GFIC Technical Subcommittee proposes to amend the following descriptions:

- ExpireTime(126) in QuotReqGrg component to say: *The time when the ~~QuoteRequest~~ negotiation dialog will expire*
- ValidUntilTime(62) in QuoteRequest(35=RAJ) message to say: *The time when the QuoteResponse(35=AJ) message will expire. Used when: QuoteRespType(694)=Hit/Lift(1) or QuoteRespType(694)=Counter(2)*

1.1.2 Multi-Dealer QuoteRequest Inquiry

In a multi-dealer inquiry, the customer sends a QuoteRequest(35=R) ~~targetting to~~ multiple competing dealers. Many execution venues send NumOfCompetitors(1913~~tb~~) in the QuoteRequest(35=R) message that is sent to the dealer. This indicates to the dealer how many other dealers are receiving this QuoteRequest(35=R):

- **NumOfCompetitors(1913~~tb~~)** details the number of dealers that may respond to a QuoteRequest(35=R)

Each dealer provides a Quote(35=S) message, if they choose to quote, the customer then decides which Qquote to hit/lift in order to proceed towards an execution. Once the customer hits/lifts one of the Qquotes, the competing dealers receive a QuoteResponse(35=AJ) with QuoteResponseType(694) set to one of the following values:

- **Hit/Lift(1):** *[In the case where the dealer does not have a last look, the wining dealer receives an ExecutionReport(35=8) (instead of a QuoteResponse(35=AJ) message); ~~In such a case, QuoteResponseType is not sent~~]*
- **Cover(4):** Trade was done with another quote provider, quote provider's original quote price was the best price received but not traded (i.e. the cover price)
- **Done ~~A~~away(5):** Trade was done with another quote provider
- **Tied(9~~tb~~):** Trade was done with another quote provider, quote provider's original quote price was the same as the traded price
- **Tied ~~C~~cover(10~~tb~~):** Trade was done with another quote provider, quote provider's original quote price was the best price received but not traded. There were other quote provider(s) with the same price.

Once the customer hits/lifts ~~a the~~ Qquote, the execution venue may choose to send the CoverPrice(~~tb~~1917) information to any or all of the participating dealers:

- **CoverPrice(1917~~tb~~):** The best price received but not traded

Proposal:

To support the additional requirements for the quote/negotiation process, the following new fields and enumeration values are proposed:

- Adding a NumOfCompetitors(~~tb~~1913) field within the QuoteRequest (35=R) message. The NumOfCompetitors(1913~~tb~~) contains the number of competitors for this ~~QuoteRequest~~quote request including the receiver of the ~~QuoteRequest~~quote request.
- Adding a CoverPrice(~~tb~~1917) field within the QuoteResponse (35=AJ) and ExecutionReport (35=8) messages. The CoverPrice(1917~~tb~~) is the best price received but not traded.
- Adding the following enumerations within the QuoteResponseType(694) field:
 - **Tied(9~~tb~~)** - Trade was done with another quote provider, quote provider's original quote price was the same as the traded price
 - **Tied ~~C~~cover(10~~tb~~)** - Trade was done with another quote provider, quote provider's original quote price was the best price not traded. There were other quote provider(s) with the same price.
- Adding elaboration to the following existing enumerations within the QuoteResponseType(694) field:
 - **Done ~~A~~away(5)** - Trade was done with another quote provider
 - **Cover(4)** - Trade was done with another quote provider, quote provider's original quote price was the best price received but not traded (i.e. the cover price)

1.1.3 Quote Contribution to Central Limit Order Book

Some central limit order book models support quote contributions for providing liquidity to the market. The typical scenario is where market makers contribute two-sided quotes to a central limit order book. Today FIX provides a QuoteMsgID(1166) field to identify the quote message and as of FIX 5.0 SP 2 EP144 the BidID(390) and OfferID(1867) fields were added to the Quote(35=S) message to identify the quote business entity.

The requirement from the GFIC is that both the quote message identifier and the quote business entity identifier are needed in the ExecutionReport(35=8) message to refer to the proper quote message and the bid/offer identifier.

This part of the proposal was coordinated with the *Global Exchange and Markets* committee.

Proposal:

GFIC Technical Subcommittee, after coordinating with the *Global Exchange and Markets* committee, would like to propose the following changes to the ExecutionReport message:

1. Amend the description of ClOrderID(11) as follows:
Required when referring to orders that were electronically submitted over FIX or otherwise assigned a ClOrdID(11).
In the case of quotes can be mapped to:
 - QuoteID(117) of a single Quote(35=S)
 - QuoteEntryID(299) of a Mass-Quote(35=i)
 - BidID(390) or OfferID(1867) of a two-sided Quote(35=S)
2. Remove (delete) the description of SecondaryClOrderID(526) in ExecutionReport(35=8) message
3. Add the QuoteMsgID(1166) to the ExecutionReport(35=8) message with the following description:
In the case of quotes can be mapped to:
 - QuoteMsgID(1166) of a single Quote(35=S) or a two-sided Quote(35=S)
 - QuoteID(117) of a Mass-Quote(35=i).

2 Business Workflows

2.1 Inquiry Timers Workflows

In a quote driven model, there are five relevant time periods:

1. **Response Time** which is very common in multi-dealer inquiries is used to enforce all dealers to submit their quotes within a given time
2. **Quote Display Time** is common in list trading where dealers are provided with time to submit quotes for the entire list. During this time the dealers may modify some of the quotes, whilst all the quotes are hidden from the customers. All the quotes are revealed together to the customer only at the *Quote Display Time*. Dealers may continue to send quotes (and quote updates) after the *Quote Display Time*, in such a case the quotes are immediately forwarded and revealed to the customer.
3. **Wire Time Period** which should be expressed as a period in field ExposureDuration(1629) in the QuoteRequest(35=R), is used for all subsequences quotes during the inquiry (and therefore cannot be expressed as absolute UTC time). In addition, most execution venues currently use wire time period in the Quote message that dealers send.
4. **Inquiry Time** or Expire Time is the overall time which is allocated for the inquiry dialog
5. **Order Time** is the time given to a dealer to respond to a customer Hit/Lift or Counter (i.e. to respond to an order which is subject to dealer's response)

2.1.1 ResponseTime Workflow: Dealer Quotes before Response Time

This scenario illustrates the case where a customer requests a quote, the dealer responds with a quote within the response time. The quote is acknowledged.

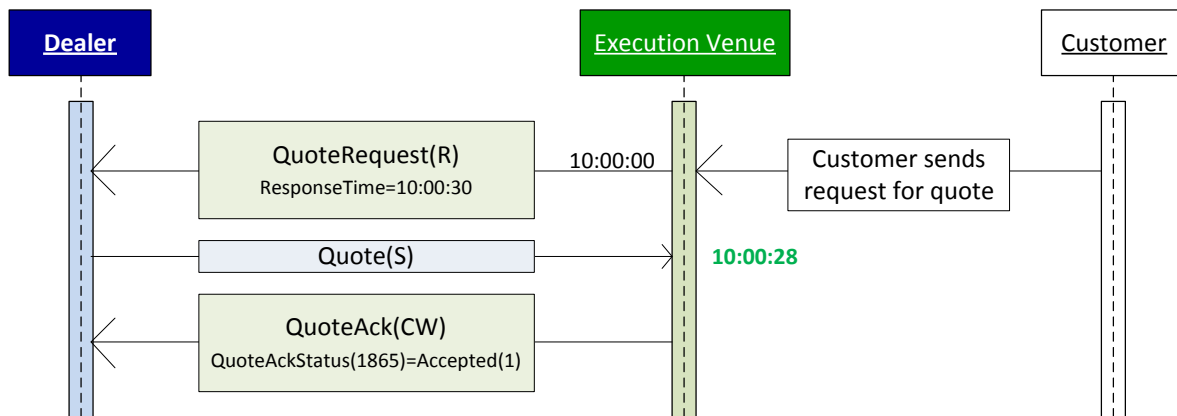


Figure 1: ResponseTime Workflow: Dealer Quote before Response Time

2.1.2 ResponseTime Workflow: Dealer too late to Quote

This scenario illustrates the case where a customer requests a quote, the dealer responds with a quote after the response time has elapsed. The quote is rejected.

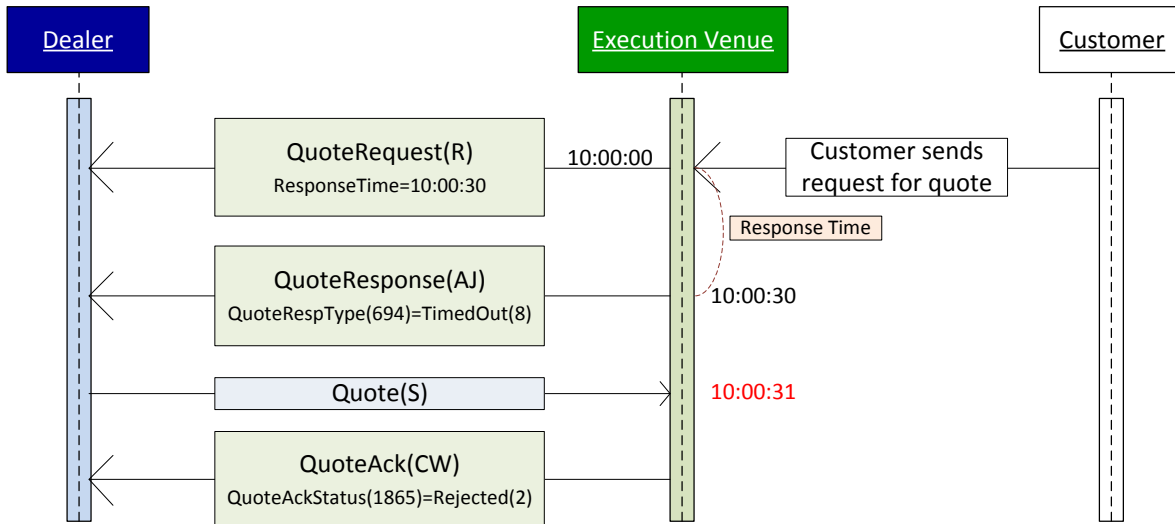


Figure 2: ResponseTime Workflow: Dealer too late to Quote

2.1.3 QuoteDisplayTime Workflow: List Trading

This scenario is where a customer submits a list trading quote request for 3 instruments. The dealer provides quotes for all 3 instruments and then updates Instrument 2. After the quote display time window expires, the customer sees all quotes and can hit/lift the tradeable prices.

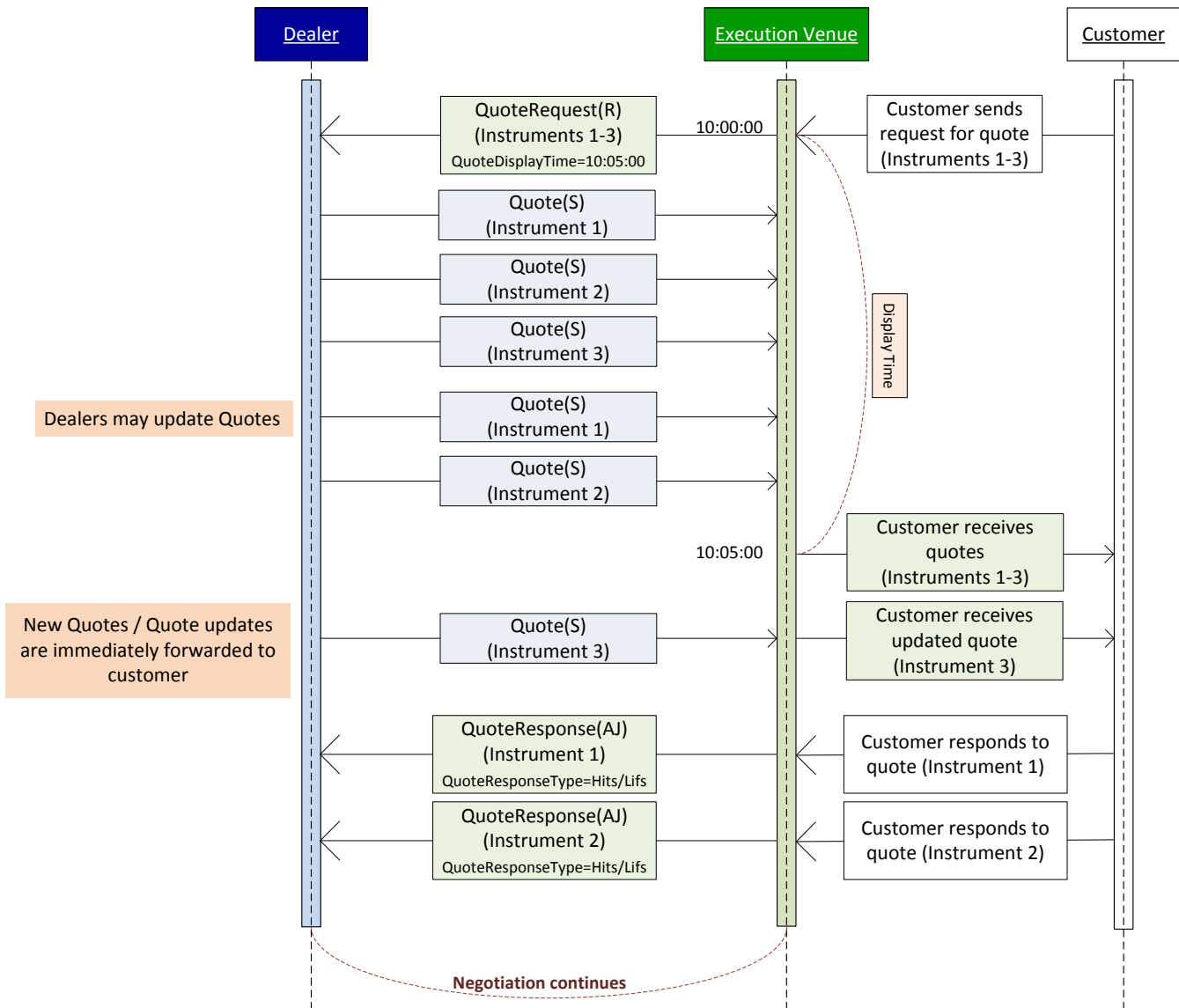


Figure 3: QuoteDisplayTime Workflow: List Trading

2.1.4 Wire Time Period Workflow

This scenario is where a dealer requested to quote with 30 seconds on-the-wire time. The dealer quotes tradeable, once the quote becomes indicative, the dealer refreshes his quote, later, while the quote is still tradeable, the dealer refreshes the quote again.

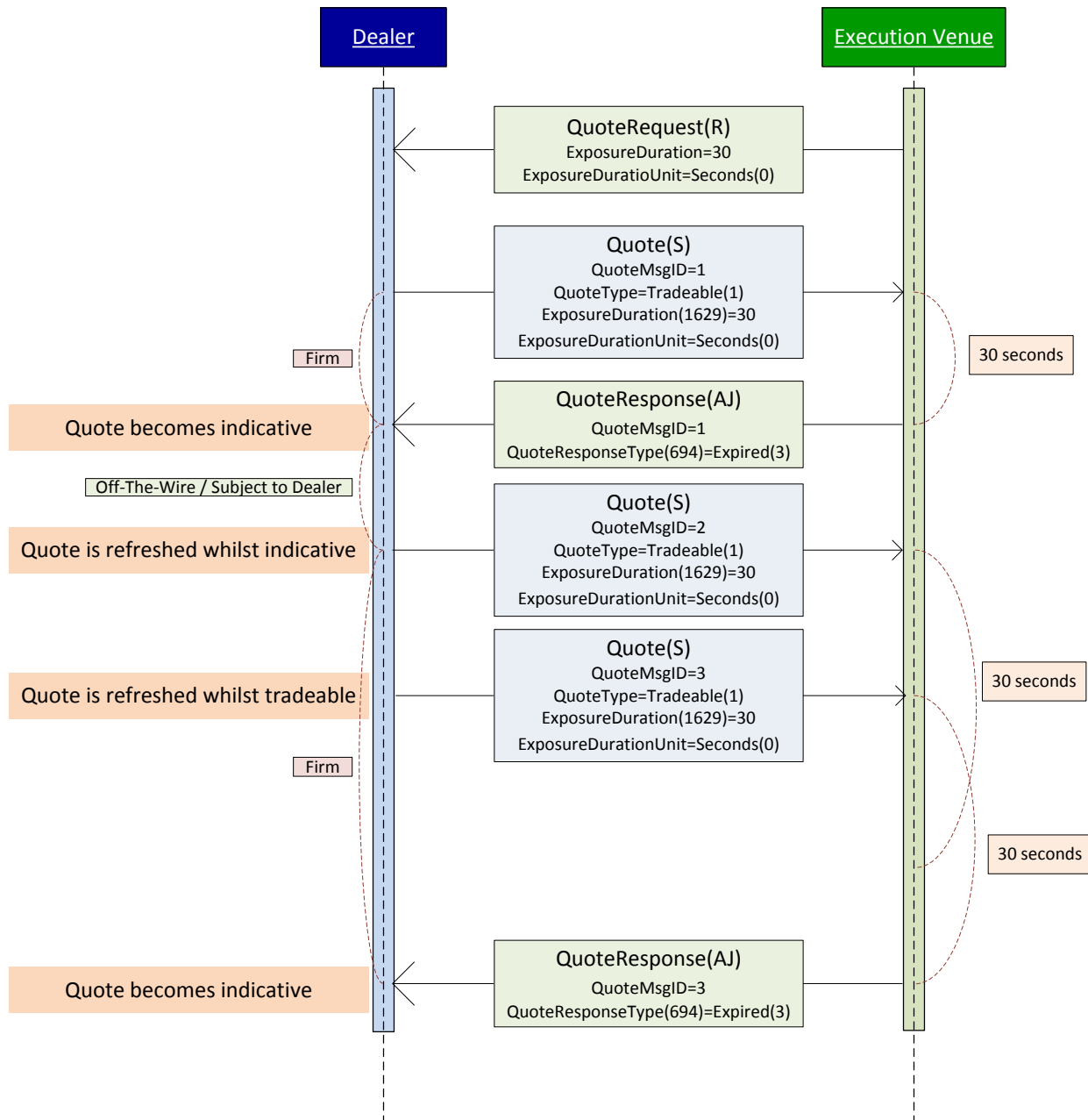
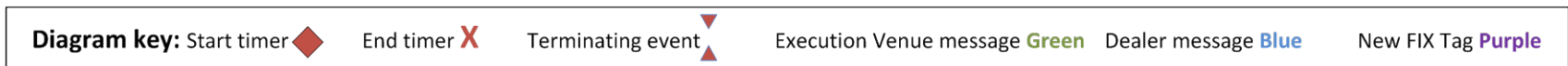
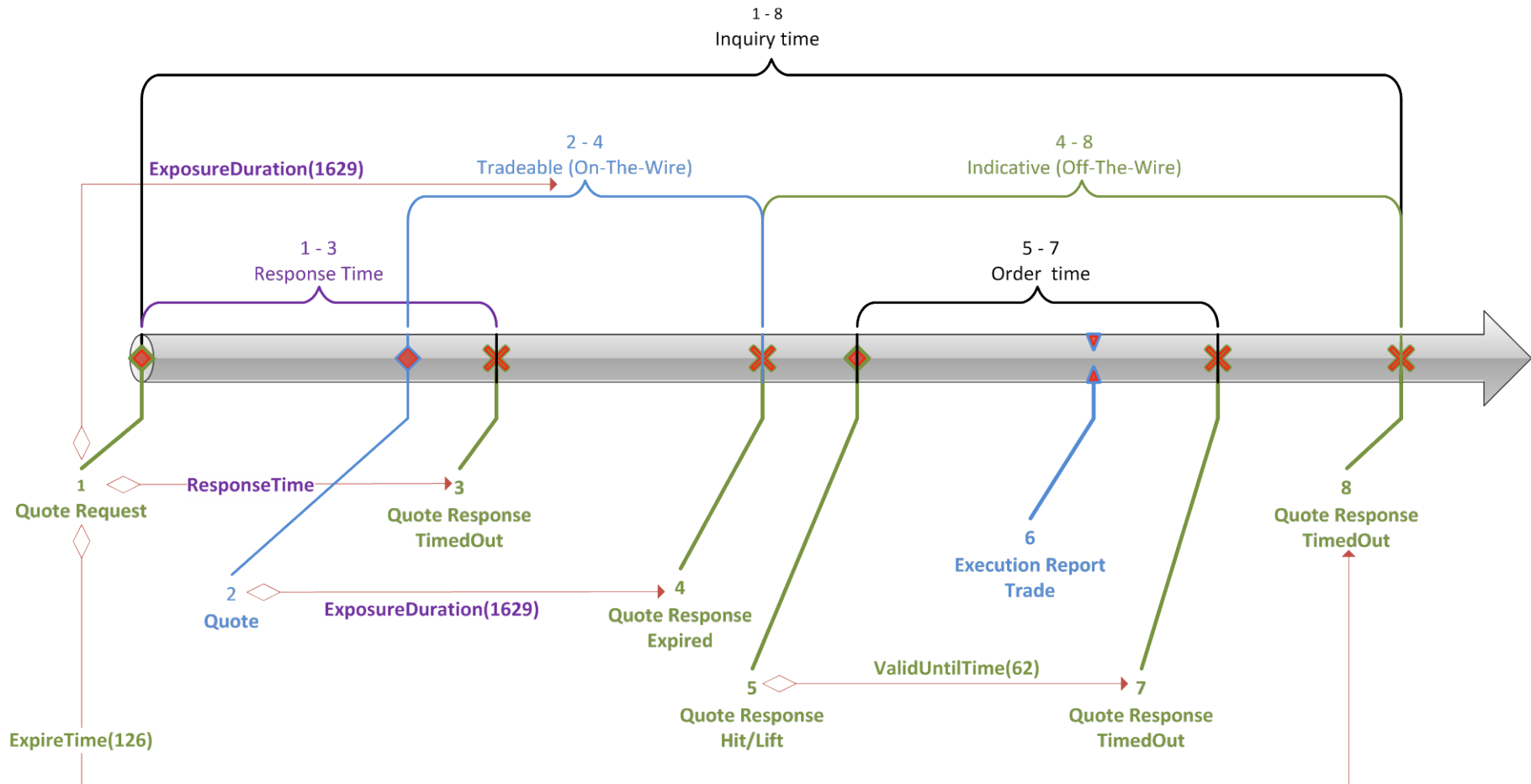


Figure 4: WireTimePeriod Workflow

2.2 Inquiry Timers Diagram

The following diagram illustrates the FIX fields related to timers in a quote driven model



2.3 Multi-Dealer Inquiry Workflow

The workflow below describes a multi-dealer quote inquiry scenario where the customer sends a QuoteRequest(35=R) to multiple competing dealers. The NumOfCompetitors(41913) contains the number of dealers in competition, including the receiver of the QuoteRequest(35=R). Each dealer, who does not win the trade, receives a QuoteResponse(35=AJ) message having the QuoteResponseType(694) tag with one of the following enumerations: Cover(4), Done_Away(5), Tied(49) or Tied_Cover(10). All dealers receive the (Hit/Lifted) price and the CoverPrice(417).

2.3.1 Multi-Dealer Inquiry Diagram

This scenario is where three dealers each provide a quote, the customer trades with the best price. Of the remaining two dealers, one is the 'Cover' and one is 'Done away'.

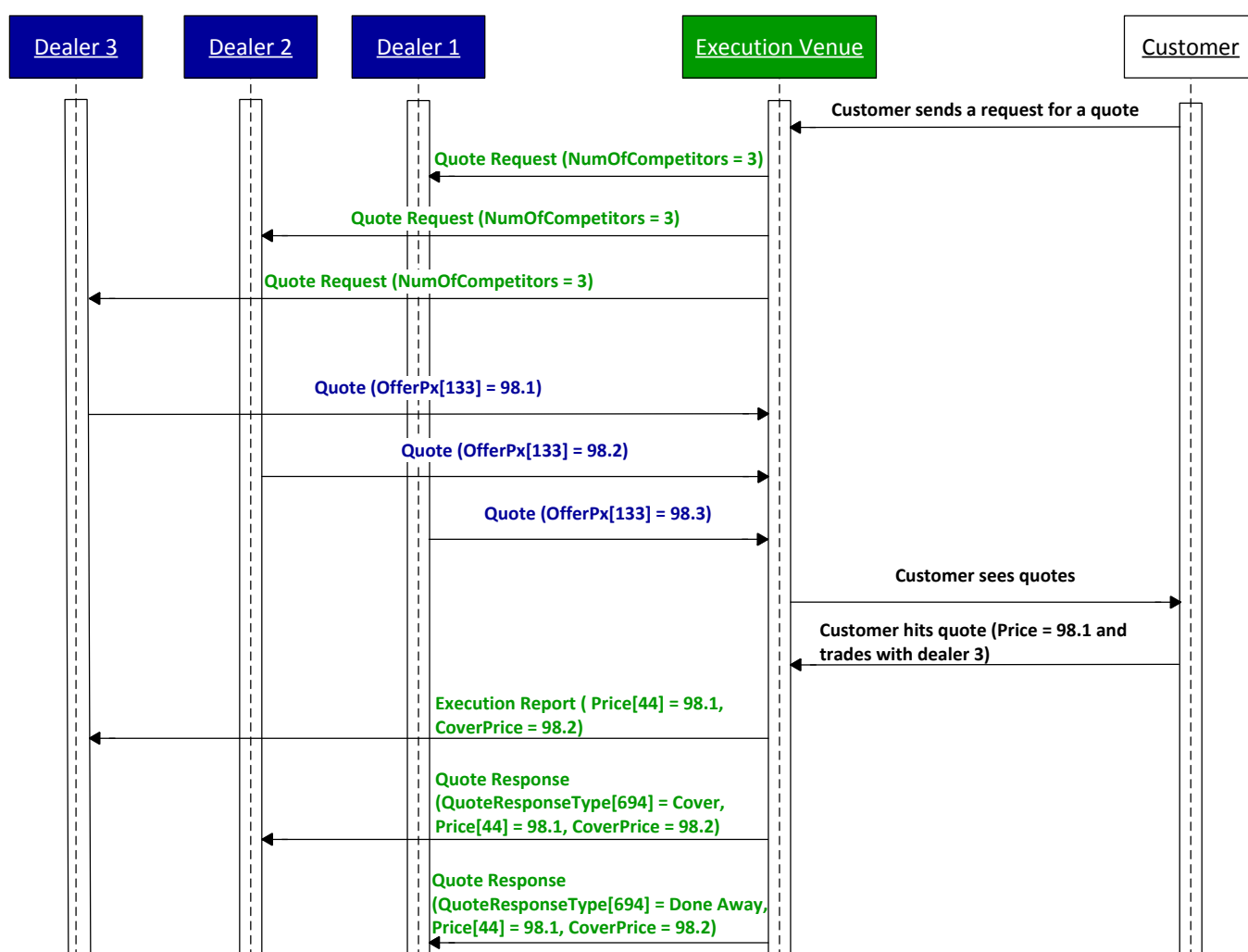


Figure 5: Multi-Dealer Quote

2.3.2 Multi-Dealer Quote (Tied)

This scenario is where three dealers each provide a quote and the customer trades with the best price. Of the remaining two dealers, one is 'Tied' and one is 'Done Away'.

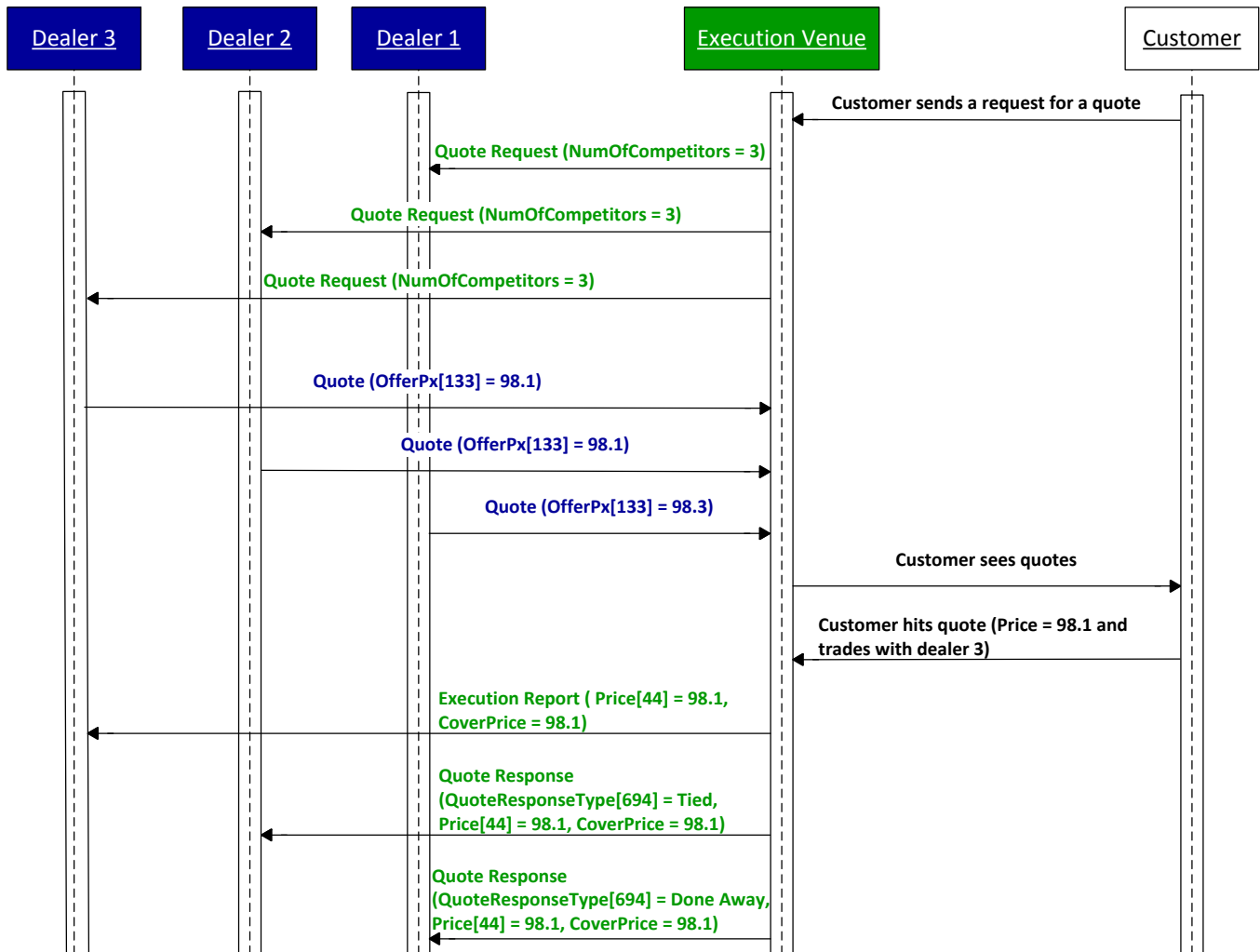


Figure 6: Multi-Dealer Quote (Tied)

2.3.3 Multi-Dealer Quote (Tied Cover)

This scenario is where three dealers each provide a quote and the customer trades with the best price. The remaining dealers are 'Tied Cover (tbd10)'.

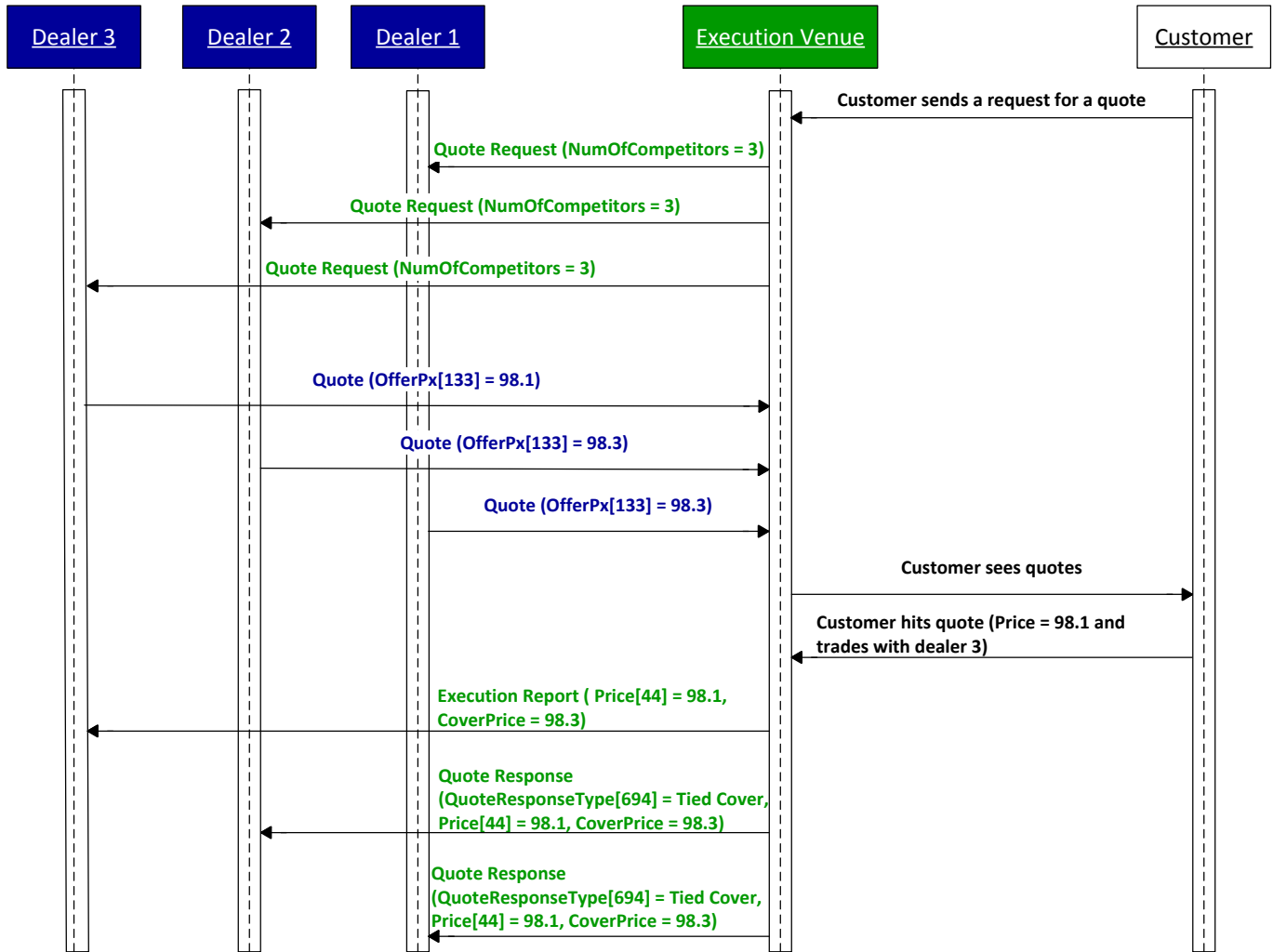


Figure 7: Multi-Dealer Quote (Tied Cover)

2.3.4 Multi-Dealer Quote. Dealer Does Not Trade with Best Price

This scenario is where three dealers each provide a quote but the customer decides to trade with a dealer who is not offering the best price. Of the remaining two dealers, one is the 'Cover' and one is 'Done away'.

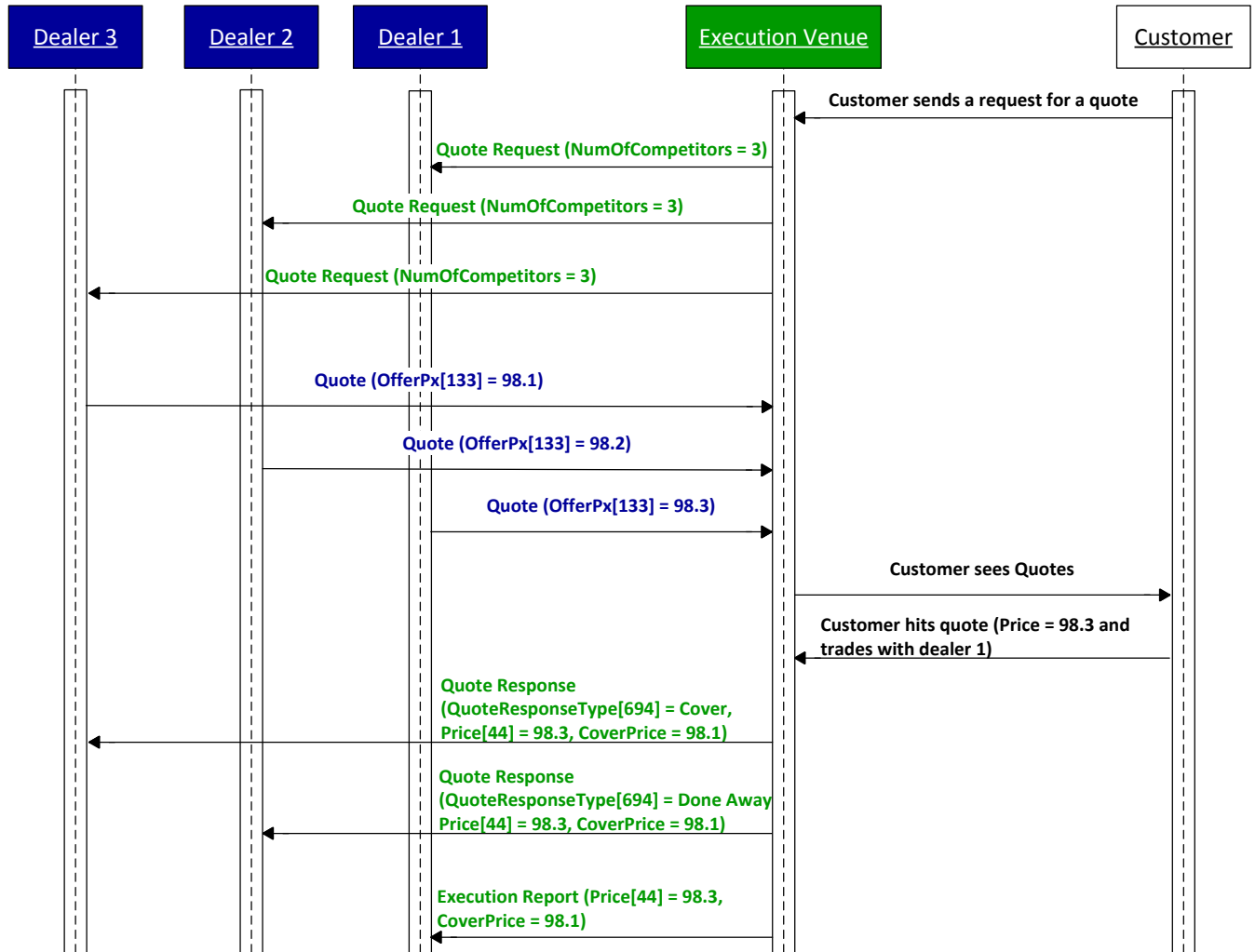


Figure 8: Multi-Dealer Quote. Dealer Does Not Trade with Best Price

2.4 Quote Contribution to Central Limit Order Book Workflows

The scenarios below describe how to associate the ExecutionReport message to the exact Quote message that triggered the execution i.e. the last Quote message that was processed by the execution venue before the quote was executed.

2.4.1 Scenario: Dealer Submits Single-Sided Quote – Update – Update - Partially Filled - Update

This scenario is where a dealer (e.g. a market maker) in a central limit order book submits a quote. The dealer updates the price twice. Once the price hits 99, the quote is partially filled. Finally the dealer updates/replenishes the bid sizes.

Dealer Submits One-sided Quote – Update – Update - Partially Filled - Update

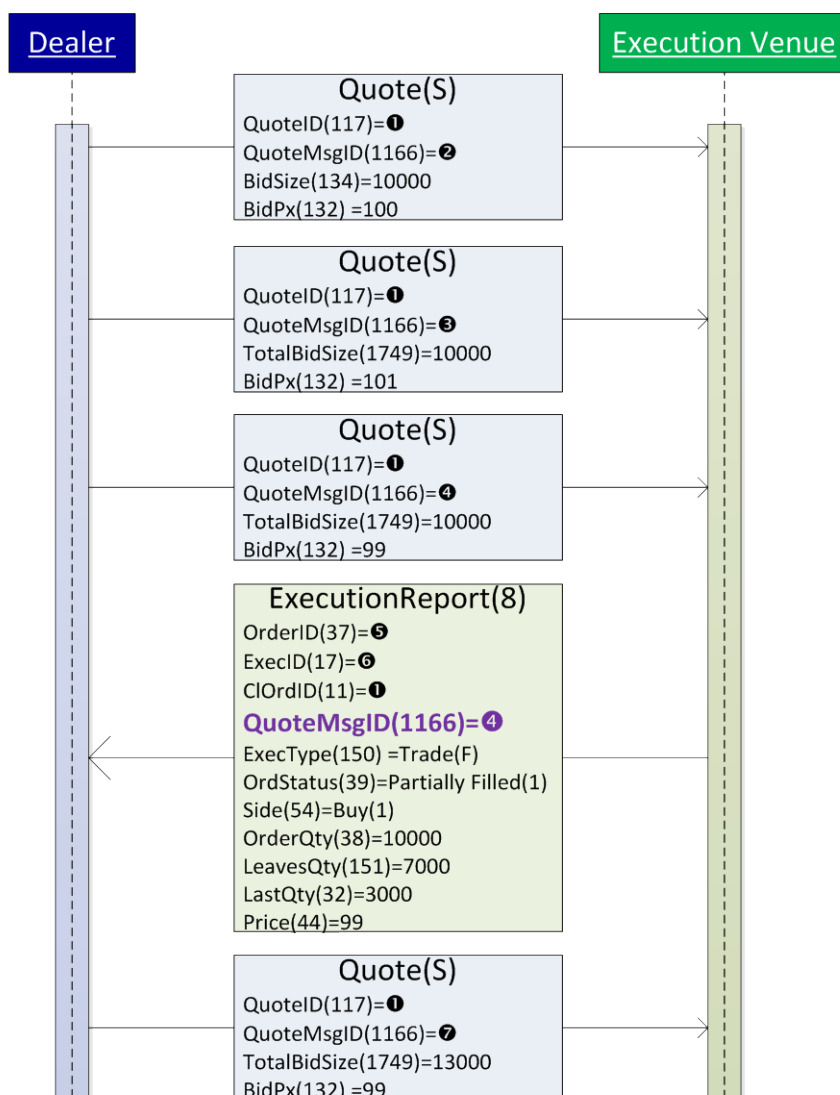


Figure 9: Dealer Submits Single-Sided Quote - Update - Update - Partially Filled - Update

2.4.1 Scenario: Dealer Submits Two-Sided Quote – Partially filled while Quote is Updated – Update rejected

This scenario is where a dealer submits a two-sided quote to a central limit order book. When the dealer updates the quote, it is being partially filled; therefore the quote update is rejected. Finally, the execution venue sends a QuoteStatusReport(35=AI) indicating the current quote status.

Dealer Submits Two-sided Quote – Partially filled while Quote is Updated – Update rejected

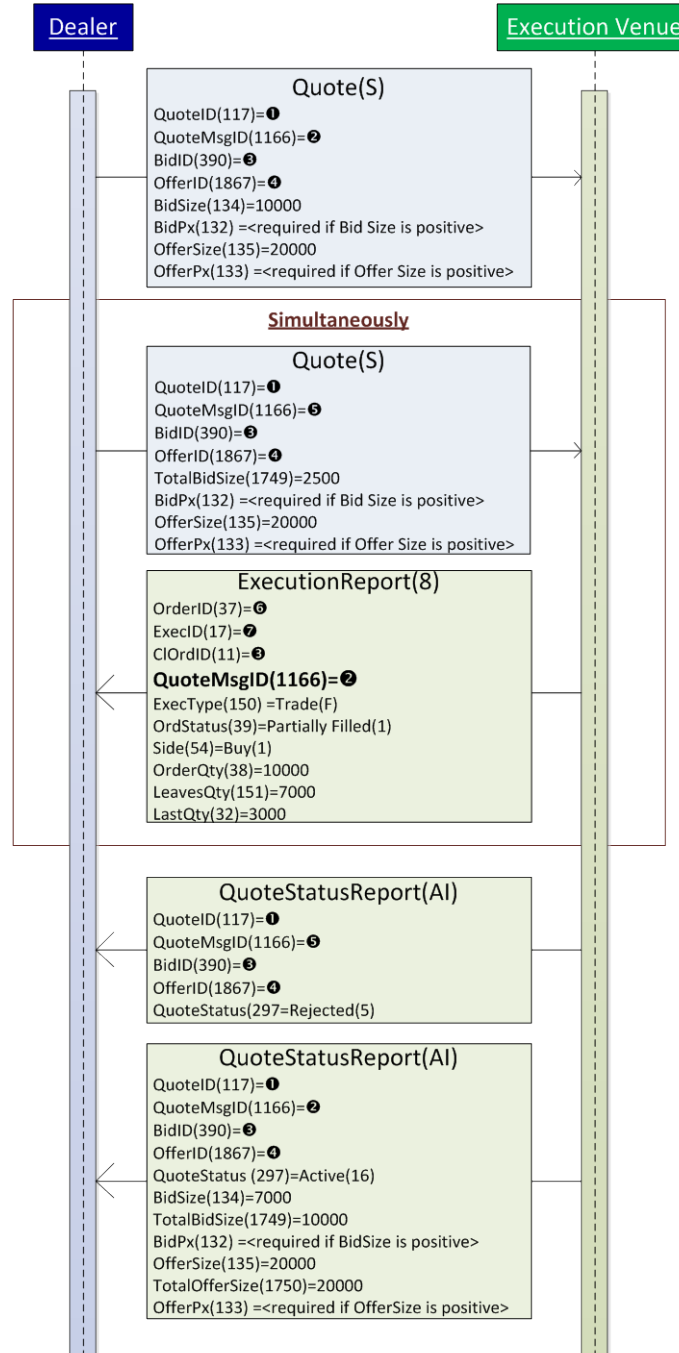


Figure 10: Dealer Submits Two-Sided Quote - Partially filled while Quote is Updated - Update rejected

3 Issues and Discussion Points

3.1 Inquiry Timers

- Some execution venues use time duration (usually in seconds) for **R**esponse **T**ime, **Q**uote **D**isplay **T**ime and **I**nquiry **T**ime. Using **time** duration exposes the dealer to line latency, whereas using an absolute UTC time exposes the dealer to clock skew. After careful consideration, the committee decided to stick with the recommended FIX approach of using an absolute UTC time wherever possible.
- Duration has to be used for the wire time since the (minimum) duration is sent once by the execution venue yet a new timer starts each time the dealer sends a quote for that request.
 - Fixed Income execution venues today that use the concept of ‘wire time’ to indicate when a tradeable quote becomes indicative, all use a duration field (measured in seconds)
 - Dealers also indicated their interest to have the wire time as a time period measured in seconds
- Dealer and execution venues have expressed confusion over the use of inquiry timers which has led to the mis-use of currently available FIX tags related to timers. Specifically, tags ValidUntilTime(62) and ExpireTime(126) in the QuotReqGrp are used in various ways without a standardized approach.
- As a result of the Aug. 16, 2012, GTC review of the proposal, a suggestion was made to take a look at the DisplayInstruction component and consider whether the new QuoteDisplayTime(1915) field should be added there, and add the **component-field** to the Quote(35=S) set of messages. After further analysis we concluded that the only change which is currently required is to add the QuoteDisplayTime(1915) to the QuotReqGrp. The reason being that we cannot foresee DisplayInstruction being applicable in quoting or negotiation models.
- As a result of the Aug. 16, 2012, GTC review of the proposal, we've made changes to use ExposureDuration(1629) for the **W**ire **T**ime **P**eriod. In addition we renamed the originally suggested field: Wire**T**ime**U**nit to be ExposureDurationUnit(1916)
- As a result of the Aug. 16, 2012, GTC review of the proposal, we have renamed DisplayTime field to be QuoteDisplayTime(1915)

3.2 Multi-Dealer QuoteRequest Inquiry

- Some execution venues need to know if the inquiry is under competition. The existence of the NumOfCompetitors(**tb**d1913) tag indicates that multiple dealers are competing for the deal.
- The QuoteResponse(35=AJ) message with QuoteResponseType = Tied(**tb**d9), Tied **C**over(**tb**d10) or Done **A**way(5) may be delayed and sent a few minutes after the deal has been completed
- As a result of the Aug. 16, 2012, GTC review of the proposal, we have renamed CompetitorCount to NumOfCompetitors

3.3 Quote Contribution to Central Limit Order Book

- The linkage between a Quote(**M**sgType35=S) and ExecutionReport(**M**sgType35=8) message through tag QuoteMsgID(1166) has been coordinated and agreed with the Global Exchanges and Markets Committee

4 Proposed Message Flow

4.1 Multi-Dealer QuoteRequest Inquiry

4.1.1 Multi-Dealer Quote

This scenario is where three of the four dealers provide a quote, the dealer who does not quote receives a QuoteResponse-(35=AJTimedOut) message indicating a "time out".

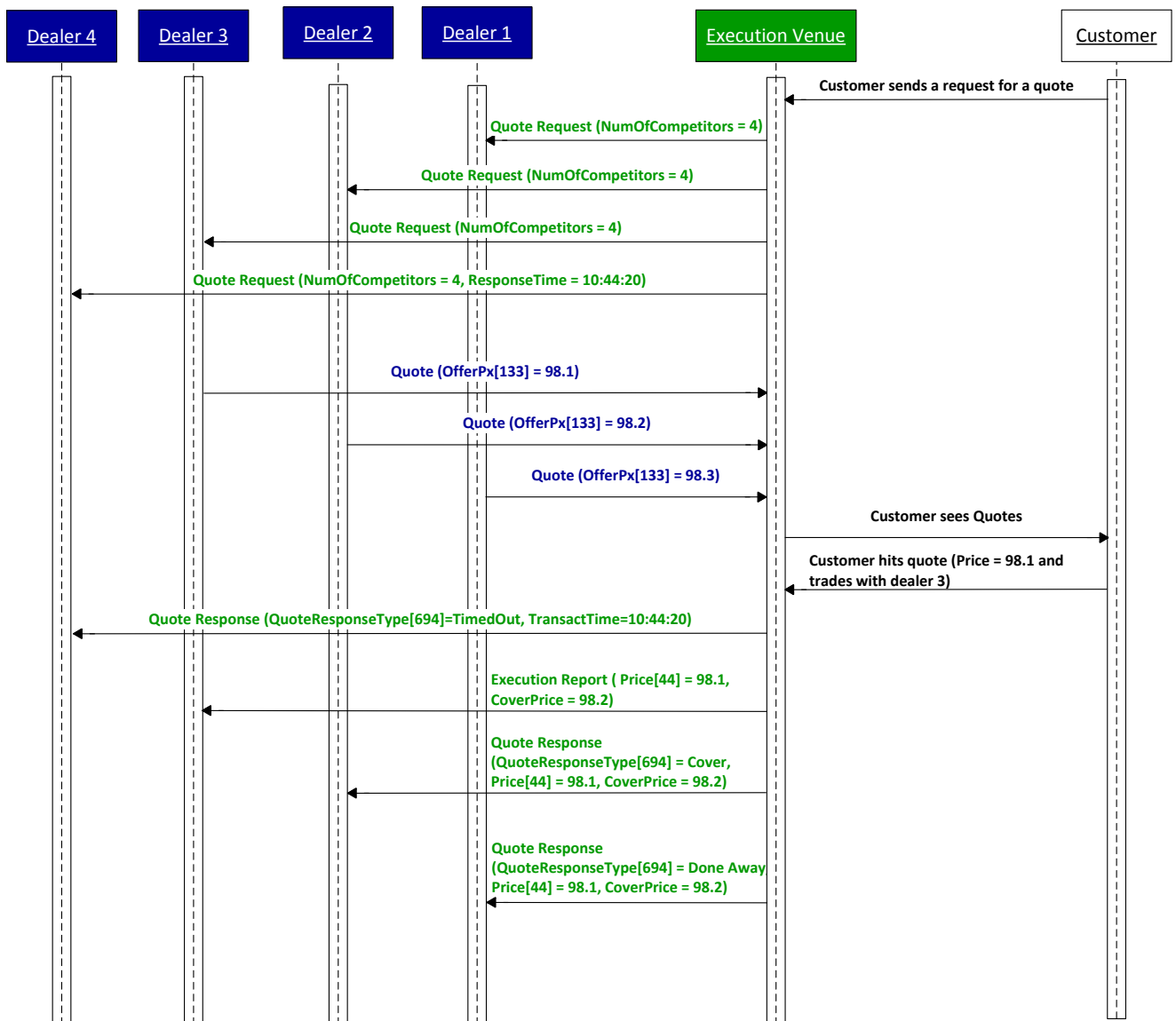


Figure 11: Multi-Dealer Quote - TimedOut

Message flow						
Message	Dealer 1	Dealer 2	Dealer 3	Dealer 4		
(A) Customer sends QuoteRequest 10:44:10	<p>R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=4 ValidUntilTime =10:45:10 ExpireTime = 10:49:10 ResponseTime(tbd1914) = 10:44:20 TransactTime(60)= 10:44:10</p>	<p>R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=4 ValidUntilTime =10:45:10 ExpireTime = 10:49:10 ResponseTime(tbd1914)= 10:44:20 TransactTime(60)= 10:44:10</p>	<p>R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=4 ValidUntilTime =10:45:10 ExpireTime = 10:49:10 ResponseTime(tbd1914) = 10:44:20 TransactTime(60)= 10:44:10</p>	<p>R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=4 ValidUntilTime =10:45:10 ExpireTime = 10:49:10 ResponseTime(tbd1914) = 10:44:20 TransactTime(60)= 10:44:10</p>		
(B) Dealers Quote	<p>S – Quote OfferPX(133)=98.3 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1) TransactTime(60)= 10:44:17 ValidUntilTime =10:45:10</p>	<p>S – Quote OfferPX(133)=98.2 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1) TransactTime(60)= 10:44:12 ValidUntilTime =10:45:10</p>	<p>S – Quote OfferPX(133)=98.1 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1) TransactTime(60)= 10:44:14 ValidUntilTime =10:45:10</p>	No Response		
(C) Customer Hits/Lifts	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Dealer</p>	<p>AJ – QuoteResponse Price(44)=98.1 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Done Aaway(5) CoverPrice(tbd1917)=98.2</p>	<p>AJ – QuoteResponse Price(44)=98.1 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Cover(4) CoverPrice(tbd1917)=98.2</p>	<p>Without Dealer’s Last Look</p>	<p>AJ – QuoteResponse QuoteReqID(131)= ❶ QuoteRespID(693)= ❷ QuoteRespType(694)=Timed Qout(8) TransactTime(60)= 10:44:20</p>	
				<p>8 – ExecutionReport Price(44)=98.1 ClOrdID(11)= ❸ OrigClOrdId(41)= ❷ OrderID(37)= ❹ ExecID(17)= ❻ ExecType(150)= Trade -partial fill or fill (F) OrdStatus(39)=Filled(2) CoverPrice=98.2</p>		<p>With Dealer’s Last Look</p>
				<p>AJ – QuoteResponse Price(44)=98.1 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteRespID(693)= ❹ QuoteRespType(694)=Hit/Lift(1) CoverPrice(tbd1917)=98.2</p>		<p>The case with Dealer’s Last Look continues</p>

Execution Venue

4.1.2 Multi-Dealer Quote (Tied)

Figure 2 describes the scenario where three dealers each provide a quote and the customer trades with the best price. Of the remaining two dealers, one is 'Tied([tbd9](#))' and one is 'Done [aA](#)way'([5](#)).

Message flow

Message		Dealer 1	Dealer 2	Dealer 3	
(A) Customer sends QuoteRequest	←	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=3	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=3	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=3	Execution Venue
(B) Dealers Quote	→	S – Quote OfferPX(133)=98.3 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	S – Quote OfferPX(133)=98.1 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	S – Quote OfferPX(133)=98.1 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	
(C) Customer Hits/Lifts	←	AJ – QuoteResponse Price(44)=98.1 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Done A away(5) CoverPrice(tbd1917)=98.1	AJ – QuoteResponse Price(44)=98.1 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Tied(9) CoverPrice(tbd1917)=98.1	Without Dealer's Last Look 8 – ExecutionReport Price(44)=98.1 ClOrdID(11)= ❸ OrigClOrdId(41)= ❷ OrderID(37)= ❹ ExecID(17)= ❻ ExecType(150)= Trade -partial fill or fill (F) OrdStatus(39)=Filled(2) CoverPrice(tbd1917)=98.1	
				With Dealer's Last Look AJ – QuoteResponse Price(44)=98.1 QuoteReqID(131)= ❶ QuoteRespID(693)= ❹ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Hit/Lift(1) CoverPrice(tbd1917)=98.1	
					The case with Dealer's Last Look continues

4.1.3 Multi-Dealer Quote (Tied Cover)

Figure 3 describes the scenario where three dealers each provide a quote and the customer trades with the best price. The remaining dealers are 'Tied Ccover(tbd10)'.

Message flow

Message		Dealer 1	Dealer 2	Dealer 3	
(A) Customer sends Quote Request		R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(<u>tbd1913</u>)=3	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(<u>tbd1913</u>)=3	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(<u>tbd1913</u>)=3	
(B) Dealers Quote		S – Quote OfferPX(133)=98.3 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	S – Quote OfferPX(133)=98.3 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	S – Quote OfferPX(133)=98.1 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	
(C) Customer Hits/Lifts				Without Dealer's Last Look 8 – ExecutionReport Price(44)=98.1 ClOrdID(11)= ❸ OrigClOrdID(41)= ❷ OrderID(37)= ❹ ExecID(17)= ❻ ExecType(150)= Trade -partial fill or fill (F) OrdStatus(39)=Filled(2) CoverPrice(<u>tbd1917</u>)=98.3	Execution Venue
		AJ – QuoteResponse Price(44)=98.1 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Tied_ <u>Ccover</u> (<u>tbd10</u>) CoverPrice(<u>tbd1917</u>)=98.3	AJ – QuoteResponse Price(44)=98.1 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Tied_ <u>Ccover</u> (<u>tbd10</u>) CoverPrice(<u>tbd1917</u>)=98.3	With Dealer's Last Look AJ – QuoteResponse Price(44)=98.1 QuoteReqID(131)= ❶ QuoteRespID(693)= ❹ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Hit/Lift(1) CoverPrice(<u>tbd1917</u>)=98.3	
				The case with Dealer's Last Look continues	

4.1.4 Multi-Dealer Quote. Dealer Does Not Trade with Best Price

Figure 4 describes the scenario where three dealers each provide a quote but the customer decides to trade with a dealer who is not offering the best price. Of the remaining two dealers, one is the ‘Cover’ and one is ‘Done Away’

Message flow

Message		Dealer 1	Dealer 2	Dealer 3	
(A) Customer sends QuoteRequest		R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=3	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=3	R – QuoteRequest QuoteReqID(131)= ❶ QuoteType(537)=Tradeable(1) NumOfCompetitors(tbd1913)=3	
(B) Dealers Quote		S – Quote OfferPX(133)=98.3 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	S – Quote OfferPX(133)=98.2 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	S – Quote OfferPX(133)=98.1 QuoteReqID(131)= ❶ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteType(537)=Tradeable(1)	
(C) Customer Hits/Lifts	Dealer	Without Dealer’s Last Look	AJ – QuoteResponse Price(44)=98.3 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Done Aaway(tbd5) -CoverPrice(tbd1917)=98.1	AJ – QuoteResponse Price(44)=98.3 QuoteRespID(693)= ❹ QuoteID(117)= ❶ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Cover(tbd4) -CoverPrice(tbd1917)=98.1	Execution Venue
		8 – ExecutionReport Price(44)=98.3 ClOrdID(11)= ❸ OrigClOrdId(41)= ❷ OrderID(37)= ❹ ExecID(17)= ❻ ExecType(150)= Trade -partial fill or fill (F) OrdStatus(39)=Filled(2) CoverPrice(tbd1917)=98.1			
		With Dealer’s Last Look			
		AJ – QuoteResponse Price(44)=98.3 QuoteReqID(131)= ❶ QuoteRespID(693)= ❹ QuoteID(117)= ❷ QuoteMsgID(1166)= ❸ QuoteRespType(694)=Hit/Lift(1) CoverPrice(tbd1917)=98.1			
		The case with Dealer’s Last Look continues			

4.2 Quote Contribution to Central Limit Order Book

4.2.1 Scenario: Dealer Submits Single-Sided Quote – Update – Update - Partially Filled – Update

This scenario is where a dealer (e.g. a market maker) in a central limit order book submits a quote. The dealer updates the price twice. Once the price hits 99, the quote is partially filled. Finally the dealer updates/replenishes the bid sizes.

Dealer Submits One-sided Quote – Update – Update - Partially Filled - Update

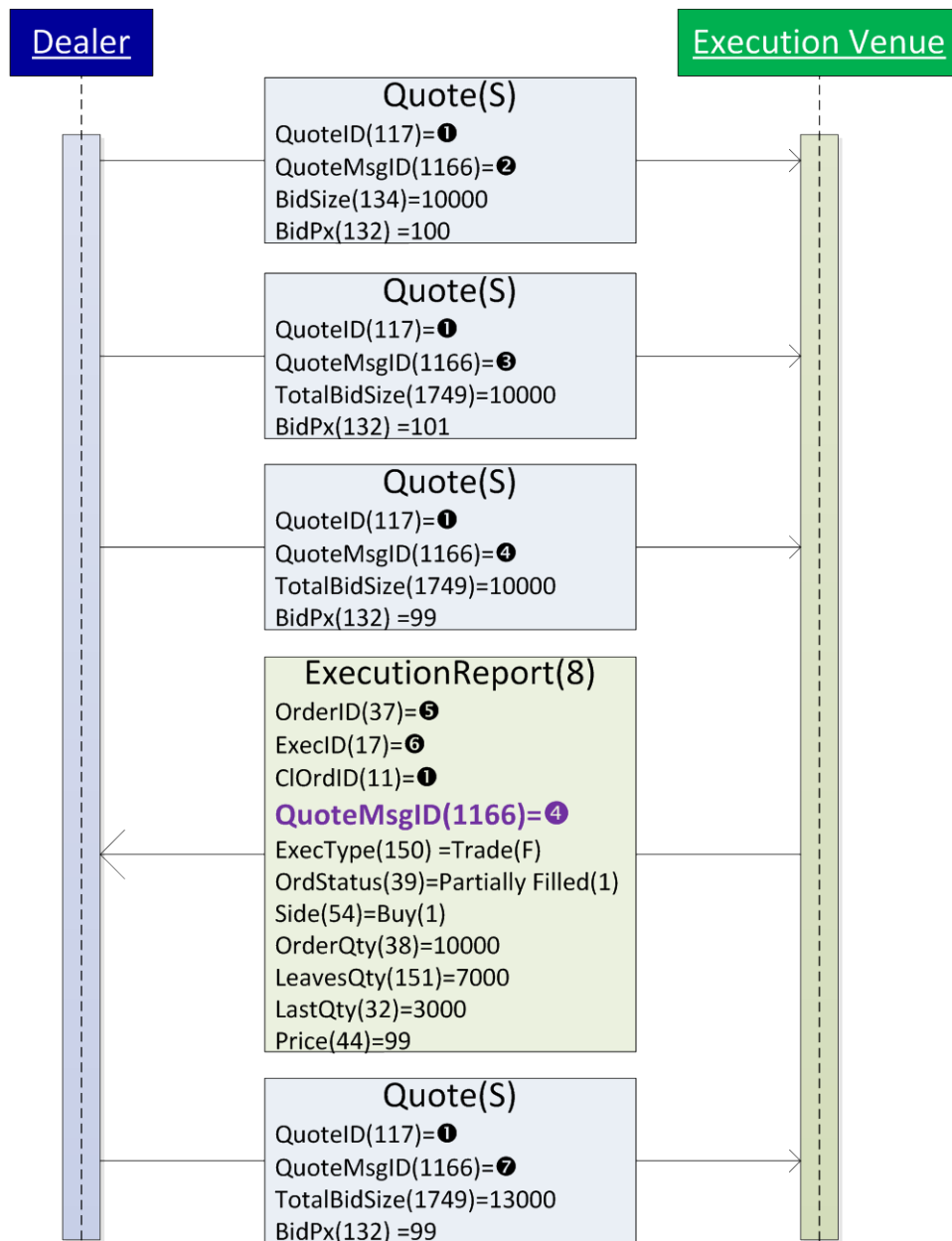


Figure 12: Dealer Submits Single-Sided Quote - Update - Update - Partially Filled - Update

Message Flow

Model FIX 5.0	
(A) Dealer Submits Quote (Bid Price=100)	<p>→ S – Quote QuoteID(117)=1 QuoteMsgID(1166)=2 BidSize(134)=10000 BidPx(132) =100</p>
(B) Dealer Updates Quote (Bid Price=101)	<p>→ S – Quote QuoteID(117)=1 QuoteMsgID(1166)=3 TotalBidSize(1749)=10000 BidPx(132) =101</p>
(C) Dealer Updates Quote (Bid Price = 99)	<p>→ S – Quote QuoteID(117)=1 QuoteMsgID(1166)=4 TotalBidSize(1749)=10000 BidPx(132) =99</p>
(D) Partially Filled	<p>← 8 – ExecutionReport OrderID(37)=5 ExecID(17)=6 CLOrdID(11)=1 QuoteMsgID(1166)=4 ExecType(150) =Trade(F) OrdStatus(39)=Partially Filled(1) Side(54)=Buy(1) OrderQty(38)=10000 LeavesQty(151)=7000 LastQty(32)=3000 Price(44)=99</p>
(E) Dealer Updates Quote (Replenished Size)	<p>→ S – Quote QuoteID(117)=1 QuoteMsgID(1166)=7 TotalBidSize(1749)=13000 BidPx(132) =99</p>

Dealer

Execution Venue

4.2.1 Scenario: Dealer Submits Two-Sided Quote – Partially filled while Quote is Updated – Update rejected

This scenario is where a dealer submits a two-sided quote to a central limit order book. When the dealer updates the quote, it is being partially filled; therefore the quote update is rejected. Finally, the execution venue sends a QuoteStatusReport indicating the current quote status.

Dealer Submits Two-sided Quote – Partially filled while Quote is Updated – Update rejected

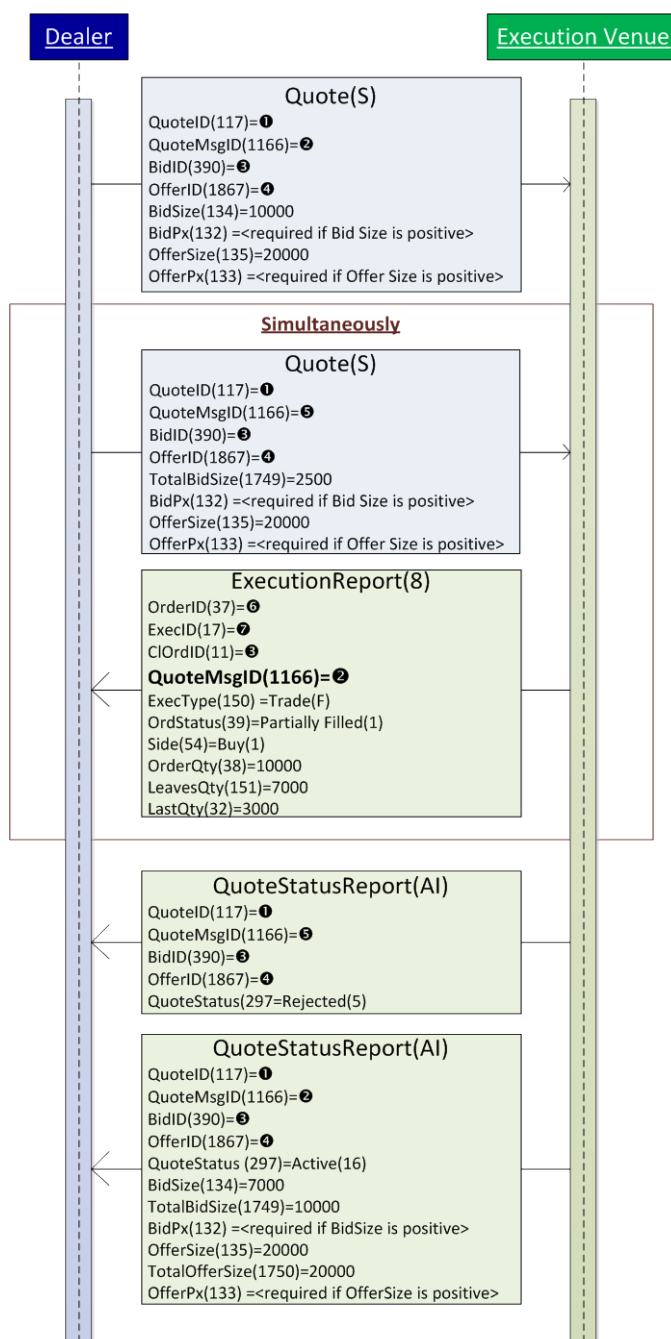


Figure 13: Dealer Submits Two-Sided Quote - Partially filled while Quote is Updated - Update rejected

5 FIX message tables

The following sections contain changes to existing messages. New message are not defined.

5.1 FIX Message QuoteResponse

QuoteResponse

Tag	Field Name	Req'd	ICR	Action	Mappings and Usage Comments	FIX Spec Comments
	Standard Header	Y				MsgType = AJ
693	QuoteRespID	Y				Unique ID as assigned by the Initiator
<...truncated...>						
62	ValidUntilTime	N		Change		The time when the QuoteResponse(35=AJ) will expire. Required for FI when the QuoteRespType(694) is either 1 (Hit/Lift) or 2 (Counter quote) to indicate to the Respondent when the counter offer is valid until.
<...truncated...>						
423	PriceType	N				
1917 TBD	CoverPrice	N		Add		The bBest price received but not traded
<...truncated...>						
	Standard Trailer	Y				

5.2 FIX Message ExecutionReport

ExecutionReport

Tag	Field Name	Req'd	ICR	Action	Mappings and Usage Comments	FIX Spec Comments
	Standard Header	Y				MsgType = 8
37	OrderID	Y				OrderID is required to be unique for each chain of orders.
198	SecondaryOrderID	N				Can be used to provide order id used by exchange or executing system.
526	SecondaryClOrderID	N		Change		In the case of quotes can be mapped to: QuoteID(117) of a single Quote QuoteEntryID(299) of a Mass Quote.
527	SecondaryExecID	N				

Tag	Field Name	Req'd	ICR	Action	Mappings and Usage Comments	FIX Spec Comments
11	ClOrdID	N		Change		Required when referring to orders that were electronically submitted over FIX or otherwise assigned a ClOrdID(11). In the case of quotes can be mapped to: <ul style="list-style-type: none"> o QuoteID(117) of a single Quote(35=S) o QuoteEntryID(299) of a Mass-Quote(35=i) o BidID(390) or OfferID(1867) of a two-sided Quote(35=S) In the case of quotes can be mapped to: <ul style="list-style-type: none"> o QuoteMsgID(1166) of a single Quote o QuoteID(117) of a Mass-Quote.
1166	QuoteMsgID	N		Add		In the case of quotes can be mapped to: <ul style="list-style-type: none"> o QuoteMsgID(1166) of a single Quote(35=S) o QuoteID(117) of a Mass-Quote(35=i).
<...truncated...>						
811	PriceDelta	N				
1917 TBD	CoverPrice	N		Add		The bBest price received but not traded.
<...truncated...>						
	Standard Trailer	Y				

5.3 FIX Message Quote

Quote

Tag	Field Name	Req'd	ICR	Action	Mappings and Usage Comments	FIX Spec Comments
	Standard Header	Y				MsgType = S
37	QuoteReqID	N		Change		Required when quote is in response to a Quote Request(35=R) message.
<...truncated...>						
110	MinQty	N				For use in private/directed quote negotiations.
1629	ExposureDuration	N		Add		
1916 TBD	ExposureDurationUnit	N		Add		
<...truncated...>						
	Standard Trailer	Y				

6 FIX component blocks

6.1 FIX Component QuotReqGrp

QuotReqGrp

Tag	Field Name	Req'd	ICR	Action	Mappings and Usage Comments	FIX Spec Comments
146	NoRelatedSym	Y				Number of related symbols (instruments) in Request
<...truncated...>						
229	TradeOriginationDate	N				
1913 TBD	NumOfCompetitors	N		Add		
54	Side	N				<p>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.</p> <p>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.</p>
<...truncated...>						
126	ExpireTime	N		Change		The time when the request for quote or negotiation dialog will expire.
1914 TBD	ResponseTime	N		Add		
1915 TBD	QuoteDisplayTime	N		Add		
1629	ExposureDuration	N		Add		The (minimum or suggested) period of time a quoted price is to be tradable -before it becomes indicative. (i.e. quoted price becomes off-the-wire).
1916 TBD	ExposureDurationUnit	N		Add		
<...truncated...>						

Appendix A - Data Dictionary

Tag	Field Name	Action	Data type	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
1913 FBD	NumOfCompetitors	NEW	int	The number of competing Respondents (e.g. dealers) to receive a quote request (either via the QuoteRequest(35=R) or via other means), competitors for this receiving a QuoteRequest(35=R) including the receiver of the QuoteRequest.	@NumCmptor sompititors	Add to component <QuoteReqGrp>
1914 FBD	ResponseTime	NEW	UTCTimeStamp	The time by which a meaningful response should arrive back (always expressed in UTC (Universal Time Coordinated, also known as "GMT")). (Elaboration: The meaning of the response time is specific to the context where the field is used. For a QuoteRequest(35=R) message, — this is the time by which the Quote(35=S) message should arrive to the initiator of the QuoteRequest(35=R) message.)	@RespTm	Add to component <QuoteReqGrp>
1915 FBD	QuoteDisplayTime	NEW	UTCTimeStamp	Time by which the quote will be displayed. (Elaboration: For example, the time the execution venue will display dealer(s) submitted quotes to market participant(s).)	@ QuotDsplyTm	Add to component <QuoteReqGrp>

1629	ExposureDuration	CHANGE	Int	<p>This is the time in seconds of a "Good for Time" (GFT) TimeInForce.</p> <p>Positive integer value which represents the time in seconds in which the new order remains active in the market before it is automatically cancelled (e.g. expired).</p> <p>Bi-lateral agreements will dictate the maximum value of this field. It is assumed that most systems will impose a max limit of 86,400 seconds (i.e. 24 hours).</p> <p>For Quotes: The period of time- a quoted price is tradable (i.e. on-the-wire) before it becomes indicative (i.e. off-the-wire).</p>	@ExpsreDur	<p>Add to component <QuoteReqGrp></p> <p>Add to message Quote <MsgType=S></p>
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<p>1916 FBD</p>	<p>ExposureDurationUnit</p>	<p>NEW</p>	<p>int</p>	<p>Time unit in which the ExposureDuration(1629) is expressed.</p> <p>Valid values: [See: tagUses values from OrderDelayUnit(1429)]</p> <p>0=Seconds (default if not specified)[Seconds] 1=Tenths of a second[TenthsOfASecond] 2=Hundredths of a second[HundredthsOfASecond] 3=milliseconds[Milliseconds] 4=microseconds[Microseconds] 5=nanoseconds[Nanoseconds] 10=minutes[Minutes] 11=hours[Hours] 12=days[Days] 13=weeks[Weeks] 14=months[Months] 15=years[Years]</p>	<p>@ExpsreDurUnit</p>	<p>Add to component <QuoteReqGrp></p> <p>Add to message Quote <MsgType=S></p> <p>Add immediately below ExposureDuration(1629) to all messages and components that contains ExposureDuration(1629) .</p> <p>Specifically add to messages:</p> <ul style="list-style-type: none"> • CrossOrderCancelReplaceRequest • ExecutionReport • MultilegOrderCancelReplace • NewOrderCross • NewOrderMultileg • NewOrderSingle • OrderCancelReplaceRequest <p>Add to components:</p> <ul style="list-style-type: none"> • ListOrdGrp • MDFullGrp • MDIncGrp • TradeReportOrderDetail
<p>1917 FBD</p>	<p>CoverPrice</p>	<p>NEW</p>	<p>Price</p>	<p>The bBest quoted price received among those not traded.</p>	<p>@CoverPx</p>	<p>Add to message QuoteResponse</p> <p>Add to message Execution Report</p>

694	QuoteResponseType	Change	int	<p>Identifies the type of QuoteResponse.</p> <p>Valid values:</p> <p>1= Hit/Lift [Hit]</p> <p>2= Counter [Counter]</p> <p>3= Expired [Expired]</p> <p>4= Cover [Cover] (Elaboration: Trade was done with another quote provider. Quote provider's original quoted price was the best price not traded (i.e. the Ccover Pprice.)</p> <p>5= Done Away [DoneAway] (Elaboration: Trade was done with another quote provider.)</p> <p>6= Pass [Pass]</p> <p>7= End Trade [EndTrade]</p> <p>8= Timed Out [TimedOut]</p> <p>9tbd = Tied [Tied] (Elaboration: Trade was done with another quote provider. Quote provider's original quoted price was the same as the traded price.)</p> <p>10tbd = Tied Ccover [TiedCover] (Elaboration: Trade was done with another quote provider. Quote provider's original quoted price was the best price not traded. There were other quote provider(s) withat the same price.)</p>	@RspTyp	
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Appendix B - Glossary Entries

Term	Definition	Field where used
Initiator	The side that initiates the QuoteRequest or receives a Quote.	
Respondent	The side that provides a Quote or Stream of Quotes.	

Appendix C – Abbreviations

Term	Proposed Abbreviation	Proposed Messages, Components, Fields where used
Competitors	Cmptors	NumOfCompetitors
Duration	Dur	