



DOCUMENT TITLE

Generic Appendices to the Euronext Multicast Feed Specification

STATUS

Version 1.1

Preface

This document details the Specifications of the Euronext Multicast Feed (EMF).

The constituent Euronext Exchanges historically have used separate legacy systems to distribute Market Data to Euronext Customers (ECs). Euronext wants to offer a single, consolidated data source for all Euronext Products, to their customers. A single interface will be presented, potentially reducing costs, increasing flexibility and allowing Euronext to respond rapidly to its customer needs. In addition, facilities will be provided to package data dependent on the requirements of ECs.

This document details the technical information for customers and other users (referred to in the document as the clients) to interface with EMF.

A separate document contains appendices which provide other essential information necessary for processing the data.

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Associated Documents

The following lists the associated documents, which either should be read in conjunction with this document or which provide other relevant information for the user:

Euronext Multicast Feed Specification
Appendix to the Euronext Multicast Feed Specification for Cash Markets
Appendix to the Euronext Multicast Feed Specification for LIFFE CONNECT® Exchanges

Document History

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Appendix A. Sample Messages

A.1 Login Message

This example shows a Login request of 44 bytes in length for user “A TYPICAL CLIENT” with a request identity of 123 and password of PASSWORD1.

The login message is sent to the system via a TCP link. The EMF header reserved for UDP Multicast delivery is not required.

DATA	FIELD NAME	FID	VALUE
00 2A	LEN	N/A	42
00 00	MESSAGE IDENTITY	N/A	0
4B 4C 04 00 00 00 7B	REQUEST IDENTITY	0x4B4C	123
87 57 11 00 41 5F 54 59 50 49 43 41 4C 5F 43 4C 49 45 4E 54	USER IDENTITY	0x8757	“A_TYPICAL_CLIENT”
87 41 0A 00 50 41 53 53 57 4F 52 44 31	PASSWORD	0x8741	“PASSWORD1”

A.2 Login Acknowledgement

In response to a Login request, a Login Acknowledgement will be returned. This example shows a potential return, with a length of 23 bytes, to the request in A.1, request identity 123. In this case the request has been successful, return code 1, and the session sequence number has been initiated.

The login message is sent to the system via a TCP link. The EMF header reserved for UDP Multicast delivery is not required.

DATA	FIELD NAME	FID	VALUE
00 1C	LEN	N/A	21
00 32	MESSAGE IDENTITY	N/A	50
4B 4C 04 00 00 00 7B	REQUEST IDENTITY	0x4B4C	123
4B 64 04 00 00 00 01	SESSION SEQUENCE NUMBER	0x4B64	1
87 43 02 00 31	RETURN CODE	0x8743	“1”

A.3 Static Data Refresh (Derivatives)

This example shows the static data disseminated in a Static Data Refresh message of 296 bytes for a single derivatives product traded on the LIFFE CONNECT® platform.

This instrument has a Source Name of “A” indicating the source to be “Euronext Amsterdam Equity Products”. An EIID field is included in the message thus providing the unique reference to the product that is the LIFFE CONNECT® AMR (Automated Market Reference).

The EMF header used in the UDP Multicast delivery is highlighted in grey colour.

MPH	FIELD NAME		VALUE
00	PACKET TYPE		Packet Content (data after SEQ) is not compressed
00 00 00 0B	SEQ		11
MSH	FIELD NAME		VALUE
06	SEGMENT ID		SID_ST_REFRESH_MSG_END
01 20	SEGMENT LENGTH		288
DATA	FIELD NAME	FID	VALUE
00 97	MESSAGE IDENTITY	N/A	151
77 62 08 43 4D FE CC 01 2D 3E 09	UNIQUE OUTPUT KEY	0x7762	4849812525894417929
40 10 01 4F	INSTRUMENT TYPE	0x4010	'O'
42 2E 01 4E	AT THE MONEY	0x422E	'N'
77 11 08 00 00 00 0A 0E EB B0 00	BROADCAST TIMESTAMP	0x7711	43200000000 microseconds elapsed since midnight (i.e. 12:00:00.000000)
87 51 10 00 41 4F 41 41 42 30 37 30 37 30 33 37 30 30 43	EIID	0x8751	“AOAAB070703700C”
87 4E 02 00 41	SOURCE NAME	0x874E	“A”
42 54 01 4E	CALCULATION TYPE	0x4254	'N'
86 69 04 00 41 41 42	PHYSICAL COMMODITY CODE	0x8669	“AAB”
41 74 01 01	CONTRACT AVAILABILITY	0x4174	1
84 0A 04 00 45 55 52	CURRENCY	0x840A	“EUR”
86 55 24 00 45 75	EXCHANGE NAME	0x8655	“Euronext Amsterdam - Equity

72 6F 6E 65 78 74 20 41 6D 73 74 65 72 64 61 6D 20 2D 20 45 71 75 69 74 79 20 50 72 6F 64 75 63 74 73			Products"
84 7F 08 00 30 30 30 33 37 30 30	EXERCISE PRICE	0x847F	"0003700"
42 57 01 41	EXERCISE TYPE	0x4257	'A'
84 20 09 00 32 30 30 37 30 37 30 30	EXPIRY DATE	0x8420	"20070700"
41 A1 01 4F	GENERIC CONTRACT	0x41A1	'O'
84 87 09 32 30 30 37 30 37 32 30	LAST TRADING DATE	0x8487	"20070720"
86 5C 15 45 55 4E 4C 30 39 34 31 30 39 32 35 20 20 20 20 20 20 20 20	LONG INSTRUMENT CODE	0x865C	"EUNL09410925 "
4A 5D 04 00 00 00 64	LOT SIZE	0x4A5D	100
48 7B 04 00 00 00 01	MONTH POSITION	0487B	1
40 22 01 43	OPTION CATEGORY	0x4022	'C'
48 7A 04 00 00 00 05	UNDERLYING TRADE TICK SIZE NUMERATOR	0x487A	5
86 60 10 00 41 42 4E 20 41 4D 52 4F 20 42 41 4E 4B 20 20	PRODUCT NAME	0x8660	"ABN AMRO BANK "
86 61 15 00 30 30 30 30 30 30 30 30 30 30 30 30 30 30 39 34 31 30 39 32	SHORT INSTRUMENT CODE	0x8661	"0000000000000941092"
41 72 01 00	SPOT MONTH	0x4172	0
61 47 06 00 00 00 05 FF FE	TICK VALUE	0x6147	0.05
4A 88 04 00 00 00 01	STRIKE SCALING FACTOR	0x4A88	1
41 71 01 54	TRADING TYPE	0x4171	'T'
48 79 04 00 24 00 02	TYPE OF DELTA PROTECTION	0x4879	0x240002 – Contract Level
49 7B 00 00 00 64	TICK SIZE DENOMINATOR	0x497B	100

A.4 Static Data Refresh (Cash instrument - Index Bel20)

This example shows the Static Data disseminated in a Static Data Refresh message of 1195 bytes for a single cash market product and all its associated securities. The Instrument Name is BEL20 CLOSE and is traded on the Brussels Cash Market, Source Name BRCA. The EIID or ISIN Code (BE0389555039) is used as the unique product reference to lookup the full set of available information on the product.

The EMF header used in the UDP Multicast delivery is highlighted in grey colour.

MPH	FIELD NAME		VALUE
00	PACKET TYPE		Packet Content (data after SEQ) is not compressed
00 00 00 0B	SEQ		11
MSH	FIELD NAME		VALUE
06	SEGMENT ID		SID_ST_REFRESH_MSG_END
04 A3	SEGMENT LENGTH		1187
DATA	FIELD NAME	FID	VALUE
00 97	MESSAGE IDENTITY	N/A	151
77 62 08 00 00 00 01 28 DA CB 44	UNIQUE OUTPUT KEY	0x7762	4980394820
40 10 01 49	INSTRUMENT TYPE	0x4010	'I'
77 11 08 00 00 00 0A 0E EB B0 00	BROADCAST TIMESTAMP	0x7711	43200000000 microseconds elapsed since midnight (i.e. 12:00:00.000000)
87 51 0D 00 42 45 30 33 38 39 35 35 35 30 33 39	EIID	0x8751	"BE0389555039"
85 B5 08 00 33 35 30 32 36 37 30	ALPHABETICAL SEQUENCE NUMBER ON THE OFFICIAL QUOTATION LIST	0x85B5	"3502670"
48 A1 04 00 00 03 E8	AMOUNT PAR VALUE	0x48A1	1000
85 C4 01 FF	BIC DEPOSITARY OR SETTLEMENT SYSTEM	0x85C4	<No Value>
41 AB 01 44	BROAD INSTRUMENT CATEGORY	0x41AB	'D'
84 85 05 00 43 41 53 48	CASH MESSAGE TYPE	0x8485	"CASH"
87 1F 07 00 43 46 49 31 32 33	CFI CODE	0x871F	"CFI123"

84 8B 08 00 47 2A 31 2A 6C E4 00	DATE INSTRUMENT LAST TRADED	0x848B	2003/11/14 00:00:00.000
85 C0 01 FF	DEPOSITORY OR SETTLEMENT SYSTEM	0X85C0	<No Value>
83 EF 01 FF	DEPOSITORY OR SETTLEMENT SYS ID LIST	0x83EF	<No Value>
41 B3 01 09	DERIVATIVE INSTRUMENTS ASSOCIATED	0x41B3	9
84 8D 08 FF FF FF FF FF FF FF FF	EXPIRY DATE OF LENDING SECURITY	0x848D	<No Value>
87 88 0B 00 46 49 4E 43 4F 44 45 31 32 33	FINANCIAL MARKET CODE	0x8788	"FINCODE123"
84 8E 08 FF FF FF FF FF FF FF FF	FIRST POSSIBLE SETTLEMENT DATE	0x848E	<No Value>
42 D0 01 43	FREQUENCY OF INDEX CALCULATION	0x42D0	'C'
85 C2 04 00 30 30 30	FTSE ID FOR SUBSECTOR	0X85C2	"000"
75 90 08 00 00 00 00 07 5B CD 15	HUB SEQUENCE NUMBER	0x7590	123456789
85 60 07 00 49 43 42 31 32 33	ICB CLASSIFICATION	0x8560	"ICB123"
41 BD 01 08	INDICATOR OF UNDERLYING SECURITY ON LENDING	0x41BD	8
85 AF 03 00 38 31	INSTRUMENT GROUP CODE	0x85AF	"81"
84 5D 0C 00 42 45 4C 32 30 20 43 4C 4F 53 45	INSTRUMENT LONG NAME	0x845D	"BEL20 CLOSE"
85 A4 0D 00 42 45 30 33 38 39 35 35 35 30 33 39	ISIN CODE	0x85A4	"BE0389555039"
85 B9 0D 00 30 30 30 30 30 30 30 30 30 30 30 30	ISIN CODE OF UNDERLYING SECURITY FOR LENDING MARKET	0x85B9	"000000000000"
85 A8 04 00 5A 5A 5A	ISSUING COUNTRY CODE	0x85A8	"ZZZ"
45 B4 02 00 44	IVAL INSTRUMENT TYPE	0x45B4	68
43 B9 01 00	LAST FOR INDEX	0x43B9	0
61 DE 06 00 12 D6 87 FF FF	LAST PRICE FOR THE PREVIOUS TRADED DAY (ADJUSTED)	0x61DE	123456.7

87 87 07 00 46 49 4E 31 32 33	MARKET FEED CODE	0x8787	"FIN123"
85 C5 01 FF	MIC (MARKET IDENTIFICATION CODE)	0x85C5	<No Value>
65 BF 0A 00 00 00 00 00 00 00 00 00 00	MINIMUM TRADEABLE QUANTITY	0x65BF	0
85 13 04 00 41 42 43	MNEMONIC CODE	0x8513	"ABC"
75 BC 08 00 00 00 00 00 00 00 00	NUMBER OF INSTRUMENT TRADED ON PREVIOUS DAY	0x75BC	0
67 BE 0A 00 00 00 00 1D CD 65 00 00 00	NUMBER OF SHARES ISSUED	0x67BE	500000000
85 AD 05 00 39 31 38 30	OFFICIAL QUOTATION LIST CLASSIFICATION	0x85AD	"9180"
62 CF 06 00 00 55 D8 FF FF	PREVIOUS DAY'S REFERENCE CLOSING INDEX	0x62CF	2197.6
65 E5 0A 00 00 00 00 00 00 00 80 00	PREVIOUS TRADING DAY VOLUME IN CAPITAL	0x65E5	<No Value>
41 AA 01 01	PRICE UNIT TYPE	0x41AA	1
87 22 04 00 55 4E 54	QUANTITY NOTATION	0x8722	UNT
48 9E 04 00 34 F5 A3	SHORT INSTRUMENT ID CODE	0x489E	3470755
85 AE 04 00 30 30 36	STOCK EXCHANGE CODE	0x85AE	"006"
41 B7 01 00	TAX DEDUCTIBILITY CODE	0x41B7	0
46 CE 02 00 14	TOTAL NUMBER OF SECURITIES IN THE INDEX	0x46CE	20
85 A9 04 00 45 55 52	TRADING CURRENCY	0x85A9	"EUR"
87 86 03 00 30 30	TYPE OF CORPORATE EVENT	0x8786	"00"
43 B6 01 41	TYPE OF MARKET ADMISSION	0x43B6	'A'
86 CB 0D 00 42 45 30 30 30 33 34 37 30 37 35 35	UNDERLYING ISIN CODE	0x86CB	"BE0003470755"
87 20 01 FF	UTC HOUR	0x8720	<No Value>

87 21 01 FF	UTC HOUR 2	0x8721	<No Value>
82 CD 82 F1 42 45 30 30 30 33 34 37 30 37 35 35 53 4F 4C 42 20 30 30 35 39 38 33 36 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 35 35 35 36 33 39 54 45 53 42 20 30 30 30 35 32 30 38 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 35 36 32 37 30 30 44 45 4C 42 20 30 30 35 36 34 33 30 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 35 36 35 37 33 37 4B 42 43 20 30 30 34 38 38 33 32 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 35 39 33 30 34 34 43 4F 46 42 20 30 30 30 38 34 32 38 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 36 32 36 33 37 32 55 4D 49 20 30 30 31 33 38 32 39 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 36 33 37 34 38 36 45 4C 45 42 20 30 31 34 37 35 37 30 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 36 36 39 38 30 32 44 49 45 20 30 30 30 37 31 35 34 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 30 33 31 37 31 41 4C 4D 42 20 30 30 34 34 33 37 34 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 33 35 34 39 36 4D 4F 42 42 20 30 30 31 32 34 35	LIST OF SECURITIES BELONGING TO THE INDEX	0x82CD	BE0003470755SOLB 0059836200000000100 BE0003555639TESB 0005208200000000100 BE0003562700DELB 0056430200000000100 BE0003565737KBC 0048832200000000100 BE0003593044COFB 0008428200000000100 BE0003626372UMI 0013829200000000100 BE0003637486ELEB 0147570200000000100 BE0003669802DIE 0007154200000000100 BE0003703171ALMB 0044374200000000100 BE0003735496MOBB 0012458200000000100 BE0003739530UCB 0043128200000000100 BE0003755692AGFB 0022062200000000100 BE0003775898COLR 0021370200000000100 BE0003780948BEKB 0011110200000000100 BE0003785020OME 0007544200000000100 BE0003790079BAR 0009128200000000100 BE0003793107INTB 0052319200000000100 BE0003796134DEXB 0170606200000000100 BE0003797140GBLB 0042622200000000100 BE0003801181FORB 0215992200000000100

38 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 33 39 35 33 30 55 43 42 20 30 30 34 33 31 32 38 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 35 35 36 39 32 41 47 46 42 20 30 30 32 32 30 36 32 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 37 35 38 39 38 43 4F 4C 52 20 30 30 32 31 33 37 30 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 38 30 39 34 38 42 45 4B 42 20 30 30 31 31 31 31 30 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 38 35 30 32 30 4F 4D 45 20 30 30 30 37 35 34 34 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 39 30 30 37 39 42 41 52 20 30 30 30 39 31 32 38 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 39 33 31 30 37 49 4E 54 42 20 30 30 35 32 33 31 39 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 39 36 31 33 34 44 45 58 42 20 30 31 37 30 36 30 36 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 37 39 37 31 34 30 47 42 4C 42 20 30 30 34 32 36 32 32 32 30 30 30 30 30 30 30 30 30 31 30 30 20 42 45 30 30 30 33 38 30 31 31 38 31 46 4F 52 42 20 30 32 31 35 39 39 32			
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32 30 30 30 30 30 30 30 30 30 31 30 30			
--	--	--	--

A.5 Price Data Update (Derivatives example)

This example shows a Price Data Update message of 76 bytes in length. The Instrument Type of 'F' and the Source Name of 'L' indicate that the product is a Futures contract in the LIFFE Financials Market. The EIID (LFI 070700000F) is a unique product reference that is used to lookup the full static data elements of the product. This message type populates only the fields which have changed and therefore in this example is reporting a new trade.

The EMF header used in the UDP Multicast delivery is highlighted in grey colour.

MPH	FIELD NAME		VALUE
00	PACKET TYPE		Packet Content (data after SEQ) is not compressed
00 00 00 0B	SEQ		11
MSH	FIELD NAME		VALUE
02	SEGMENT ID		SID_PROD_MSG_END
00 44	SEGMENT LENGTH		68
DATA	FIELD NAME	FID	VALUE
00 9C	MESSAGE IDENTITY	N/A	156
77 62 08 00 00 00 01 03 7C B5 B3	UNIQUE OUTPUT KEY	0x7762	4353471923
40 10 01 46	INSTRUMENT TYPE	0x4010	'F'
77 11 08 00 00 00 0A 0E EB B0 00	BROADCAST TIMESTAMP	0x7711	4320000000 microseconds elapsed since midnight (i.e. 12:00:00.000000)
87 51 10 00 4C 46 49 20 20 30 37 30 37 30 30 30 30 30 46	EIID	0x8751	"LFI 070700000F"
48 8C 04 00 01 6B 57	LAST TRADE PRICE	0x488C	93015
48 8D 04 00 00 00 0F	LAST TRADE QTY	0x488D	15
86 06 04 00 43 4F 4E	LAST TRADE TYPE	0x8606	"CON"

Appendix B. Field Type

This appendix summarises all possible field types supported in the Euronext Multicast Feed.

Note: Network byte ordering is used to encode multi-byte data types.

B.1 Boolean

Boolean fields contains ONE byte that may have the following possible values:

VALUE	MEANING
0	False/No/Off
1	True/Yes/On

B.2 Byte Array

A Byte Array field stores data in a contiguous memory organisation. Its size is variable.

A Byte Array is considered as empty when its length is equal to 0.

B.3 Character

The Character fields are one byte in length. Its primary usage is for storage of a short integer or a single text character:

- Numeric – value from -127 to 127.
- Text Character – printable characters e.g. 'A' to 'Z', 'a' to 'z' and '0' to '9'

No value is represented by the value of -128.

B.4 Date and Time Types

B.4.1 Date Time

This data type encodes both date and time information inside a single 64-bit binary field.

LENGTH	REPRESENTATION IN DECIMAL NUMBER
8 bytes	YYYYMMDDHHMMSSNNN

The following table shows an example of date time data type:

DATE & TIME	DECIMAL VALUE
2003/12/23 12:34:56.123	20031223123456123

No value is represented by the value of -1.

B.4.2 Time

This data type contains the value of time. The data is stored as a single 32-bit binary field.

LENGTH	REPRESENTATION IN DECIMAL NUMBER
4 bytes	HHMMSSNNN

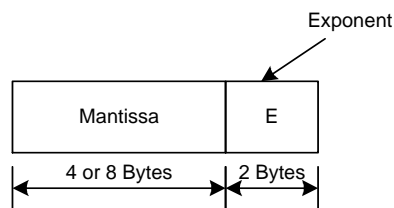
The following table shows an example of date time data type:

DATE & TIME	DECIMAL VALUE
12:34:56.123	123456123

No value is represented by the value of -1.

B.5 Decimal Number Types

The EMF representation of a Decimal Number captures the numerical value of a field with no precision loss in a fixed memory size. The diagram below shows the structure of a Decimal Number.



A Decimal value is composed of two parts:

- Mantissa
- Exponent

The exponent is a 2-byte signed integer which ranges from -32768 to 32767, defining the order of magnitude of base 10 of the number.

- Decimal Value = Mantissa * 10^{Exponent}

B.5.1 Decimal

The mantissa part of a Decimal value is a 4-byte signed integer with the range from -2^{31} to $2^{31} - 1$. A Decimal value is therefore 6 bytes in length.

Examples of Decimal numbers are shown in the following table:

ACTUAL VALUE	REPRESENTATION	
	MANTISSA	EXPONENT
123.45	00 00 30 39	FF FE
-12345.67	FF ED 29 79	FF FE
-123450000	FF FF CF C7	00 04

No value is represented by the value of Mantissa = 0 and Exponent = -32768 or 0x00 00 00 00 80 00.

B.5.2 Long Decimal

A Long Decimal field is identical to a Decimal field except that the mantissa part is an 8-byte signed integer with the range from -2^{63} to $2^{63} - 1$.

Examples of Long Decimal numbers are shown in the following table:

ACTUAL VALUE	REPRESENTATION	
	MANTISSA	EXPONENT
123.45	00 00 00 00 00 00 30 39	FF FE
-12345.67	FF FF FF FF FF ED 29 79	FF FE
12345667890.123	00 00 01 1F 71 FB 04 CB	FF FD
-123456789012300	FF FF FE E0 8E 04 FB 35	00 02

No value is represented by the value of Mantissa = 0 and Exponent = -32768.

B.6 Integer Types

The Euronext Multicast Feed contains three different integer types which differ only in their length.

B.6.1 Short Integer

A Short Integer is a signed 2-byte integer with a value ranging from -2^{15} to $2^{15}-1$.

No value is represented by the value -32768 .

B.6.2 Integer

An Integer is a signed 4-byte integer with a value ranging from -2^{31} to $2^{31} - 1$.

No value is represented by the value of -2147483648 .

B.6.3 Long Integer

A Long Integer is a signed 8 byte integer with a value ranging from -2^{63} to $2^{63} - 1$.

No value is represented by the value of -9223372036854775808 .

B.6.4 String

The String data type is used to store a variable size text string in a contiguous memory organisation. Zero is not allowed in the String text. The most significant bit of the first byte is used to determine the code set of contained text characters. The code set byte is mandatory and can be zero when there is no code set specified.

- If it is cleared – 7-bit ASCII string
- If it is set – reserved for future used.

No value is represented by the value of 0xFF in the first byte.

Appendix C. Message Types

MESSAGE TYPE	MESSAGE IDENTITY
Requests from Users	
Login	0
Logout	1
Historical Data Retransmission Request	2
Price Data Full Image Refresh Request	8
Static Data Full Image Refresh Request	9
Request Acknowledgements	
Login Acknowledgement	50
Logout Acknowledgement	51
Historical Data Request Acknowledgement	52
Price Data Full Image Refresh Request Acknowledgement	58
Static Data Full Image Refresh Request Acknowledgement	59
Notifications and Status	
Start of Historical Data Retransmission Notification	100
End of Historical Data Retransmission Notification	101
System Status	104
System Logout Notification	105
Retransmission Interruption Notification	106
Start of Price Data Full Image Refresh Notification (Does not apply to Cash Data)	107
End of Price Data Full Image Refresh Notification (Does not apply to Cash Data)	108
Start of Static Data Full Image Refresh Notification	109
End of Static Data Full Image Refresh Notification	110
Data Messages	
Static Data Full Image Refresh	151
Intra-day Static Data Update (Does not apply to Cash Data)	152
Price Data Daily Full Image Reset (Before Market Open) (Does not apply to Cash Data)	155

MESSAGE TYPE	MESSAGE IDENTITY
Price Data Closing (After Market Close) (Does not apply to Cash Data)	155
Price Data Full Image Refresh (Does not apply to Cash Data)	155
Price Data Update	156
Market State (Does not apply to Cash Data)	156
Market (Does not apply to Cash Data)	156
Host Failure Notification	156

Appendix D. System Fields

This appendix lists the System Data Fields that are used within the Euronext Multicast Feed. System Data Fields are included in messages regardless of the source. They are used in those sections of messages that do not change from one source to another, such as the Message Identification section.

The following table provides the System Data Fields in alphabetical order by field name.

FIELD	DATA TYPE	FID	DESCRIPTION
BROADCAST TIMESTAMP	Long Integer	0x7711	Number of microseconds elapsed since mid-night.
EIID	String	0x8751	Unique identifier for any instrument
ENCRYPTION KEY	String	0x8486	Encryption Key
INSTRUMENT TYPE	Character	0x4010	Asset class for the data in the record. See Appendix E - Instrument Types for possible values.
LOGOUT REMARK	String	0x872E	Description of the reason for being logged out.
PASSWORD	String	0x8741	Password, included in the LOGON REQUEST message.
RECOVER FROM DATETIME	Date Time	0x5330	Start time for retransmission request.
RECOVER TO DATETIME	Date Time	0x5334	End time for retransmission request
RECOVERY ADJUSTMENT	Integer	0x4B63	Number of messages to shift from the base point for recovery by message ID. If negative, then shift earlier; if positive shift later.
REQUEST IDENTITY	Integer	0x4B4C	Unique identifier for any request sent by the user. Possible values / Restrictions: The value of this field must be an integer, x, satisfying: $1 \leq x \leq 32767$
RETURN CODE	String	0x8743	Identifier for the response to the request. Value depends on the message request. See the various sections in the Specifications for specific values for each request type.
SESSION SEQUENCE NUMBER	Integer	0x4B64	Sequence number for the session. Increases by 1 for each message received from EMF.

FIELD	DATA TYPE	FID	DESCRIPTION
SYSTEM TIME	Time	0x5B54	EMF time (in UTC) included in each system status message.
UNIQUE OUTPUT KEY	Long Integer	0x7762	Unique identifier for each message sent by EMF. Used in message recovery.
END UNIQUE OUTPUT KEY	Long Integer	0x7591	End unique output key of recovery request
USER IDENTITY	String	0x8757	User name included in each logon request.

Appendix E. Instrument Types

The Instrument Type field in the DATA IDENTIFICATION section determines the asset class to which the quote or trade refers.

Data Field	Value	Remark
Derivatives instrument types	'2'	MARKET MODE
	'3'	STRATEGY
	'F'	FUTURES CONTRACT
	'O'	OPTIONS CONTRACT
	's'	STOCK UNDERLYING
	'I'	INDEX UNDERLYING
Cash instrument types	'B'	BOND
	'E'	STOCK
	'W'	WARRANT
	'b'	TRACKER
	'D'	FUND
	'k'	REPO
	'I'	INDEX
	'/'	CURRENCY
	'O'	INSTRUMENT GROUP
	BClear instrument types	'c'
'd'		BCLEAR FLEXIBLE FUTURE
'e'		BCLEAR FLEXIBLE OPTION
'f'		BCLEAR STOCK
'g'		BCLEAR STRATEGY
Other instrument types	'V'	VOLATILITY INDEX
	'U'	STRATEGY INDEX
	'8'	MARKET
	'9'	NOTIFICATION

Please note: The Value shown here is the ASCII value of the field value.