ARENA DATA FEED

Data vendor Specification

Version 1.6.8

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Revisions

Doc. Version	Data Dd/mm/yyyy	Modified by	Description
1.0	13/08/2004	Iulia Iercosan	Create document
1.1	28/09/2005	Iulia Iercosan	Review
1.2	01/11/2004	Iulia Iercosan	Add tags for trading and clearing currency
1.2	01/11/2004	Iulia Iercosan	Details about for Market Order in pre-open state
1.3	01/12/2004	Iulia Iercosan	Correction for indicative opening price and indicative opening volume (there are tagged as 325/326 and moved to Quotes Messages)
1.4	13/12/2004	Iulia Iercosan	Add markets list (tag 915) in Instrument Baseline
1.4.1	15/12/2004	Iulia Iercosan	Change tag for reference price from 224 to 327
1.4.2	19/01/2005	Iulia Iercosan	New tags added in Trade Message: 140,143,150,153 (just for internal use)
1.4.2	10/03/2005	Iulia Iercosan	Correction: tag 219, 220, 221 are Decimal Type (instead of BigInteger Type)
1.4.3	11/03/2005	Iulia Iercosan	Exceptions in Messages Sequence
1.5.0	25/04/2005	Iulia Iercosan	- remove tag 113 (external trade) from Trade Message - remove tag 130 (settlement date) from Trade Message - remove tags 140, 143, 150, 153 from Trade Message - remove tag 223 (default settlement date) from Symbol-Market Statistics - remove tag 306 (Is Main Market) from Best Quotes Message and Top 5 MBP Message - remove tag 201 (Is Main Market) from Symbol Market Statistics Message - add a new tag 916 (Main market) in Instrument

Baseline Message
- remove tag 103 (Symbol Market Status) from Symbol Market Statistics Message and from Top 5 MBP Message.
- add a new message type containing official close price (see Official Close Message)

1.5.1	30/05/2005	Iulia Iercosan	currency code for Romania's legal tender is RON
1.5.2	27/03/2006	Iulia Iercosan	215 - net change of current average from previous official close 216 - percentage change of current average from previous official close instead of 215 - net change of current average from previous average 216 - percentage change of current average from previous average
1.6.0	1/07/2006	Iulia Iercosan	Add Sequence Message and HeartBeat Message
1.6.1	26/01/2007	Iulia Iercosan	Add tag 225 (open interest) for derivative products Add tag 804 (open interest at close) for derivative products Extend Official Close Price Message for sending daily settle price and open interest for derivative products at end of the day Extend possible values for tag 906 'future' value
1.6.2	08/04/2008	Iulia Iercosan	Add CLOSING phase of market or symbol-market state (similar with OPENNING)
1.6.3	17/09/2013	Iulia Iercosan	Add liquidity indicator (tag 120) Some clarification regarding official close price (3.9 Official Close Message) This modification take place effective 19 January 2013
1.6.4	05/11/2013	Iulia Iercosan	Add TRADING AT LAST phase Effective date for this modification is May 5, 2014
1.6.5	30/07/2014	Iulia Iercosan	Add a new value for tag 120 (5 = cross trade) Effective date for his modification will be announced
1.6.6	04/01/2017		Add new symbol-market status (tag 103) for volatility interruption. Effective date for his modification will be announced. Changes are highlighted.
1.6.7	27/09/2017		Tag 15 = Publication timestamp instead of execution timestamp; Tags 104, 402, 702,802,902 = Execution timestamp from trading engine Enhance Trade Message with Negotiated Indicator (121), Algorithmic Indicator (122), Trading mode (125). Support trade cancel and replacement Effective date for his modification will be announced. Changes are highlighted.
1.6.7.01	09/10/2017		Revision of 1.6.7 version. Publication Timestamp (tag 15) shall be reported in UTC Changes are highlighted
1.6.7.02	16/10/2017		Add Trading Mechanism (tag 126) in Trade Message corresponding with MMT Level 1. Extend values for Trading Mode (tag 125) to be mapped on

		MMT Level 2
		Add tick size matrix name (tag 917) Instrument baseline messages.
		All changes for version 1.6.7 are highlighted
1.6.7.03	18/10/2017	Extend value for Trade status (111) to support trade correction
		All changes for version 1.6.7 are highlighted
1.6.8	02/22/2023	Update 3.1 Header adding a new System Identifier in tag 14
		Update Definition and Abbreviations
		Remove tag 225 (Open Interest) from Symbol Market Statistics message

Summary

1 Introduction

1.1 Purpose

This document is part of series of documents providing information overview of Bucharest Stock Exchange market data and other relevant information.
The current series of documents are set out below:
Arena2DATAFEED_Entity.doc - overview of market structure
Arena2DATAFEED_specification.doc - description of market data messages (this document)
DATAFEED_TechnicalSpecification.doc - description of market data connectivity

This document describes a set of messages for disseminating market information from the Arena System of the Bucharest Stock Exchange
Messages can be used to transmit to vendors trading information such as: orders, quotes, trades, market status, symbol status, summary info.

For further description of the data fields, questions should be addressed to the Information Technology Department of Bucharest Stock Exchange

1.2 Definition and Abbreviations

Term	Description
DATAFEED	Generic name for real time data dissemination software application
BVB/BSE	Bucharest Stock Exchange
ARENA	Electronic platform for trading, registry and clearing operations. It is the property of Bucharest Stock Exchange
Data Vendor/datavendor	External party which takes and disseminates to his own clients information transmitted from DATA FEED
BER/RASDAQ	Rasdaq Electronic Exchange (inactive stock exchange)
Arena Trading	Electronic platform for trading equity, debt and futures instruments
Arena Trading Energy	Electronic platform for trading power futures instruments
FBSE	Identifier for Arena Trading Energy
XBSE	Identifier for Arena Trading
DATA FEED XBSE	Software dissemination of market data sourced by Arena Trading (XBSE)
DATA FEED FBSE	Software dissemination of market data sourced by Arena Trading Energy (FBSE)

2   ARENA DATA FEED description

2.1   Messages overview

Arena data feed (DATA FEED) transmits data in the messages form, one message after another. A message is a unit of data that can be processed by the data vendor independently.

A message is formed by sequence of "tag=value", separated by semi-colon character ';' followed by a new line (linefeed) character '\n'. Each piece of trading information is assigned to a specified numeric tag identifier.
Messages could be sending in one of the two following formats:

1. Messages are preceded by a 4 byte length counter specifying the total number of bytes in all of the following tag/value pairs, including new lines and other delimiting characters.
<four_bytes_message_length><message body><four_bytes_message_length><message body>….

2. A message can be packet in next form:
<STX><msg. body><LRC><ETX> where:
<STX> is a start character defined as 2
<ETX> is an end character defined as 3
<LRC> is a check sum calculated by performing an exclusive OR of all characters of the message, including STX but excluding ETX and then substituting ASCII 02 and ASCII 03 with ASCII 85

2.2   Type of messages

Each message contains a header and a body. Header is consisting of a few sequences of pair "tag=value" which identify the type of message. The structure of header is described below.
The body consists of sequences of pairs "tag=value" and contain trading information specific
The structure of body is different for every type of message and it is described below.

Messages can be:
- Market Status Message

- Trade Message

- Best Quotes Message

- Top 5 Market By Price Message

- Index Message

- Symbol Market Statistics Message

- Instrument Baseline Message

- Official Close Message

- Sequence Message

- Heartbeat Message

2.3   Characteristics of the tag/value pairs

2.3.1   Tags

Generally, tag identifiers will appear in increasing numeric order, however external systems should not rely on this property and should not assume that one tag/value pair will precede another.

New tags can be added so that it may be appropriate for the external systems to log warnings for each tag/value pair that they do not recognize.

Also, warning messages may be appropriate to alert the operators of the external system to the missing tags.

2.3.2 Values Type

All values are one of the next types:

Data Type	Description
Integer	A sequence of digits without commas or decimals, and optional sign character (ASCII characters "-" and "0" – "9"). Maximum value is 2147483648
BigInteger	A sequence of digits without commas or decimals, and optional sign character (ASCII characters "-" and "0" – "9"). Maximum value is 9223372036854775802
Decimal	A sequence of digits with optional decimal point and sign character (ASCII characters "-", "0" – "9" and ".") The number of decimal places must be up to 6 significant digits Maximum number can be represented on 25 character, including decimal places.
Date	Data/time represented in yyyyMMdd format yyyy= 0000-9999, MM = 01-12, dd = 01-31
Timestamp	Time represented in yyyyMMddhhmmssnnn format yyyy= 0000-9999, MM = 01-12, dd = 01-31, hh = 00-23, mm = 00-59, ss = 00-59, nnn=000-999 (milliseconds) All timestamp are presented in local TimeZone (Europe/Bucharest, GMT+2, GMT+3 in summer time) Publication Timestamp (tag 15) shall be reported in UTC
String	An alphanumeric free-format string based. Maximum number of characters is specified in brackets

In case a value associated with a tag is not available, value is replaced with an empty string.

3 Messages Description

3.1 Header

3.1.1 Description

3.1.2 Content of header

Message header contains the following tags:

Tag	Field Name	Type/Size	Comments
11	MsgSeqNum	Long	Message sequence number. It is set to 1 at the start of each trading day and is incremented by 1 for every message generated by the Arena System
12	MsgClass	String (1)	Identify the type of message
13	MsgSubClass	String (1)	Additional information as defined for each MsgClass
14	Exchange code	String (4)	System Identifier Possible values: XBSE for messages sourced by Arena Trading FBSE – for messages sourced by Arena Trading Energy
15	Message Timestamp	Timestamp	Timestamp when DATA FEED generated the message; Publication Timestamp; Timestamp shall be reported in UTC.

Available combination for tags 12 and 13 (MsgClass respectively MsgSubClass) are:

Tag 12 (MsgClass)	Tag 13 (MsgSubClass)	Type of message	Contains
C	M	Market Status Message	Market status
T		Trade message	Trade detail
Q	B	Best Quotes Message	Best bid and best ask from a symbol-market
Q	5	Top 5 Market By Price Message	Top 5 bid and ask level prices from a symbol-market
I		Index message	Index value and statistics
D	M	Symbol Market Statistics Message	Symbol Market Statistics
S	S	Symbol Baseline Message	Details about a symbol (issuer, ISIN etc.)
S	C	Official Close Message	Official close from a traded symbol.
A	H	Heartbeat Message	This message tells users that the DATAFEED is alive.
A	R	Request Message	The only message sends by datavendor and processed by

			DATAFEED. It tells DATAFEED from the sequence number to start transmission.

3.2 Market Status message

3.2.1 Description

Market Status Message is generated every time the status for a market defined in ARENA is changed. A Market Status message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag Description	Value
12	MsgClass	C
13	MsgSubClass	M

3.2.2 Content of body message

Every Market Status Message has the following tags:

Tag	Field Name	Type/Size	Comments
701	Market	String(10)	Market code
702	Last Update Time	TimeStamp	Execution timestamp from trading engine
703	Market name	String(40)	Market Name
704	Permitted Order Type	String(40)	Order types permitted in this market separated by a semicolon Orders – for an order driven market Quotes –quotes are permitted in this market Deals – deals are permitted in this market
705	Status	Integer	Market status. Possible values are: 1 = OPENED 3 = CLOSED 4 = OPENING/CLOSING 5 = PREOPENED 6 = PRECLOSED 7 = TRADING AT LAST 0 = MARKET DELETED FROM SYSTEM

3.3 Trade Message

3.3.1 Description

A "Trade Messages" is generated by trading system in case of trade or a cancel trade operation. A Trade Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag Description	Value
12	MsgClass	T
13	MsgSubClass	

3.3.2 Content of body message

Tag	Tag description	Type/Size	Comments
101	Symbol	String(15)	Symbol
102	Market	String(10)	Market code
104	Trade Timestamp	Timestamp	Trade timestamp, the date and time when trade was concluded in trading system; In case of trade cancelation/correction, tag 104 is the same as Trade timestamp of original trade. The tag value has been previously disseminated in Trade Timestamp (104)
110	Ticket	BigInteger	Trade Ticket. (Unique numeric identification)
111	Trade status	Integer	Possible values are: 1 - Valid trade 0 - Canceled trade 2 - Correction for a previous disseminated trade
112	Symbol Type	String (40)	Site defined: BOND SHARE BOND_USD
114	Price	Decimal	Trading Price
115	Dirty Price	Decimal	Dirty price
116	Size	Integer	Volume of trade
117	Value	Decimal	Trading value of in system currency (RON)
118	Clearing Value	Decimal	Trading value of in clearing currency
119	Trading Value	Decimal	Trading value of in trading currency
131	Deal Indicator	Integer	1 – NEGOTIATED DEAL 0 – No Negotiated deal
120	Liquidity indicator	Integer	1 = AGGRESSIVE BUY 2 = AGGRESSIVE SELL 3 = ROUTE-OUT 4 = AUCTION (on closing/openning/intra-day auction) 5 = CROSS TRADE
121	Negotiated indicator	String(1)	1 = Negotiated Trade in Liquid Financial Instruments 2 = Negotiated Trade in Illiquid Financial Instruments 3 = Negotiated Trade Subject to Conditions Other Than the Current Market Price A = No Negotiated Trade N = Negotiated Trade
122	Algorithmic indicator	String(1)	Transactions executed as a result of an

			investment firm engaging in algorithmic trading as defined in Article 4(1)(39) of Directive 2014/65/EU. Y = Algorithmic Trade N = No Algorithmic Trade - = NA
123	Original ticket	BigInteger	Occur in case of trade correction.
124	Cancel/replacement time	Timestamp	Date and time when trading system cancelled/replace trade. Occur in case of trade cancelation/replacement.
125	Trading mode	String(1)	1 = Undefined Auction O = Scheduled Opening Auction K = Scheduled Closing Auction I = Scheduled Intraday Auction U = Unscheduled Auction 2 = Continuous Trading 3 = At Market Close Trading 4 = Out of Main Session Trading 5 = Trade Reporting (On Exchange) 6 = Trade Reporting (Off Exchange) Tag 125 is missing in case of trade cancelation (Trade Status(111) = 0)
126	Market mechanism	String(1)	1 = Central Limit Order Book 4 = Off Book 5 = Periodic Auction 7 = Any Other, Including Hybrid Tag 126 is missing in case of trade cancelation (Trade Status(111) = 0)

3.3.3 Trade Cancelation

Trade cancelation is disseminated with:
Ticket (110) = ticket of trade, previously disseminated in tag Ticket (110)
Trade Timestamp (104) = trade timestamp, previously disseminated in tag Trade Timestamp (104)
Trade Status (111) = 0
Cancel/replacement time (124) = date and time when trading system cancelled trade

3.3.4 Trade Correction/Replacement

Trade correction is made in 2 steps:
1. Cancel original trade:
Ticket (110) = ticket of trade to be corrected
Trade Timestamp (104) = trade timestamp
Trade Status (111) = 0
Cancel/replacement time (124) = date and time when trading system cancelled trade
2. Add a new trade with a new ticket:
Ticket (110) = new value
Trade Timestamp (104) = trade timestamp of original trade
Trade Status (111) = 2
Original ticket (123) =   ticket of original trade, previously disseminated in Ticket (110)
Cancel/replacement time (124) = time when new ticket was added in trading system

3.4   Best Quotes message

3.4.1   Description

This message is generated in case of one of the following situations:
- best bid price or best ask price for a specified symbol-market is changed
- size of the best bid or size of best ask for a specified symbol-market is changed
- status of the specified symbol-market is changed

A Best Quote Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag description	Value
12	MsgClass	Q
13	MsgSubClass	B

3.4.2   Content of body message

Tag	Tag description	Type/Size	Comments
101	Symbol	String(15)	Symbol
102	Market	String(10)	Market
103	Symbol-Market Status	Integer	Symbol-Market Status. Possible values are: 1 = OPENED 3 = CLOSED 4 = OPENING/CLOSING 5 = PREOPENED 6 = PRECLOSED 7 = TRADING AT LAST 0 = SYMBOL-MARKET DELETED FROM SYSTEM 8 = PREOPEN EXENDED 9 = PRECLOSED EXENDED 10 = VOLATILITY INTERRUPTION 11 = VOLATILITY INTERRUPTION EXTENDED
104	Last Update Time	Timestamp	Execution timestamp from trading engine
301	Best Bid Price	Decimal	Best bid price
302	Best Bid Volume	BigInteger	Best bid volume (accumulated volume at the best bid price level)
303	Best Ask Price	Decimal	Best ask price
304	Best Ask Volume	BigInteger	Best ask volume (accumulated volume at the best ask price level)
325	Indicative open price	Decimal	Indicative (theoretical) opening price for single-price auction During continuous market this tag is always 0.
326	Indicative open volume	BigInteger	Opening volume (theoretical) During continuous market this tag is always 0.
327	Reference price	Decimal	Reference price for today (net and percentage change are base on reference price)

3.5   Top 5 Market By Price Message

3.5.1   Description

This message contains first 5 levels price for a specified symbol-market
This message is generated in case of one of the following situations:
- One of the price or volume of the first 5 levels price for a specified symbol-market is changed
- status of the specified symbol-market is changed

A Top 5 Market By Price Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag description	Value
12	MsgClass	Q
13	MsgSubClass	5

3.5.2   Content of body message

Tag	Tag description	Type/Size	Comments
101	Symbol	String(15)	Symbol
102	Market	String(10)	Market
104	Last Update Time	Timestamp	Execution timestamp from trading engine
311	Bid Price – Level 1	Decimal	Bid price for the first level. *
312	Bid Volume – Level 1	BigInteger	Bid volume (accumulated volume for the first level price)
313	Ask Price – Level 1	Decimal	Ask price for first level *
314	Ask Volume – Level 1	BigInteger	Ask volume (accumulated volume for the first level price)
321	Bid Price – Level 2	Decimal	Bid price for the 2nd level
322	Bid Volume – Level 2	BigInteger	Bid volume (accumulated volume for the 2nd level price)
323	Ask Price – Level 2	Decimal	Ask price for the 2nd level
324	Ask Volume – Level 2	BigInteger	Ask volume (accumulated volume for the 2nd level price)
331	Bid Price – Level 3	Decimal	Bid price for the 3rd level
332	Bid Volume – Level 3	BigInteger	Bid volume (accumulated volume for the 3rd level price)
333	Ask Price – Level 3	Decimal	Ask price for the 3rd level
334	Ask Volume – Level 3	BigInteger	Ask volume (accumulated volume for the 3rd level price)
341	Bid Price – Level 4	Decimal	Bid price for the 4th level
342	Bid Volume – Level 4	BigInteger	Bid volume (accumulated volume for the 4th level price)
343	Ask Price – Level 4	Decimal	Ask price for the 4th level
344	Ask Volume – Level 4	BigInteger	Ask volume (accumulated volume for the 4th level price)
351	Bid Price – Level 5	Decimal	Bid price for the 5th level

352	Bid Volume – Level 5	BigInteger	Bid volume (accumulated volume for the 5th level price)
353	Ask Price – Level 5	Decimal	Ask price for the 5th level
354	Ask Volume – Level 5	BigInteger	Ask volume (accumulated volume for the 5th level price)

Note:
* "Market" orders have no price. "Market" order is indicated by -1 value in price field.
Note that "Market" Orders could occur only on first level price.

3.6 Index message

3.6.1 Description

This message is generated whenever an index value is modified.
An Index Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag description	Value
12	MsgClass	I
13	MsgSubClass	

3.6.2 Content of body message

Tag	Tag description	Type/Size	Comments
401	Index	String(10)	Index code
402	Last Update Time	Timestamp	Execution timestamp from trading engine
404	Open Value	Decimal	Reference Value
405	Current Value	Decimal	Current value of index
406	Low Value	Decimal	Low Value (for effective date)
407	High Value	Decimal	High Value (for effective date)
408	Net change	Decimal	Net change from reference value
409	Percentage change	Decimal	Percentage change from reference value

3.7 Symbol Market Statistics

3.7.1 Description

Symbol-Market Statistics Message contains general statistics for a specified symbol traded in specified market.
A Symbol-Market Statistics Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag description	Value
12	MsgClass	D
13	MsgSubClass	M

3.7.2 Content of body message

Tag	Tag description	Type/Size	Comments

101	Symbol	String(15)	Symbol
102	Market	String(10)	Market code
104	Last update time	Timestamp	Execution timestamp from trading engine
202	Open	Decimal	Today Open price for current symbol market (updated only by trades on default settlement term)
203	Close	Decimal	Today last price for current symbol market (updated only by trades on default settlement term)
210	Average	Decimal	Today symbol-market average price
211	Low	Decimal	Today symbol-market low price
212	High	Decimal	Today symbol-market high price
213	Net change of last price from Official close	Decimal	Last price change(net) from previous official close
214	Percentage change of last price from Official close	Decimal	Last price change(net) from previous official close
215	Net change of Average from Official close	Decimal	Current average change(net) from previous official close
216	Percentage change of Average from Official close	Decimal	Current average change (%) from previous official close
217	Direction from Previous Trade	Integer	Possible values are: 0 - UNCHANGE 1 – UP -1 - DOWN
218	Total symbol-market volume	BigInteger	Today symbol-market volume
219	Total symbol-market value(traded)	Decimal	Today symbol-market volume value (trading currency)
220	Total symbol-market value(clearing)	Decimal	Today symbol-market volume (clearing currency)
221	Total symbol-market value(system)	Decimal	Today symbol-market volume (RON)
222	Total symbol-market trades	BigInteger	Today symbol-market number of trades

3.8   Instrument Baseline Message

3.8.1   Description

Instrument baseline messages contain information about an instrument regarding its trading.
This message is generated at the day beginning and every time a symbol is subject to change operation (listed, delisted, modify).
An Instrument Baseline Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag description	Value
12	MsgClass	S
13	MsgSubClass	S

3.8.2 Content of body message

Tag	Tag description	Type/Size	Comments
901	Symbol	String(15)	Symbol code used by BSE
902	Last Update time	Timestamp	Execution timestamp from trading engine
903	Issuer	String(40)	Issuer
904	Tier	Integer	Tier
905	ISIN	String(40)	ISIN code
906	Product type	String(10)	Possible values: bond – municipal and corporative bonds share – equities bill – treasury bills future – derivatives contract
907	Symbol Type	String(40)	symbol type as is defined in trading system
909	Trading currency	String(3)	Currency user for trading this symbol RON EUR USD
910	Clearing currency	String(3)	Currency user for clearing this symbol RON EUR USD
908	Symbol Status	Integer	Symbol Status 1 = READY FOR TRADING 2 = SUSPENDED 3 = DELISTED 0 = SYMBOL DELETED FROM SYSTEM
914	Reference price Type	Integer	Which price is user for official close price; Possible values are: 1 – mean AVERAGE price is used for reference price 2 – means CLOSE price is used for reference price At the end of the trading day, reference price become official close price.
915	Markets list	String(40)	List of markets where instrument could be traded; comma separates market code list
916	Main Market	String(10)	Main market code
917	Tick size table name	String(10)	Tick size table name Correspondence between name and effective tick size table is available on web site and on official announcement channel.

3.9 Official Close Message

3.9.1 Description

This message contains:

- For equities: official close price
- For derivative instruments: daily/final settlement price and Open Interest

Purpose of official close are: used as reference price in the next trading day, basis for calculating maximum permissible price fluctuation for next day's trading, to obtain market capitalization, profit/loss for the day, as well as margin requirements for derivative products.

Bucharest Stock Exchange disseminate official close price for each symbol after trading hour, as soon as is available.

If an event affects official close (like trade correction, recomputed official close price), a new Official Close Message is released containing the new official close price for symbol.

An Official Close Message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag description	Value
12	MsgClass	S
13	MsgSubClass	C

3.9.2 Content of body message

Tag	Tag description	Type/Size	Comments
801	Symbol	String(15)	Symbol code used by BSE
802	Last Update time	Timestamp	Execution timestamp from trading engine
803	Official Close /Daily Settle Price	Decimal	For spot markets: Official close for current trading day; For derivative markets: daily settle price. At expiration date, tag 803 contain final settlement price.
804	Open Interest at close	Integer	Number of open contract for the specified contract (symbol). This tag appears only for derivative products. For symbols traded on spot market, tag 804 is invisible.

3.10 Sequence Message

3.10.1 Description

Sequence message is one the message sends by data vendor and process by the Datafeed

Sequence message is the first message sent by DataVendor after connection is established with DATAFEED and confirms the commencement of data dissemination.

If datavendor detect a gap in sequence number, it must send a Sequence Message to instruct DATAFEED to resend lost messages.

A Sequence Number Message is identified if tag 12 and tag 13 from the message header have the following values

Tag	Tag description	Value
12	MsgClass	A
13	MsgSubClass	R

3.10.2 Content of body message

Tag	Tag description	Type/Size	Comments
501	Start Sequence	Integer	At beginning of the day, this tag must be 1.
502	Last Sequence	Integer	Maximum sequence number to be send.
503	Username	String	User name of datavendor. It is allocated by BSE for every datavendor.
504	Password	String	Password for connect to data feed application. It is allocated by BSE for every datavendor.

Both 501 and 502 must be filled with valid sequence number.

At beginning of the day, 501=1 and 504 = 99999999 (or another great number to be sure that all messages will be send to datavendor)

3.11 Heartbeat Message

The Heartbeat monitors the status of the communication link. DATAFEED sends out the Heartbeat at a certain interval (by default it is send once a minute)
Heartbeat message does not contain any tags, it contains only standard header. It does not have sequence number.

3.11.1 Description

A Heartbeat message is identified if tag 12 and tag 13 from the message header have the following values:

Tag	Tag Description	Value
12	MsgClass	A
13	MsgSubClass	H

4   Message sequence

Usually, messages are followed in the next sequence:

Event from trading system	Feed Messages Generated
Start of the day	Instrument Baseline Message. For every symbol defined in ARENA platform, an Instrument Baseline Message will be generated.
Market Status is changed	Market Status Message
Symbol- Market Status is changed	Every time a symbol-market status is changed, both Best Quote Message and Top 5 Market By Price Message are generated. **Exception**: In deal–driven markets, as long as there are no levels prices, Top 5 MBP Message are not generated. Only Best Quote Message can occur. A Best Quote Message from a deal-drive market have fields regarding best bid/ask filled with zeroes.
A change in the one of the first 5 levels price	Every time an order or a quote from the top 5 level price is changed, both Best Quote Message and Top 5 Market By Order Message are generated. **Exception**: In deal–driven markets, as long as there are no level prices, Top 5 MBP Message and Best Quote Message are not generated.
Trade	Trade Message Best Quote Message Top 5 Market By Price Message Symbol-Market Statistics Message Exception: 1. Trades can occur in chains (in case an aggressive order match lots of orders from the other side). Best Quote Message, Top 5 Market By Price Message and Symbol-Market Statistics Message occur only after all trades from chain are generated. 2.Trades that occurred in opening state of the market are in chain. Best Quote Message, Top 5 Market By Price Message and Symbol-Market Statistics Message are generated after the last trade from chain is generated.
Cancel Trade	Trade Message (with tag 111 set to 0). Best Quote Message Top 5 Market By Price Message Symbol-Market Statistics Message
Index Changed	Every time an index value is changed, an Index Message is generated.
Symbol Status is changed	Every time a symbol is changed an Instrument Baseline Message is generated.
Symbol definition is changed	Every time a symbol is added, changed, or deleted an Instrument Baseline Message is generated.