FIX 4.4 Market Data Feed

MMI BondsPro

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Table of Contents

Millennium Exchange

FIX 4.4 Market Data Feed Specification

Version	1.01
Release Date	07 Apr 2017

? Unknown Attachment

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1 FIXMD : Document Control

1.1 FIXMD : Document Information

Version	1.02
Release Date	10 Nov 2017

1.2 FIXMD : Table of Contents

Collapse allExpand all Collapse all

1.3 FIXMD : Revision History

Date	Document Version	Section	Page Version	Description	Source
TBD	1.03	FIXMD : MarketDataIncrementalRefresh Message	50	Updated the UUID (20503) field	BPRO-258
		FIXMD : Instrument Suspension and Suppression	5	Section updated with the inclusion of instrument suppression	-
		FIXMD : Variations From The FIX Protocol	5	Section udated with the inclusion of UUID (20503)	-
		FIXMD : Order Book Management (Order Depth)	23	Typos corrected	-
		FIXMD : Recovery	7	Section updated based on the inclusion of the Trading Session Status message	
25 Oct 2017	1.02	FIXMD : Recovery	6	Note added relating to the facilitation of resend requests via the MD interface	
		FIXMD : New Instruments	6	Updated the page to indicate that Security Status messages will not get published for instruments created intra-day.	
		FIXMD: Trading Halt	10	The content in this page were updated to indicate that Security Status messages will be published to indicate when an instrument is halted and when it is resumed back	

<table>
<tr><th>Date</th><th>Document Version</th><th>Section</th><th>Page Version</th><th>Description</th><th>Source</th></tr>
<tr><td></td><td></td><td></td><td></td><td>into regular trading.</td><td></td></tr>
<tr><td></td><td></td><td>FIXMD : Trading on the Order Book</td><td>12</td><td>The content in the page was updated to adhere to the new trading cycle and to only include the events for which Trading Session Status messages are disseminated.</td><td></td></tr>
<tr><td></td><td></td><td>FIXMD : System Architecture</td><td>7</td><td>Added more detail to the existing points.
Added a note based on the requirement in BPRO-712</td><td></td></tr>
<tr><td></td><td></td><td>FIXMD : Instrument Suspension</td><td></td><td>Enhanced this section to indicate the dissemination of Security Status messages when an instrument is suppressed and unsuppressed.</td><td>BPRO-410</td></tr>
<tr><td>16 Oct 2017</td><td>1.02</td><td>FIXMD : SecurityStatus Message</td><td>12</td><td>Security Status messages will not get generated for the following scheduled sessions and therefore were removed from SecurityTradingStatus<table><tr><td>18</td><td>Market Close</td></tr><tr><td>100</td><td>Pre-Trading</td></tr><tr><td>26</td><td>Post Close</td></tr><tr><td>103</td><td>End of Post Close</td></tr><tr><td>199</td><td>No Active Session</td></tr><tr><td>17</td><td>Continuous trading</td></tr></table></td><td>BPRO-410</td></tr>
<tr><td></td><td></td><td>FIXMD : TradingSessionStatus Message</td><td>5</td><td>The following fields were removed from the message;<table><tr><td>342</td><td>TradSesOpenTime</td><td>N</td><td>Time of the opening of the trading session in GMT</td></tr><tr><td>344</td><td>TradSesCloseTime</td><td>N</td><td>Closing time of the trading session in GMT</td></tr></table></td><td>BPRO-410</td></tr>
<tr><td>24 Jul 2017</td><td></td><td>FIXMD : MarketDataIncrementalRefresh Message</td><td>49</td><td>The description of the MinQty (110) field was enhanced to indicate that the MinQty field will be defaulted to</td><td>BPRO-498</td></tr>
</table>

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<tr><th>Date</th><th>Document Version</th><th>Section</th><th>Page Version</th><th>Description</th><th>Source</th></tr>
<tr><td></td><td rowspan="5"></td><td></td><td></td><td>0.</td><td></td></tr>
<tr><td>24 Jul 2017</td><td>FIXMD : Trading on the Order Book</td><td>11</td><td>The following scheduled session were removed from the spec since 'Security Status' messages will only be generated for unscheduled session changes.
1. Pre-Trading
2. Regular or Continuous Trading
3. Post Close
Furthermore the description of the page was enhanced to only cover the relevant market events and the dissemination of 'Trading Session Status' message.</td><td>BPRO-435</td></tr>
<tr><td>07 Apr 2017</td><td>1.01</td><td>FIXMD : Overview</td><td>5</td><td>The maximum number of order for which market data will get disseminated has been updated from the top 5 orders to top 20.</td><td>-</td></tr>
<tr><td></td><td>Trading on the Order Book</td><td>9</td><td>The description for Market Close has been updated to indicate that a Trading Session Status message will get disseminated during this session.</td><td>-</td></tr>
<tr><td></td><td>FIXMD : Order Book Management (Order Depth)</td><td>21</td><td>The maximum number of order that can be viewed has been updated from 5 to 20 as indicated in the Overview point.
The following sections have been added;
• Executing an Order
○ Firm Order Trades
○ Indicative Quote Trades</td><td>-</td></tr>
<tr><td></td><td>FIXMD : MarketDataIncrementalRefresh Message</td><td>48</td><td>The following tags were added to the Market Data Incremental Refresh message;<table><tr><th>Tag</th><th>Description</th></tr><tr><td>NoSecurityAltID (454)</td><td>In scenarios where both the ISIN and</td></tr></table></td><td>-</td></tr>
</table>

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<tr><th>Date</th><th>Document Version</th><th>Section</th><th>Page Version</th><th>Description</th><th>Source</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
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<tr><td></td><td>fields</td></tr>
<tr><td>MDEntryOriginator (282)</td><td>Added to transmit the Owner ID with respect to Distribution of Owner Details via Market Data</td></tr>
</table>
The description of the following tags has been updated;
• Firmness Indicator (6373)
• Mine (6372)
• FirmID (20504)
</td><td></td></tr>
<tr><td></td><td></td><td>FIXMD : SecurityStatus Message</td><td>10</td><td>The following field have been added to the message;
<table>
<tr><th>Tag</th><th>Description</th></tr>
<tr><td>NoSecurityAltID (454)</td><td rowspan="3">In scenarios where both the ISIN and CUSIP is available, the CUSIP will get disseminated via these fields</td></tr>
<tr><td>SecurityAltID (455)</td></tr>
<tr><td>SecurityAltIDSource (456)</td></tr>
</table>
End of Post Close (103) has been added as a value to the Security Trading Status (326) field.
</td><td>-</td></tr>
<tr><td></td><td></td><td>FIXMD : Variations From The FIX Protocol</td><td>4</td><td>This page has been updated to indicate the fields in the Market Data Incremental Refresh and Security Status messages that vary from the current FIX 4.4 protocol.</td><td>-</td></tr>
<tr><td></td><td></td><td>FIXMD : Recovery</td><td>4</td><td>• The existing content has been refined and added under a section called Sequence Numbers.
• Order book Publication section has been newly introduced to this page.</td><td>-</td></tr>
<tr><td></td><td></td><td>Trading Halt Reject Codes</td><td>5</td><td>This section has been introduced to specify the exact reject reasons that will be used during different</td><td>-</td></tr>
</table>

Date	Document Version	Section	Page Version	Description	Source
				Halt scenarios.	
15 Sep 2016	1.00	All	-	Initial Draft Version	-

2 FIXMD : Overview

MMI Bonds Pro FIX 4.4 market data feed allows clients to electronically receive market data from the venue. The market data feed will mainly be disseminating order book updates in a market by order manner where the price and displayed quantity of each individual order of the top <*twenty*> *(a configurable number)* orders in the order book will be published to the clients on a real-time basis.

- The encryption of messages between the client and server will not be supported.
- The interface is a point-to-point service based on the technology and industry standards TCP/IP, FIXT and FIX. The session and application event models and messages are based on versions 1.1 and 4.4 of the FIXT and FIX protocols respectively. Please refer to Section Variations from the FIX Protocol for the instances where the server varies from the FIX protocol.

3 FIXMD : System Architecture

The market data feed is load balanced by market data group.While each group will contain multiple instruments, each instrument is assigned to just one market data group.

Although the group an instrument is assigned to may change from day to day, it will not change within a day.

The BondsPro FIX 4.4 Market Data Gateway will only have a single instrument grouping which will comprise of all instruments which are part of the bondspro universe.Therefore, all market data will be disseminated using a single TCP/IP channel.

Single Port Model

Market data publication service is provided via a single port for BondsPro since Subscription Mode has not been enabled.

4 FIXMD : Connectivity

Please refer to FIX 4.4 Gateways - Common Descriptions and Messages for further details.

Note: Recovery

The recovery mechanism used by BondsPro relating to a disconnect and re-connect as well as midday login is a deviation from the general FIX standard. Please refer to 'Recovery' for further details.

5 FIXMD : Service Description

5.1 FIXMD : Overview of a Trading Day

5.1.1 FIXMD : Trading on the Order Book

The start and conclusion of a trading day are denoted by 'Market Open' and 'Market Close' events respectively. A Trading Session Status message will get published by the server at the start of each event to indicate the market has commenced or concluded for the day. Below is an overview of the event changes that occur during a trading day;

Time	Event	Description
<HH:MM:SS>	Market Open	The market data feed begins. Recipients should aim to join the feed at this time. At market open a Trading Session Status message will be disseminated to indicate the start of the market. No new orders, quotes, cancel requests and modification requests will be accepted until regular trading begins. A Security Status message is not broadcast at Market Open.
<HH:MM:SS>	Market Close	The end of the trading day. At market close, a Trading Session Status message will be disseminated to indicate that the market has ended for the day. No Security Status messages will get disseminated to indicate Market Close.

5.1.2 FIXMD: Trading Halt

An instrument may be temporarily halted during the day. A temporary trading halt will not be carried forward to the next trading day.

An instrument trading session could be halted manually by market supervision. Trading of an instrument being manually halted could be resumed via moving the instrument back to continuous trading.

The Security Status message will be published to indicate when a particular instrument is halted manually. The Security Status message will be published with Halt (2) as the SecurityTradingStatus (326). The reason for the halt a will be specified in the HaltReason (327) field. When trading is resumed a Security Status message will be published with Resume (3) as the SecurityTradingStatus (326) to indicate that the instrument is now in continuous trading. If an instrument is halted across multiple days, a Security Status message with a SecurityTradingStatus (326) of Halt (2) will be published at the start of a each trading day.

5.1.3 FIXMD : Instrument Suspension and Suppression

5.1.3.1 Instrument Suspension

An instrument may be suspended during or outside trading hours. The suspension may be lifted later in the day or it may be carried forward to subsequent trading days.

> **Information**
>
> *currently this information will not be available via FIX market data since the security definition message is not used.*

5.1.3.2 Instrument Suppression

An instrument may be suppressed by market operations or an issuer of instruments may also be suppresed as well. On both occasions instruments relating to the suppression will move to the "Pause" session.

A Security Status message with SecurityTradingStatus (326) = Pause (111) will get published to indicate that an instrument has been suppressed. Since Security Status messages are not published to indicate when an instrument enters Continuous Trading, A Security Status message with SecurityTradingStatus (326) = End of Pause (112) will get published every time an instrument or the issuer gets unsuppressed which would allow the instrument(s) to move back into continuous trading.

5.1.4 Adjustment by Market Operations

MMI Bonds Pro may extend or shorten a particular trading session. In such a case, a Security Status message will be broadcast with the value Extended by Market Operations (101) or Shortened by Market Operations (102) in the field SecurityTradingEvent (1174). The message will indicate the new time at which the session will end in the Text (58) field.

5.1.5 FIXMD : New Instruments

New instruments may be created during the trading day, however Security Status messages will not get published by the market data gateway.

5.2 FIXMD : Order Book Management (Order Depth)

The market data feed provides recipients with a view of the first *<twenty>* (a configurable number which will be configured to disseminate the full visible depth of the order book for MIM

BondsPro) orders of the order book. The feed provides the price and displayed quantity of each order. This information is broadcast as *incremental updates* by the server.

When a client connects to the market data feed successfully for the first time during the day be it at start of day or at the middle of the day a Trading Session Status message will be published to indicate the status of the environment. Afterwards, a snapshot of each populated order book for all applicable instruments will be published via Market Data Incremental Refresh messages per each instrument. There on-wards any updates, new additions or deletions to and from the order books will also be published via individual Market Data Incremental Refresh messages per entry. If for a particular active instrument there are no orders residing in the order book, the market will not disseminate any details regarding this empty book.

5.2.1 Incremental Refresh

A Market Data Incremental Refresh message will be published to indicate an update to the order book. A message may contain either an add, change or delete of an order. A single message may only include entries for a single instrument.

Each entry includes an identifier of the order in the field MDEntryID (278). As this identifier is a unique identifier assigned to the order - OrderID(37) by the matching system, recipients will be able to identify their own orders while ensuring anonymity. MDEntryID(278) is the unique identifier published via FIX 4.4 market data in MDEntryID field. MDEntryIDs, are unique across all instruments and across trading days.

5.2.1.1 Adding Liquidity

When a new order or an indicative quote is added to the order book, a Market Data Incremental Refresh will be broadcast with an MDUpdateAction (279) of New (0). The message will include the price and displayed quantity of the liquidity (order or quote).

If a dual sided quote is submitted to the order book two separate Market Data Incremental Refresh messages will get disseminated for each side with an MDUpdateAction (279) of New (0).

While the field MDPriceLevel (1023) indicates the display position of the price level the liquidity is added to, the field MDEntryPositionNo (290) will indicate its position within the price level. Price levels are numbered from most to least competitive starting with “1”. Similarly, position numbers within a price level are numbered from most to least competitive and start with “1” for each price level.

If the liquidity is added at a new price level, all rows in the order book below the new price level should be pushed down. The recipient’s application should automatically re-number the price levels below the newly added price level. If there were already *<twenty>* price levels, recipients should also delete the new *<twenty first>* price level from their applications. If, in terms of its MDEntryPositionNo (290), an order or quote is added ahead of some existing liquidity at the price level, these orders and quote sides should be pushed down. The recipient’s application should automatically re-number the position numbers of the liquidity at the price level if they are below the newly added liquidity.

Notes: Unpublished price levels

- *Market data updates for liquidity below the published range for the order book will not be communicated by the interface.*
- *If a liquidity below the published price levels receives an update which causes it to move up to one of the published levels of the order book, this will be communicated as a new add order or quote by the interface. The MDPriceLevel (1023) would get updated if the amendment resulted in a change to the current price level. MDEntryPositionNo (290) within the*

price level would get updated accordingly.

- *If one of the liquidity points within the published range is removed from the order book, the first liquidity point below the published range (21st order) would be moved up to the last position within the published range (20th position). This move would be communicated to the listeners via a Market Data Incremental Refresh where the MDUpdateAction (279) is New (0). The MDEntryPositionNo (290) will not get updated if this is the only liquidity within the price level, else the MDEntryPositionNo (290) would get decremented by 1.*

If MDPriceLevel (1023) is set to "1" the message will update the top of the order book. The recipient's application should ensure that there are no prices better than this price level. Similarly, if MDEntryPositionNo (290) is set to "1" the message will update the top of the price level. The recipient's application should ensure that there are no orders higher than this order at the price level.

5.2.1.2 Updating an Order

A Market Data Incremental Refresh will be broadcast with an MDUpdateAction (279) of Update (1) if an existing order is updated without a loss of priority (e.g. a reduction in order quantity). The field MDEntryID (278) will indicate which order is being updated. The message will include the order's price and updated display quantity. The relevant MDPriceLevel (1023) and MDEntryPositionNo (290) will also be provided.

If the update of an existing order results in a loss of priority (e.g. an increase in order quantity, a change in price, etc.), the update will be communicated via two actions; a delete (as outlined below) followed by an addition as outlined above.

5.2.1.3 Deleting an Order

If an existing order is removed, a Market Data Incremental Refresh will be broadcast with an MDUpdateAction (279) of Delete (2). The field MDEntryID (278) will identify the order being removed.

Orders at the price level of the deleted order should be pushed up if they were below it. The recipient's application should automatically re-number the position numbers of such orders.

If the order was the only order at the price level, all rows in the order book below the deleted price level should be pushed up. The recipient's application should automatically re-number the price levels that were below the deleted price level. The server will separately publish updates to add orders at the new price level at the bottom of the order book.

5.2.1.4 Executing an Order

Firm Order Trades

Firm orders are not removed from the last look book when aggressed by an FOK order, since they do not go though a last look phase.

Upon a partial execution;

- Initially a Market Data Incremental Refresh message with an MDUpdateAction (279) of Update (1) would get disseminated to inform the listeners about the update to the remaining quantity.
- If the firm order included an ExecInst (18) of "Expire on Partial Fill (z)" the remainder would get expired from the order book. This would be indicated via another Market Data Incremental Refresh message with an MDUpdateAction (279) of Delete (2).

Upon a full execution;

- A Market Data Incremental Refresh message with an MDUpdateAction (279) of Delete (2) would get disseminated to inform the listeners about the removal of liquidity from the order book.

Indicative Quote Trades

Execution of indicative quotes includes a last look phase. When a matching aggressive order hits/lifts a passive indicative quote, the passive quote side will get removed from the order book and a market data incremental refresh message will get published with MDUpdateAction (279) of Delete (2).

If the liquidity provider declines the aggressing order or if the last look timer expires, the passive indicative quote side will get reinstated back to the order book and a market data incremental refresh message will get published with an MDUpdateAction (279) of New (0).

If the liquidity provider accepts an aggressive order, an execution will take place.

Upon a partial execution;

- The remainder of the indicative quote side will get reinstated back to the order book and a market data incremental refresh message will get published with an MDUpdateAction (279) of New (0).
- If the indicative quote included an ExecInst (18) of "Expire on Partial Fill (z)" the remainder would not get added to the order book and market data will not be disseminated as a result.

Upon a full execution;

- The effected indicative quote side has already been removed from the order book, hence there is no need to disseminate another 'Market data Incremental Refresh' message to inform the removal of the quote side.

6 FIXMD : Application Messages

6.1 FIXMD : Market Data Feed - Server Generated

- Market Data Incremental Refresh Message (MsgType = X)
- Security Status Message (MsgType = f)
- Trading Session Status Message (MsgType = h)

6.1.1 FIXMD : MarketDataIncrementalRefresh Message

Tag	Field Name		Req	Description
Standard Header				
35	MsgType		Y	X = Market Data Incremental Refresh
Message Body				
268	NoMDEntries		Y	Number of entries following.
→	279	MDUpdateAction	Y	Type of Market Data update action. Value: Meaning 0: New 1: Update 2: Delete
→	269	MDEntryType	Y	Types of Market Data Entries that the firm requesting the Market Data is interested in receiving. Value: Meaning 0: Bid 1: Offer
→	278	MDEntryID	Y	Unique entry identifier. Will be same as the OrderID value for a firm order or an indicative quote side.
→	48	SecurityId	Y	The CUSIP or the ISIN of the symbol.
→	22	SecurityIDsource	Y	Source database of the Security Id for a given symbol. By default this field will be populated with the ISIN. If ISIN is NOT present this will contain the CUSIP of the instrument. Value: Meaning 1: CUSIP 4: ISIN
→	454	NoSecurityAltID	N	Number of alternate Security Identifiers

	=>	455	SecurityAltID	N	Security Alternate identifier for this security
	=>	456	SecurityAltIDSource	N	Source of SecurityAltID <455>. Required if SecurityAltID <455> is specified. Value: 1 — Meaning: CUSIP
→	270	MDEntryPx		N	Used if the entry has price related data. Unmarked flat price will be populated always. Required only if the MDUpdateAction(279) is 'New(0)' or 'Update(1)'.
→	271	MDEntrySize		N	Quantity or volume represented by the Market Data Entry. Required only if the MDUpdateAction(279) is 'New(0)' or 'Update(1)'.
→	1023	MDPriceLevel		Y	Integer to convey the level of a bid or offer at a given price level. This is in contrast to MDEntryPositionNo which is used to convey the position of an order within a Price level.
→	290	MDEntryPositionNo		Y	Display position of a bid or offer within a price level, numbered from most competitive to least competitive,beginning with 1.
→	6373	FirmnessIndicator		N	Indicates the quality of market data for indicative quotes (>0). A Firmness Indicator value of 0 is reserved to represent firm orders. Value: 0 — Meaning: Firm Order Value: >0 — Meaning: Subject quote and quality of market data **Permission** 1. *Population of the tag is dependent on the required permissions being present for the user who is receiving market data*
→	110	MinQty		N	Minimum quantity of the order in Buy or Sell side. By default the value for this field will be set to 0.
→	6372	Mine		N	Indicates whether the interest was submitted by the same firm or an external firm.

				Y: Same firm N: External Firm
→	20503	UUID	N	This tag indicates the UUID of the trader if the original order originated from TSOX. **Permission** Any market data listening user who has an active session with the market and has the necessary role privilege configured will receive UUID related details. • If the role privilege is configured but a UUID is not present for the disseminated market data then the tag will be disseminated with a value unset. • If the role privilege is not configured this tag will not be disseminated via market data.
→	6360	YTM	N	Yield to Maturity
→	18	ExecInst	N	Execution Instructions that have been carried out for the order Value: Meaning G: All or None z: Expire on Partial Fill
→	20504	FirmID	N	Tag will indicate the FirmID of the original submitter of interest to the market. Used to identify market data originating from the same firm. **Permission** 1. *Population of the tag is dependent on the required permissions being present for the user who is receiving market data*
→	282	MDEntryOriginator	N	Owner ID of the trader who submitted interest to the order book which prompted a Market Data Entry

				Permission 1. *Population of the tag is dependent on the required permissions being present for the user who is receiving market data*
Standard Trailer				

6.1.2 FIXMD : SecurityDefinition Message

Tag	Field Name	Req	Description
Standard Header			
35	***Msg Type***	Y	***d = Security Definition***
Message Body			
320	SecurityReqID	Y	The value of the SecurityReqID in the Security Definition Request message. The client does not need to process the value in this field. The value of this field is set to "SecurityRequestID".
322	SecurityResponseID	Y	ID of the Security Definition message. The client does not need to process the value in this field. A value of this field is set to "SecurityResponseID".
323	SecurityResponseType	Y	Will always be '4' Value: 4 – Meaning: List of securities returned per request
22	SecurityIDSource	Y	Source database of SecurityID (48) 1 – CUSIP 4 – ISIN
48	SecurityID	Y	CUSIP or ISIN of instrument
761	BenchmarkSecurityIDSource	N	Source database of BenchmarkSecurityID (699) 1 – CUSIP 4 – ISIN Required if tag 699 is populated.
699	BenchmarkSecurityID	N	CUSIP or ISIN of benchmark security to be used in spread calculation (not present if no benchmark is available for this security)
965	SecurityStatus	Y	Indicates whether the instrument defined in SecurityID

Tag	Field Name	Req	Description
			(48) is in an active state; Value: 1 – Active – *Instrument is active, i.e. trading is possible.* Value: 2 – Inactive – Instrument has previously been active and is now no longer traded but has not expired yet. The instrument may become active again. Instruments in 'Halted','Suspended' status will also be displayed as '2 = Inactive'
15	Currency	N	Currency in which the price of the instrument specified by SecurityID (48) is denominated
Standard Trailer			

6.1.3 FIXMD : SecurityStatus Message

Tag	Field Name		Req	Description
Standard Header				
35	MsgType		Y	f = SecurityStatus
Message Body				
48	SecurityID		Y	The CUSIP or the ISIN of the symbol. If ISIN is NOT present this will contain the CUSIP of the instrument.
22	SecurityIDSource		Y	Source database of the Security Id for a given symbol. By default this field will be populated with the ISIN. If ISIN is NOT present this will contain the CUSIP of the instrument. Value: 1 – CUSIP Value: 4 – ISIN
454	NoSecurityAltID		N	Number of alternate Security Identifiers
→	455	SecurityAltID	N	Security Alternate identifier for this security
→	456	SecurityAltIDSource	N	Source of SecurityAltID <455>. Required if SecurityAltID <455> is specified. Value: 1 – CUSIP
326	SecurityTradingStatus		Y	Indicates the current trading session for the

<table>
<tr><th>Tag</th><th>Field Name</th><th>Req</th><th>Description</th></tr>
<tr><td></td><td></td><td></td><td>instrument.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>2</td><td>Halt</td></tr><tr><td>3</td><td>Resume</td></tr><tr><td>111</td><td>Pause</td></tr><tr><td>112</td><td>End of Pause</td></tr></table></td></tr>
<tr><td>1174</td><td>SecurityTradingEvent</td><td>N</td><td>Indicates the reason a trading session is extended or shortened.<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>101</td><td>Extended by Market Operations</td></tr><tr><td>102</td><td>Shortened by Market Operations</td></tr></table></td></tr>
<tr><td>327</td><td>HaltReason</td><td>N</td><td>Reason for the trading halt. Required if SecurityTradingStatus (326) is Halt (2).<table><tr><th>Code</th><th>Reason</th></tr><tr><td>100</td><td>Reason Not Available</td></tr><tr><td>102</td><td>Instrument Status changed to Halt</td></tr><tr><td>9998</td><td>Matching partition suspended</td></tr><tr><td>9999</td><td>System suspended</td></tr></table></td></tr>
<tr><td>58</td><td>Text</td><td>N</td><td>Free text.
If SecurityTradingEvent(1174) has been populated this will indicate the new
time at which the session will end.</td></tr>
<tr><td colspan="4">Standard Trailer</td></tr>
</table>

6.1.4 FIXMD : TradingSessionStatus Message

Tag	Field Name	Req	Description
Standard Header			
35	MsgType	Y	h = Trading Session Status
Message Body			
336	TradingSessionID	Y	Identifier of the trading session
340	TradingSessionStatus	Y	Status of the trading session Value: Meaning 2: Open 3: Closed

Standard Trailer

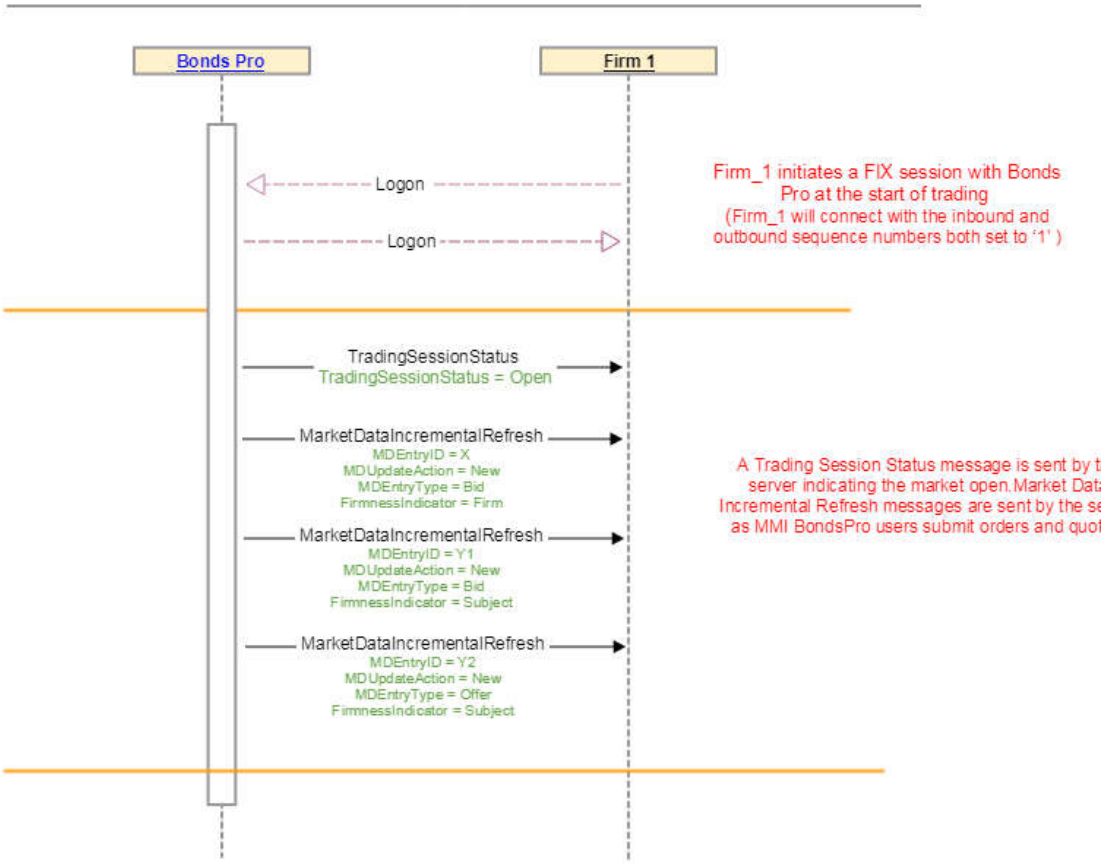
6.2 FIXMD : Variations From The FIX Protocol

The market data feed confirms to the standard FIX 4.4 protocol except on the following instances;

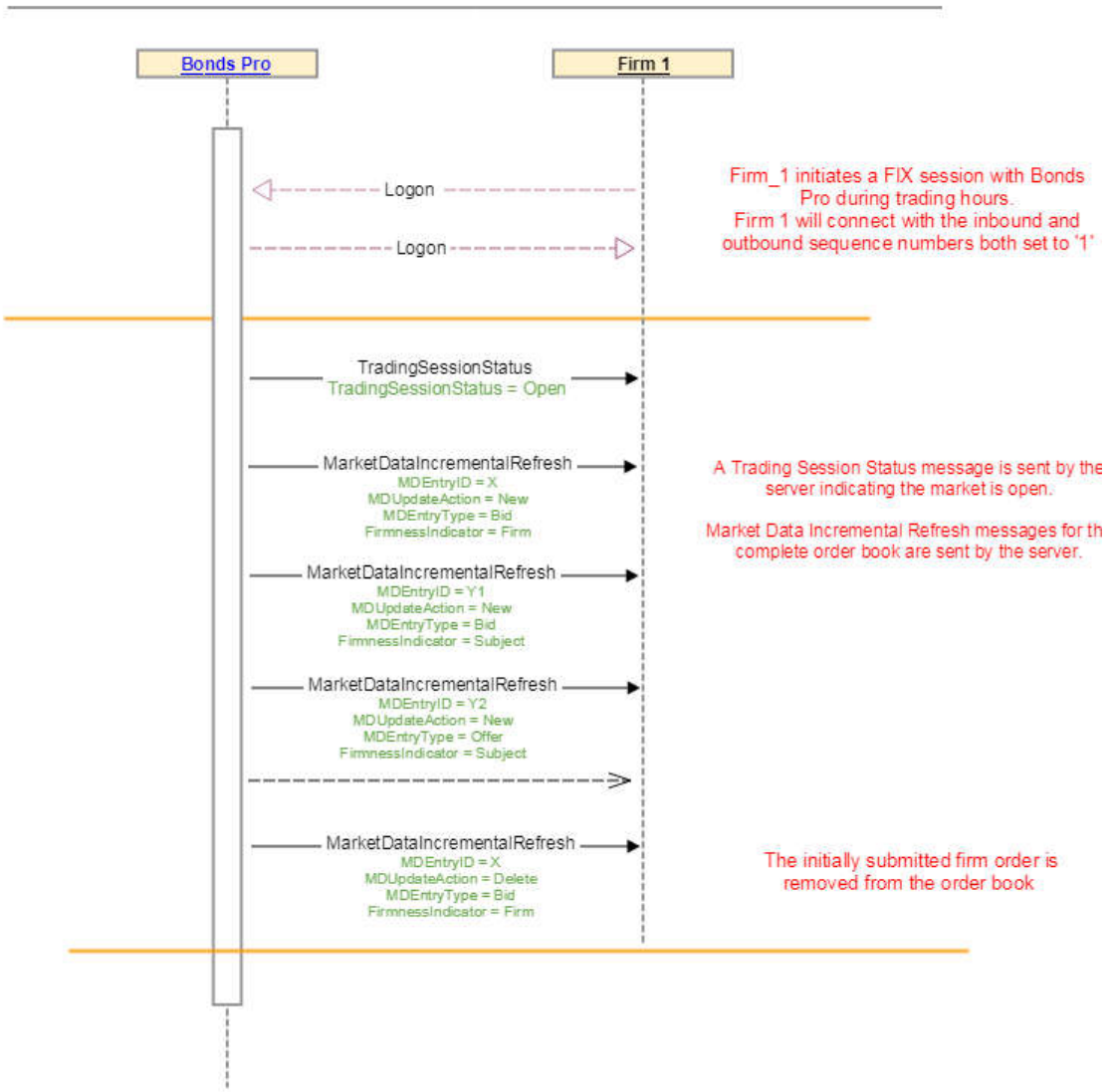
1. The Market Data Incremental Refresh message includes the following custom tags
    a. FirmnessIndicator(6373)
    b. Mine(6372)
    c. FirmID(20504)
    d. UUID (20503)
2. The following FIX tags have been utilized in the Market Data Incremental Refresh message based on the required functional logic
    a. ExecInst(18)
    b. MinQty(110)
3. The SecurityTradingEvent (1174) field of the *Security Status* message includes the custom values Extended by Market Operations (101) and Shortened by Market Operations (102).
4. The HaltReason (327) field of the *Security Status* message contains custom values specific to *the trading venue*.

7 FIXMD : Process Flows

7.1 FIXMD : Subscribing to Market Data at SOD



7.2 FIXMD : Loging In During Trading Hours / After Disconnection



8 FIXMD : Recovery

8.1 Sequence Numbers

If the client were to disconnect from the feed and upon re-connection, the server will reset all inbound and outbound sequence numbers to '1'. The client application should also adhere to this.

Reconnecting using older incremented number

- *If the client application were to connect using a high sequence number, the server would accept the message, however the server will not initiate a client side recovery.*

Resend Requests

- *Since the server resets both inbound and outbound sequence numbers to zero, the usage of the Resend Request message which is part of standard FIX session level recovery will not be facilitated by the gateway.*
- *If a Resend Request message is received the server will respond with a Sequence Reset message with the NewSeqNo(36) tag set to the sequence number of the next message to be transmuted by the server.*

8.2 Order book Publication

Upon reconnecting, the market will publish the following information per each order book.

1. Current trading status of the entire market is published via a Trading Session Status message
2. IF certain instruments are in a 'Pause' or 'Halt' session individual Security Status messages are disseminated to indicate their session status.
3. Afterwards, the latest snapshot of the order book is disseminated via MarketDataIncrementalRefresh messages.

This sequence will be followed per each instrument that is part of an active trading cycle which is configured in the market. If by any chance the order book for the instrument was empty then the market data incremental refresh message will not be published.

The Market is not bound here to send an order book clear indication if the user were to reconnect when a published order book was already available previously as it is assumed that the connecting client will have cleared their book and reset their inbound and outbound sequence numbers to '1' when reconnecting.

Order Book Clear

Due to an internal process fail-over in the market data system there can be instances where the market data gateway may submit order book clears via MarketDataIncrementalRefresh messages prior to publishing the latest picture of an order book.

9 Trading Halt Reject Codes

Code	Reason	Description
102	Instrument Status is Halted	Instrument status changed to 'Halt'
9998	Matching partition suspended	Suspension of matching partition
9999	System suspended	Suspension of system
100	Reason not available	In all other scenarios, the reason code should be set to 100 (Reason not available) in FIX e.g. 1. When an instrument is manually put to any session by Market Operations users by typing a text or 2. Scheduled transitions 3. When a reason is unavailable

9.1 Other scenarios where Halt Reason Code is stamped

Apart from above, the Halt Reason can be stamped with custom enum values defined by Market Operations.These reasons can be configured via the Session Change Reason Table in Yaala Reference Data. If a reason is selected from the drop down menu in Yaala Market Manager, the assigned custom enum value will be disseminated via FIX MD. These custom enums can be used for, session starts, extensions, shortenings etc.