Document title

Euronext Cash and Derivatives Markets – Optiq MDG Client Specifications

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1.2.0

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154

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1.14.9.6

PREFACE

PURPOSE

The purpose of this document is to describe all the specifications of Optiq™ Market Data Gateway.

TARGET AUDIENCE

This document must be read by Euronext's clients developing a Market Data Feed Handler.

SCOPE

The scope of this document is listed below (✓ In scope, ✘ Out of scope):

Products	
Equities	✓
Funds	✓
Fixed Income	✓
Warrants and Certificates	✓
Options	✓
Futures	✓
Commodities	✓
Indices	✓

ASSOCIATED DOCUMENTS

Please read the following documents along with these specifications:

Title	Description
Euronext Cash Market - UTP to Optiq MDG Transition Kinematics Specifications	Description of the message kinematics for Cash
Euronext Derivatives Market - UTP to Optiq MDG Transition Kinematics Specifications	Description of the message kinematics for Derivatives
Euronext Cash and Derivatives - File Specifications	Description of the files for Cash and

Title	Description
	Derivatives
Euronext Optiq™ Market Data Gateway Production Environment	Description of the Production feed configuration
Euronext Optiq™ Market Data Gateway External User acceptance Environment	Description of the External User Acceptance feed configuration

Please visit www.euronext.com/optiq.

SUPPORT

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WHAT'S NEW?

The following lists only the most recent modifications made to this version. For the Document History table see the Document History in appendix**.**

Version Number	Date	Change Description
1.2.0	4 Jan 2017	**Specification changes:** - Section 2.1.3 Market Data Messages per Channel: Specify that Cash represents also BdL and tables split into 3 different tables - Section 2.4 Compression: Added Compression behaviour and LZ4 confirmed - Section 2.8.1 Clear the Book: Field to clear specified - Section 2.9 Cancellations: Adding new section describing trade cancellation, Order cancellation and limit cancellation - Section 2.11: Description improved - Section 4.1 Technical Format Fields: Added description for Decimal Places - Section 4.6 Instrument Identifiers: Added behaviour in case of corporate action **Message changes:** - "Standing Data" (1007): Description updated by removing : "For phase 1 it will be populated only once, only for the COB." - "Market Update" (1001): Description improved with the update types per channel

Version Number	Date	Change Description
		- "Price Update" (1003): change for undetermined IMP the values are not 0 but null - "Statistics" (1009): Description improved with the update types per asset class **Field changes:** - "Strike Price Flex Increment" description improved with the Decimal field to apply on - "Nominal Market Price" is now Price Format - "Trade Type": Trade Cancellation is now for both Cash and Derivatives - "Start Time Vwap" and "End Time Vwap" are cash only fields - " Market Data Price Type", Official YDSP is Derivatives Only - "Scheduled Event Date" is now in number of nanoseconds since 1970/01/01 - "Order Reference Number" description improved by adding for phase 1 the order date with the order id

FURTHER INFORMATION

- For additional product information please visit: www.euronext.com/optiq
- For updated capacity figures and details of IP addresses please visit: www.euronext.com/optiq

CONTENTS

1. EURONEXT OPTIQ MARKET DATA GATEWAY SOLUTION

1.1 INTRODUCTION

The Euronext Optiq Market Data Gateway (MDG) provides high-speed, real-time market data for Euronext markets.

The data feed has the following high-level features:

- **Multicast technology**
- **Ultra-low latency**
- **MiFID II compliance**
- **Cash & Derivatives message harmonization**
- **Optimized feed for each type of connectivity**
- **High availability**
- **Reliable network solution**
- **High level of scalability**
- **Access to a wide range of European market data sets**

This document provides detailed information about the features of the feed to support the development of client applications.

1.2 MIFID II

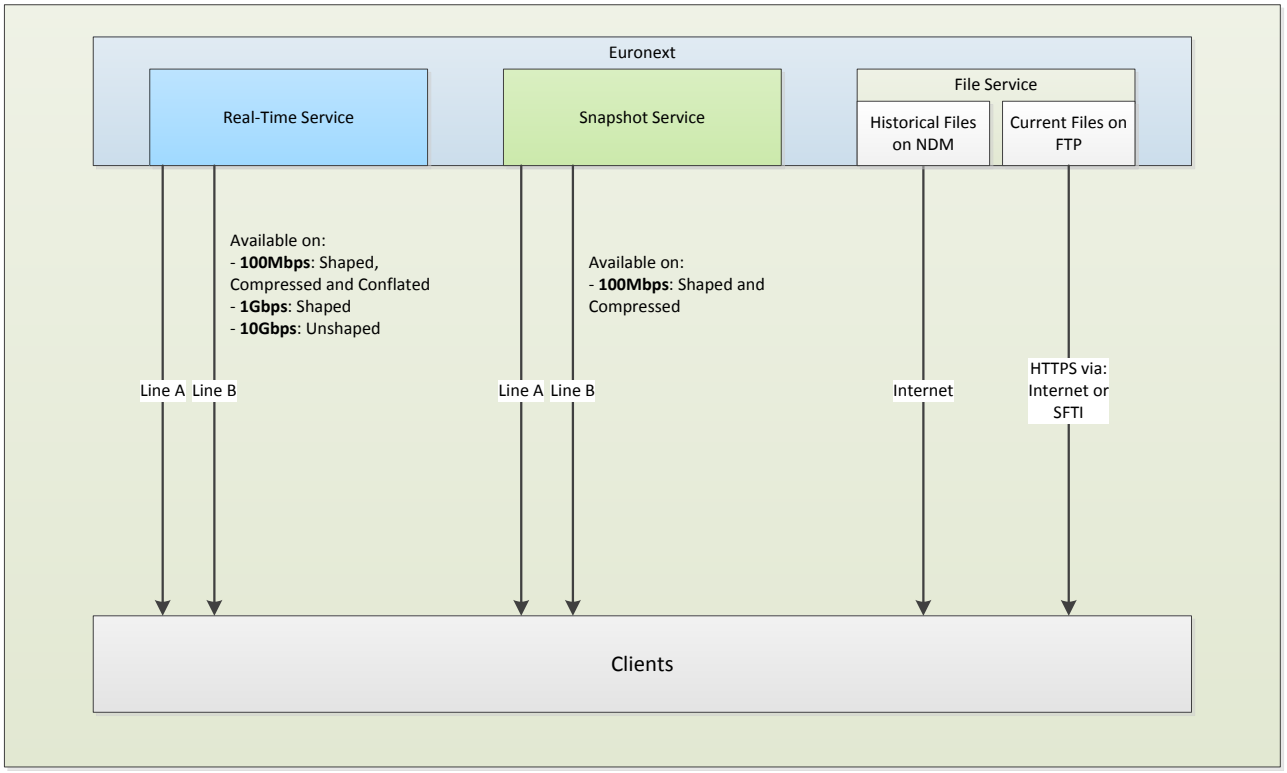
Markets in Financial Instruments Directive 2 (MiFID II) is a European Commission set of new regulations to reduce systemic risk and guarantee more transparency for clients.

Euronext Optiq Market Data Gateway is MiFID II compliant by offering:

- **Market Data channel disaggregation** Each multicast channel published by MDG is disaggregated as follows: asset class, currency and country. Additionally, there are dedicated channels for pre-trade and post-trade.
- **Higher Transparency** The Full Trade Information message (1004) delivered by Optiq MDG will carry MMT Trade flags and other fields as required by MiFID II.

1.3 ACCESS TO MARKET DATA

The following diagram presents the Optiq MDG services:



Clients access Market Data as follows:

- **Real-Time service** Clients connect to multicast UDP/IP channels to receive Market Data messages in real-time
- **Snapshot service** Clients connect to multicast UDP/IP channels to receive unsolicited Snapshots sent periodically on dedicated multicast channels to recover from packet loss or for intraday starts.
- **File service** Clients connect to an file server
  - Every morning to download XML files containing static and daily data (Standing Data, Timetables, Tick Tables, XML SBE template, Pattern IDs and Feed Configurations)
  - During the trading day to download the Full Trade Information files containing all the trades of the day

Market Data are available in the following modes:

- **Unshaped** All messages are sent as fast as possible (service only available on 10 Gbps lines)
- **Shaped** Allow optimized emission of Market Data with low latency, optimized bandwidth use and packet loss prevention (service available on the 100 Mbps and 1 Gbps lines)
- **Conflated** During high market activity (and if messages begin to queue), the conflation mechanism helps to optimize bandwidth usage and minimize Market Data latency (service available only on 100 Mbps lines)

- **Compressed** Messages are compressed in order to reduce the use of bandwidth (available on 100 Mbps lines)

Two recovery mechanisms are available:

- **Line arbitration** Identical packets are sent on two lines (line A and line B). Clients are strongly invited to use this first recovery mechanism in case of message loss
- **Snapshot service** If messages are lost on both lines or if a client connects intra-day

1.4 MESSAGING PROTOCOL AND PUBLISHING MODEL

Real-time and Snapshot Market Data are message-based over the UDP/IP protocol with SBE (Simple Binary Encoding).
This binary encoding is optimized for low latency encoding and decoding while keeping bandwidth utilization reasonably small, and is used across all asset classes.

Using the push-based publishing model, data will be published as soon as it is available.

1.5 TRANSITION PHASE

Following customer feedback, the migration to Optiq will start with the Market Data module for Cash and Derivatives. As such, the new Optiq MDG will be connected to the Cash and Derivatives UTP matching engines in phase 1, and then to the Optiq matching engines for Cash (phase 2) and then Derivatives (phase 3).

This document relates to the specifications of the new Optiq MDG linked to UTP-Cash and UTP-Derivatives matching engines (phase 1).

An update of this document will be provided in early Q4 2016 along with the other specification documents for phase 2. Any potential changes with this version will be clearly indicated, and the same approach will be used for the phase 3.

2. MARKET DATA GATEWAY FEATURES

2.1 TYPE OF MARKET DATA CHANNELS

2.1.1 Market Data Channels

Euronext offers real-time and snapshot Market Data through different channels that clients can subscribe to. Each channel is linked to a unique IP multicast group address and a unique port.

Channels are split according to the following criteria:

- **Asset Class** MiFID II requirement
- **Country of issue** MiFID II requirement
- **Currency** MiFID II requirement
- **Real-time or Snapshot** Real-time and snapshot messages are sent through different channels
- **Types of data:**
  - Full Order Book (FOB including BBO) channel provides full order book depth.
  - Best Bid and Offer (BBO) channel will only provide the best limits when they are updated.
  - Reference Data and Full Trade Information channel provides all instrument characteristics, scheduled phases, market administration messages and MiFID II compliant trade messages. Index messages are included in this channel only for Bourse de Luxembourg (BdL).
  - Reference Data and Index Package channel provides all instrument characteristics, scheduled phases, market administration messages and Index messages.
- **Shaping** Channels are either unshaped, shaped to 1 Gbps or shaped to 100 Mbps.
- **Scalability** For performance reasons, a channel can be split into several channels. It is also possible for an instrument to move from one channel to another, although intraday changes will not occur.

The unshaped channels are only available for the Full Order Book channels and for the following Asset Classes:

- Equities France
- Equities Netherlands
- ETF's
- Equity and Index Futures France
- Equity and Index Futures Netherlands
- Index Options France
- Index Options Netherlands

The table below shows the MiFID II disaggregation of Asset Class + Currency + Country:

Asset Class	Currency	Country Split
Equities	All	Netherlands
		France
		Belgium
		Portugal
		UK
ETFs	All	All
Retail Matching Facility (RMF)	All	All
Equity Off-Exchange Trade Reports	All	All
Société Générale Systematic Internaliser (SI)	All	All
Fixed Income	All	All
Warrants and Certificates	All	All
Bourse de Luxembourg	All	All
Equity Options	All	Netherlands
		France
		Other (Belgium and Portugal)
Equity and Index Futures	All	Netherlands
		France
		Other (Belgium and Portugal)
Index Options	All	Netherlands
		France
		Other (Belgium and Portugal)
Currency Options	All	All
Currency Futures	All	All
Commodity Derivatives	All	All
AtomX (for Flex Contracts)	All	All
Indices	All	All

Example of Market Data Channels:

- Equities – France – All currency – Unshaped – Real-time – Full order book
- Equity and Index Futures – Netherlands – All currency – Shaped (100 Mbps) – Snapshot – Best Bid and Offer

2.1.2 Client Connectivity

The subscription to a set of channels depends on the type of client connectivity. For example, if a client has a 100 Mbps line, then he cannot subscribe to the unshaped channels which are only offered on 10 Gbps lines nor subscribe to the shaped BBO channels, which are only available on 1 Gbps lines. 1 Gbps clients cannot subscribe to the unshaped data, which is only available on 10 Gbps lines. Conversely, a client with a 10 Gbps line can subscribe to all available channels like the Full Order Book channels (either unshaped (10 Gbps) or shaped (1 Gbps)) as well as to the compressed, conflated and shaped channels (100 Mbps).

2.1.3 Market Data Messages per Channel

Optiq MDG will provide the Full Order Book (FOB) in two different ways based on instrument type:

- **Market by Order** The Order Update (1002) message will be disseminated for each new order, modification or cancellation, and is available for Cash Equities, ETF's and Fixed Income.
- **Market by Limit** Aggregated price limits are published using the Market Update (1001) message, and is available for Warrants & Certificates, RMF, SI, Equity, Index/Currency and Commodity Derivatives.

The following table provides an overview of all Optiq MDG messages. The aim is to provide a better understanding of the message types per channel table.

Message Name	Message type	Description
Start Of Day	1101	First message of the day sent by the Market Data Gateway
End Of Day	1102	Last message of the day sent by the Market Data Gateway
Health Status	1103	Heartbeat message sent at regular intervals throughout the day
Trade Retransmission Start	1104	Identifies the beginning of a trade retransmission
Trade Retransmission End	1105	Identifies the end of a trade retransmission
Timetable	1006	Scheduled Trading Mode and Phase Types for each instrument
Market Status Change	1005	Indicates the change in the state of an instrument (either scheduled or manually processed)
Standing Data	1007	Provides characteristics for all instruments on Cash
Contract Standing Data	1013	Provides characteristics for all contracts on Derivatives
Outright Standing Data	1014	Provides characteristics for all instruments on Derivatives
Strategy Standing Data	1012	Provides characteristics for all Strategies on Derivatives
Exchange Announcement	1010	Manual communication sent by Market Operations
Market Update	1001	Provides information generated by market events, including limit updates and trades
Order Update	1002	Indicates new orders, modifications, cancellations or retransmissions
Price Update	1003	Provides all updated reference prices
Full Trade Information	1004	Contains trade information, including all MiFID II regulatory fields

Message Name	Message type	Description
Real Time Index	1008	Provides all Index-related statistics
Statistics	1009	Provides statistics on prices and volumes on an instrument
Index Summary	1011	Provides index level summaries in closing phases
Start Of Snapshot	2101	Identifies the beginning of a snapshot sequence
End Of Snapshot	2102	Identifies the end of a snapshot sequence
Snapshot Statistics	2009	Summarizes the last statistics for an instrument

The following table explains which message types are available for each real-time channel:

2.1.3.1 Real Time for Cash

Cash is composed of: Bourse de Luxembourg (BdL), Equities, Funds and Fixed Income.

	10 Gbps Unshaped Only available for Equities France and Netherlands and ETF's	1 Gbps Shaped	100 Mbps Shaped, Compressed and Conflated					
	Pre-Trade							Post-Trade
	Full Order Book Order Update	Full Order Book Order Update	Full Order Book Market Update	Full Order Book Order Update	Full Order Book Market Update	Full Order Book RMF	Full Order Book SI	Reference Data[1] and Full Trade Information
Start Of Day (1101)	X	X	X	X	X	X	X	X
End Of Day (1102)	X	X	X	X	X	X	X	X
Health Status (1103)	X	X	X	X	X	X	X	X
Trade Retransmission Start (1104)								X
Trade Retransmission End (1105)								X
Timetable (1006)								X
Market Status Change (1005)	X	X	X	X	X			X (for Funds)
Standing Data (1007)								X
Contract Standing Data (1013)								
Outright Standing Data (1014)								
Strategy Standing Data (1012)								
Exchange Announcement (1010)								X
Market Update (1001)	X[2]	X[2]	X	X[2]	X	X[3]	X[4]	
Order Update (1002)	X	X		X				
Price Update (1003)								X
Full Trade Information (1004)								X
Real Time Index (1008)								X (only for BdL)
Statistics (1009)								X
Index Summary (1011)								X (only for BdL)

[1] Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

[2] This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17), Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19), New Bid SI (20)/ New Offer SI (21) and Updated Bid SI (22)/ Updated Offer SI (23).

[3] This message will provide only: New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17) or Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19).

[4] This message will provide only: New Bid SI (20)/ New Offer SI (21), Updated Bid SI (22)/ Updated Offer SI (23) or SI Trade (47).

2.1.3.2 Real Time for Derivatives

Derivatives is composed of: Options, Futures, Warrants & Certificates.

	10 Gbps Unshaped Only available for Equity and Index Futures and index Options for France and Netherlands	1 Gbps Shaped	100 Mbps Shaped, Compressed and Conflated			
	Pre-Trade					Post-Trade
	Full Order Book Market Update	Full Order Book Market Update	Best Bid and Offer	Full Order Book Market Update	Best Bid and Offer	Reference Data[1] and Full Trade Information
Start Of Day (1101)	X	X	X	X	X	X
End Of Day (1102)	X	X	X	X	X	X
Health Status (1103)	X	X	X	X	X	X
Trade Retransmission Start (1104)						X
Trade Retransmission End (1105)						X
Timetable (1006)						X
Market Status Change (1005)	X	X	X	X	X	
Standing Data (1007)						
Contract Standing Data (1013)						X
Outright Standing Data (1014)						X
Strategy Standing Data (1012)						X
Exchange Announcement (1010)						X
Market Update (1001)	X	X	X[2]	X	X[2]	
Order Update (1002)						
Price Update (1003)						X
Full Trade Information (1004)						X
Real Time Index (1008)						
Statistics (1009)						X
Index Summary (1011)						

[1] Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

[2] This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17), Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19), New Bid SI (20)/ New Offer SI (21) and Updated Bid SI (22)/ Updated Offer SI (23).

2.1.3.3 Real Time for Indices

	100 Mbps Shaped, Compressed and Conflated
	Indices
	Reference Data and Index Package
Start Of Day (1101)	X
End Of Day (1102)	X
Health Status (1103)	X
Trade Retransmission Start (1104)	
Trade Retransmission End (1105)	
Timetable (1006)	
Market Status Change (1005)	
Standing Data (1007)	X
Contract Standing Data (1013)	
Outright Standing Data (1014)	
Strategy Standing Data (1012)	
Exchange Announcement (1010)	
Market Update (1001)	
Order Update (1002)	
Price Update (1003)	
Full Trade Information (1004)	
Real Time Index (1008)	X
Statistics (1009)	X
Index Summary (1011)	X

2.1.3.4 Snapshot for Cash

Cash is composed of: Bourse de Luxembourg (BdL), Equities, Funds and Fixed Income.

	Compressed and Shaped		
	100 Mbps		
	Full Order Book Order Update	Full Order Book Market Update	Reference Data[1] and Full Trade Information
Start Of Day (1101)	X	X	X
End Of Day (1102)	X	X	X
Health Status (1103)	X	X	X
Start Of Snapshot (2101)	X	X	X
End Of Snapshot (2102)	X	X	X
Timetable (1006)			X
Market Status Change (1005)	X	X	
Standing Data (1007)			X
Contract Standing Data (1013)			
Outright Standing Data (1014)			
Strategy Standing Data (1012)			
Exchange Announcement (1010)			X
Market Update (1001)	X[2]	X	
Order Update (1002)	X		
Price Update (1003)			X
Full Trade Information (1004)			X

Real Time Index (1008)			X (only for BdL)
Snapshot Statistics (2009)			X
Index Summary (1011)			X (only for BdL)

[1] Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

[2] This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17), Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19), New Bid SI (20)/ New Offer SI (21) and Updated Bid SI (22)/ Updated Offer SI (23).

2.1.3.5 Snapshot for Derivatives

Derivatives is composed of: Options, Futures, Warrants & Certificates.

	Compressed and Shaped		
	100 Mbps		
	Full Order Book Market Update	Best Bid and Offer	Reference Data[1] and Full Trade Information
Start Of Day (1101)	X	X	X
End Of Day (1102)	X	X	X
Health Status (1103)	X	X	X
Start Of Snapshot (2101)	X	X	X
End Of Snapshot (2102)	X	X	X
Timetable (1006)			X
Market Status Change (1005)	X	X	X (for Funds)
Standing Data (1007)			
Contract Standing Data (1013)			X
Outright Standing Data (1014)			X
Strategy Standing Data (1012)			X
Exchange Announcement (1010)			X
Market Update (1001)	X	X[2]	
Order Update (1002)			
Price Update (1003)			X
Full Trade Information (1004)			X
Real Time Index (1008)			
Snapshot Statistics (2009)			X
Index Summary (1011)			

[1] Reference Data represents: all instruments characteristics, scheduled phases and market administration messages.

[2] This message will not provide: New Bid (3)/New Offer (4), Updated Bid (5) /Updated Offer (6), New Bid With Liquidity Provider (58)/New Offer With Liquidity Provider (59), Updated Bid With Liquidity Provider(60)/ Updated Offer With Liquidity Provider (61), New Bid RLP (Retail Liquidity Provider) (16)/ New Offer RLP (Retail Liquidity Provider) (17), Updated Bid RLP Retail Liquidity Provider) (18)/ Updated Offer RLP (Retail Liquidity Provider) (19), New Bid SI (20)/ New Offer SI (21) and Updated Bid SI (22)/ Updated Offer SI (23).

2.1.3.6 Snapshot for Indices

	Compressed and Shaped
	100 Mbps
	Reference Data and Index Package
Start Of Day (1101)	X
End Of Day (1102)	X

Health Status (1103)	X
Start Of Snapshot (2101)	X
End Of Snapshot (2102)	X
Timetable (1006)	
Market Status Change (1005)	
Standing Data (1007)	X
Contract Standing Data (1013)	
Outright Standing Data (1014)	
Strategy Standing Data (1012)	
Exchange Announcement (1010)	
Market Update (1001)	
Order Update (1002)	
Price Update (1003)	
Full Trade Information (1004)	
Real Time Index (1008)	X
Snapshot Statistics (2009)	X
Index Summary (1011)	X

2.2 SNAPSHOTS

Optiq MDG will periodically send Snapshots on dedicated multicast channels to allow clients to recover from packet loss or for intraday starts. Customers can 'hop on' (connect) and 'hop off' the Snapshot multicast channels as needed. Snapshots also provide intraday standing data, intraday timetables, statistics and index messages. These messages will be provided on dedicated Snapshot channels, alongside the real-time channels.

- **The Snapshot process is as follows for the "Full Order Book" channel:**
  - Emission of a "Start Of Snapshot" message
  - Emission of the best limits (Best bid and best offer)
  - Emission of the book of each instrument available in the channel
  - Emission of the "Market Status Change" snapshot message
  - Emission of an "End Of Snapshot" message

- **The Snapshot process is as follows for the "BBO" channel:**
  - Emission of a "Start Of Snapshot" message
  - Emission of the best limits (Best bid and best offer)
  - Emission of the "Market Status Change" snapshot message
  - Emission of an "End Of Snapshot" message

- **The Snapshot process is as follows for the "Reference Data and Full Trade Information" channel:**
  - Emission of a "Start Of Snapshot" message
  - Emission of the last "Full Trade Information" messages
  - Emission of the last "Price Update" message

- Emission of "Strategy" and "Outright Standing Data" intraday changes, "Timetables" changes, last "Market Status Change", last "Statistics" and last Index messages ("Real Time Index" and "Index Summary")
- Emission of an "End Of Snapshot" message

■ **The Snapshot process is as follows for the "Reference Data and Index Package" channels:**

- Emission of a "Start Of Snapshot" message
- Emission of "Timetables" changes, last "Statistics" and last Index messages
- Emission of an "End Of Snapshot" message

Both "Start Of Snapshot" and "End Of Snapshot" messages contain the last "Market Data Sequence Number" of the last real-time message taken into account by the snapshot (see Sequence Numbers and Snapshot Sequence behavior for explanations on the "Market Data Sequence Number").

In order to use the Snapshot, the first step is to listen to the real-time channel and start queuing messages, then retrieve the snapshot. Clients will have to wait for the Start Of Snapshot message and retrieve the last "Market Data Sequence Number" from the start or end snapshot messages, then discard the real-time queued messages with a "Market Data Sequence Number" less than or equal to the last "Market Data Sequence Number" of the snapshot.

It is important to note that since the Market Data Sequence Number does not necessarily increment by 1, the sequence number in the start or end snapshot messages might belong to another channel, and was in fact not actually lost. In order to correctly identify which packets are indeed lost, please refer to section Gap Detection and Line Arbitration.

2.3 CONFLATION

Conflation is a process developed to manage peak activity and is only performed on real-time compressed channels used by customers with low bandwidth connections (100Mbps connections). Its aim is to ensure that customers with limited bandwidth are provided an accurate state of the books during peaks in volumes. When Conflation takes effect, it removes intermediary updates that are queued and not sent out by Optiq MDG. The process ensures that the latest updates of the books are being sent to provide customers an adapted coherent feed. This way, the customer is ensured to receive the data needed to keep the integrity of the books built on his side based on Market Data feeds. In order to ensure kinematics consistency, conflation rules are specific by message type.

When the bandwidth of the conflated channels is full or almost full, the following rules (specific for each message type) will be applied in the message queue every time a new message is pushed into the queue. Please note that as soon as the bandwidth is available within the next millisecond the queued messages are sent.

■ **Market Update (1001):**

- All trades will stay in the queue.
- For Best Bid and Best Offer (BBO), only the last BBO will stay in the queue.
- All other limits, limits will be aggregated.
- For Request For Quote (RFQ), only the last value provided will remain.

- **Order Update (1002):**
  - For multiple modifications of the same order in the queue, only the last modification will remain in the queue.
  - For an order creation followed by an order deletion, with or without order modifications, nothing will remain in the queue.

- **Price Update (1003):**
  - Only the last updated price will remain in the queue.

- **Market Status Change (1005):**
  - Only the last message will remain in the queue.

- **Other messages are not conflated.**

2.4 COMPRESSION

Optiq MDG will use LZ4 compression, and it will be available for real-time market data used on low bandwidth connections (100Mbps) and for all snapshots. Only the body of the Market Data packets will be compressed, excluding the packet header. It should be noted that a compressed market data packet can contain several different messages, which are all compressed into a single packet.

On compressed channels, it is possible to have compressed and uncompressed packets. The compression flag in the packet header defines if the packet is compressed or not.

Please see Appendix A: Disclaimers for LZ4 disclaimers.

2.5 SHAPING

- **Optiq MDG Traffic Shaping**

Optiq MDG Traffic shaping is used for 1Gbps connections on real-time market data and for 100Mbps connections on real-time and snapshot market data. Traffic shaping by Optiq MDG is used to:

- Optimize the use of available bandwidth on 1 Gbps and 100 Mbps connections
- Prevent packet loss: Optiq MDG will keep track of what is being sent out per millisecond and will use this information to guarantee packets will be sent respecting the available bandwidth
- Guarantee performance available on 1 Gbps and 100 Mbps connections

- **Optiq MDG unshaped**

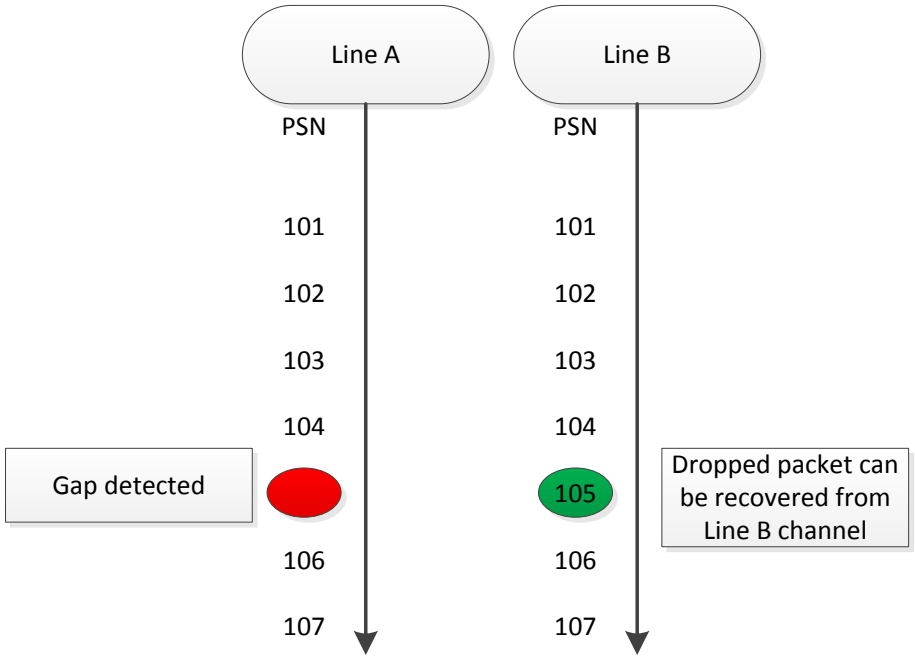
Optiq MDG will provide unshaped real-time market data for clients on 10 Gbps connections. Unshaped means that messages are sent out without any restrictions and this is made available for:

- Cash Regulated Markets - Equities - France and the Netherlands
- Cash Regulated Markets - ETF

- Derivatives – Equity and Index Futures - France and the Netherlands
- Derivatives - Index Options - France and the Netherlands

2.6 GAP DETECTION AND LINE ARBITRATION

The Packet Sequence Number (please see Market Data Packet Header) should be used to detect gaps in the transmission of packets.



Using this method, a lost packet can be recovered from the second line. In case of packet loss on both lines, then the snapshot mechanism should be used.

UDP packets can potentially arrive unordered and potentially sent twice. As such, systems should be able to reorder the packets and detect duplicate packets.

2.7 SYSTEM FAILURES

- High Availability

The High Availability (HA) functionality of Optiq MDG is set up to ensure that there is no loss of service during an outage on the primary publisher, such as a hardware failure. Failover to a secondary publisher can be identified by the change of sequence in the Packet headers (the Packet Sequence Number restarts to “1” and bits between 1 and 3 in the “Packet Flags” field increase by “1”, or “0” if the field overflows). The HA failover is designed to be as transparent as possible, and multicast groups and ports will not change. However, there are specific details that must be considered.

When a market data source restarts and is not able to keep its sequential behaviour, the Market Data Gateway initiates a new start sequence for this source. The Market Data Gateway then sends an order book retransmission sequence, and a list of corrected trades asynchronously inside the real-time channel used for trades. These trades are flagged as a retransmission (rebroadcast Indicator set to "1"). As the system is asynchronous, some trades might be lost in case of a matching engine failure. Therefore, the trade retransmission should be used to update the status of each trade that is resent, to complete trades not already taken into account, and even in certain cases, to indicate that some trades should be removed.
Please refer to Book and Trades Retransmission to have all details on how are retransmitted books and trades.

- Disaster Recovery Site

In order to mitigate any serious outage in the primary data centre, a secondary data centre is online in standby mode.

Clients should ensure that all configurations surrounding the secondary data centre are included, as described in the **Feed Configuration Specification** document.

- Client System Failure

Real-time and snapshot market data will be available on two different multicast groups, and allows for clients the possibility to set up more than one receiving system processing the same data. In case of client system failure, the backup client system should continue to process the real-time and snapshot data sent on the second multicast group.

2.8 BOOK AND TRADES RETRANSMISSION

Retransmission is the process used by the Market Data Gateway to retransmit data in real-time to ensure trades and full book consistency. This is used each day to retransmit order books at the start of the day but can also be used intraday to recover from an Exchange failure.

2.8.1 Clear the Book

Before any market retransmission, Optiq MDG will send a clear book request.

- For the first clear book, at the beginning of the day, customers are expected to clear any stored information for any Market Data Update Type received the previous day.
- For any intraday clear book request, customers are expected to clear only the Market Data Update Types related to the specific order book, listed below, and keep all other Market Data Update Type unchanged.

  1 - Best Bid (Cash and Derivatives)
  2 - Best Offer (Cash and Derivatives)
  3 - New Bid (Cash and Derivatives)
  4 - New Offer (Cash and Derivatives)

5 - Updated Bid (Cash and Derivatives)
6 - Updated Offer (Cash and Derivatives)
16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)
17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)
18 - Updated Bid RLP Retail Liquidity Provider) (Cash Only)
19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only)
20 - New Bid SI (Cash Only)
21 - New Offer SI (Cash Only)
22 - Updated Bid SI (Cash Only)
23 - Updated Offer SI (Cash Only)
58 - New Bid With Liquidity Provider (Cash Only)
59 - New Offer With Liquidity Provider (Cash Only)
60 - Updated Bid With Liquidity Provider (Cash Only)
61 - Updated Offer With Liquidity Provider (Cash Only)

- For market by orders, clients will receive an Order Update (1002) with Market Data Action Type set to "3 - Deletion of all orders for the given instrument", quantity set to '0' (zero) and all other fields set to null according to the SBE protocol.

2.8.2 Book Retransmission

Book retransmission consists of resubmitting the depth of the book on the Full Order Book channels. This book retransmission occurs:

- Every morning at the start of the day.
- Intraday to recover in case of MDG message loss.

A Market Update (1001) or Order Update (1002) message will be sent for each instrument, respectively filled with Market Data Update Type = "254 - Clear Book" or Market Data Action Type = "3 - Deletion of all orders for the given instrument". Then the full book depth will be resent with "Rebroadcast Indicator" set to "1".

For Market Update messages (1001): limits will be aggregated and the Market Data Update Type field will be "5 - Updated Bid" or "6 - Updated Offer" (or "Updated Bid/Offer SI", "Updated Bid/Offer RLP" etc.).

For Order Update messages (1002): each order will be resent with Market Data Action Type = "5 - Retransmission of all orders for the given instrument".

In order to differentiate a book retransmission, the Rebroadcast Indicator is set to "1" and a snapshot since they are not on the same channels.

2.8.3 Trades Retransmission

Trade retransmissions will only be used in case of internal MDG message loss and will be sent on the real-time channels. The retransmission will always start with the "Trade Retransmission Start" message (1104) that contains the "Trade Retransmission Start Time" and the "Trade Retransmission End Time" fields. These times defines a time window: all trades previously received with an "Event time" included in this time window must be considered invalid. A new "Full Trade Information" messages (1004) with the

"Rebroadcast Indicator" field set to "1" will be sent. The trade retransmission ends with the "Trade Retransmission End" message (1105).

2.9 CANCELLATIONS

2.9.1 Trade Cancellation

On a trade cancellation both short (Market Update) and long trade (Full Trade Information) messages will be sent giving all cancelled trade characteristics.

- Market Update (1001) message with Market Data Update Type "50 – Trade Cancellation". It will not be possible from this message to make the link with the original trade.
- Full Trade Information (1004) with MMT Modification Indicator "CANC – Trade Cancellation" and Trade Type "24 – Trade Cancellation". The MiFID Execution Id allows client to easily identify the trade cancelled for this Symbol Index.

2.9.2 Order Cancellation

The order will be updated with a "2 - Deletion of order identified by Order Priority Timestamp" with the Order Reference Number set to identify the order to remove from the book. Price will be set to the null value according to the SBE protocol and quantity set to '0'.

2.9.3 Limit Cancellation

In the Market Update message, if there is no more volume for a given price, the limit will be updated with an "Updated Bid" or "Updated Ask" with the Price limit and quantity set to '0'.

If the BBO has no more volume, then it will be updated with a "Best Bid" or "Best Offer" with Price set to null according to the SBE protocol and quantity set to '0'.

2.10 HEALTH STATUS MECHANISM

The Health Status messages will be broadcasted on all channels repeatedly during the day, from the time the Standing Data messages are broadcasted until the End of Day messages are sent. The Market Data Sequence Number for this message will be the last Market Data Sequence Number of the message sent by the aggregator of this channel (please be advised that this message can have been sent on another channel managed by this aggregator).

Please for aggregators and detailed description, refer to: the Market Data Sequence Number.

For Snapshot, please refer to: Technical messages in Snapshot channels.

2.11 START AND END OF DAY

"Start Of Day" (1101) messages are sent on each channel once the Market Data Gateway starts. These messages will be sent periodically until another MDG message is sent on any channel of an aggregator (please refer to The Market Data Sequence Number paragraph for aggregator description). After the Start of Day messages, the "Health Status" messages (1103) will be sent periodically.

This mechanism guarantees that "Start Of Day" (1101) messages are the first messages sent by MDG.

At end of day, MDG will stop sending messages (including "Health Status" (1103)) and will periodically send "End Of Day" (1102) messages during a specified period before shutting down.

2.12 PRODUCTION TIMETABLE

The **Timetable** is an overview of the events during a trading day that impact market data activity. Clients should also refer to the "Timetable" message (1006) specifications for full details.

Event	Time (UTC)	Comment
File Download	To Be Determined (TBD)	Clients will connect via HTTPS to download: XML SBE templates, Standing Data files, Timetable files, Tick tables, Feed configuration files and Pattern ID files
Application start-up	TBD	Sending Start Of Day message (1101) and frequently repeated (with Rebroadcast Indicator set to "1") until the beginning of the Standing Data emission in the morning.
Standing Data in the feed and Timetables	TBD	The Exchange will send Standing Data messages (1007) for each instrument and on all markets, followed by the Timetable message (1006) for Cash markets only.
Book Retransmission	TBD	Retransmission of books and associated messages from previous day. This will contain Market Update message (1001) or Order Update message (1002) and for some instruments the Price Update message (1003).
Market Pre-Open Time	TBD	This is announced with a Market Status Change message (1005)
Market Open Time	TBD	This is the opening time as scheduled in the Timetable message (1006) and announced with a Market Status Change message (1005)
Market Closing Time	TBD	It should be noted that the shutdown of the application depends on the dissemination of the Timetable (1006) and Market Status Changes message (1005). These two messages can provide scheduled or non-scheduled extended trading hours.
Optiq MDG system close	TBD	The market closes when the End Of Day message (1102) emission. It will be sent for 15 minutes with snapshot messages. No other messages will follow for a given trading Day.

2.13 MULTICAST GROUP UNJOINING

The process of subscribing to a multicast group ID is also known as "joining" a multicast group. Upon session termination, the client's host system should issue an "unjoin" message. This will terminate delivery

of data to that host's local network. If a client application terminates without issuing an "unjoin" message, the network will eventually issue a "timeout" for the multicast group subscription that will automatically terminate delivery of the multicast packets to the host's local network.

The "join" and "unjoin" processes are standard functions. No specific instructions are provided here, as they are specific to the user's operating system and programming language.

3. MESSAGING PROTOCOL

3.1 OVERVIEW

MDG messages will be sent within a Market Data Packet that will be broadcast using multicast UDP/IP standards. A Market Data Packet will be composed of N complete messages. A single message will never spread across multiple packets.

The maximum length of a packet is 1400 bytes and does not include UDP/IP protocol fields.

Each message is enriched with a "Frame" field followed by a SBE header. The "Frame" field contains the length of the message including the length of the "Frame" and "SBE header" fields. The following diagram shows the structure of a packet:

Packet												
Packet Header	Message 1			Message 2			…			Message N		
	Frame	SBE Header	Msg	Frame	SBE Header	Msg	…	…	…	Frame	SBE Header	Msg
16 bytes	2 bytes	8 bytes	n_1 bytes	2 bytes	8 bytes	n_2 bytes	…	…	…	2 bytes	8 bytes	n_N bytes

Client applications should check that the length of the Market Data Packet (indicated in the UDP datagram) matches $16\ bytes\ (Packet\ Header\ size) + \sum message\ size\ (indicated\ in\ the\ Frame\ field)$. If not, then the packet should be considered corrupted.

A message can contain *n* repeating sections for a trading event but clients should not base algorithms on repeating sections since these repeating sections can also be in *n* messages.

3.2 MARKET DATA PACKET HEADER

The packet header is described below:

Field	Description	Length	Values
Packet Time	Time when the packet is pushed to the clients (Time in number of nanoseconds since 01/01/1970 UTC).	8 bytes	From 0 to 2^64-1
Packet Sequence Number (PSN)	Each channel has its own PSN sequence. Starting from 1 at every MDG start and increasing by step of 1. In case of overflow (over 4.2 billon) Packet Flags will increase for bits 4-6. With this mechanism the PSN has 35 bits available.	4 bytes	From 0 to 2^32-1

Packet Flags	Used to flag information (Little-Endian): - Bit 0: Compression - 0 = body of the packet not compressed (the body is the packet without the packet header) - 1 = body of the packet compressed - Bit 1 to 3: will be set to 1 every morning and incremented for each restart of MDG in the same day (wrapping to 0 if the field overflows) - Bit 4 to 6: High-weighted bits used if the Packet Sequence Number goes over (2^32)-1 - Bit 7 to 15: for future use.	2 bytes	From 0 to 2^16-1
Channel ID	Identifies the channel.	2 bytes	From 0 to 2^16-1

Note: The Packet Header will not be compressed in compressed messages.

3.3 SBE MESSAGE STRUCTURE

A Market Data message is composed of the following parts:

SBE Structure													
Frame	SBE Header	Block	Repeating Section 1					...	Repeating Section N				
			Repeating Section Header	Rep. Sec. 1.a	Rep. Sec. 1.b	...	Rep. Sec. 1.n	...	Repeating Section Header	Rep. Sec. N.a	Rep. Sec. N.a	...	Rep. Sec. N.a
2 bytes	8 bytes	n bytes	2 bytes	x_1 bytes	x_1 bytes	...	x_1 bytes	...	2 bytes	x_N bytes	x_N bytes	...	x_N bytes

The maximum length of a message is 1384 bytes (maximum packet length (1400 bytes) minus the packet header length (16 bytes)).

The SBE Header is defined as follows:

Field	Description	Length	Values
Block Length	Length of the block. The Block is the message without the repeating sections. This is useful for new message versions in case the exchange adds fields at the end of the block. Clients will be able to process the block fields and identify where the repeating sections starts.	2 bytes	From 0 to 2^16-1

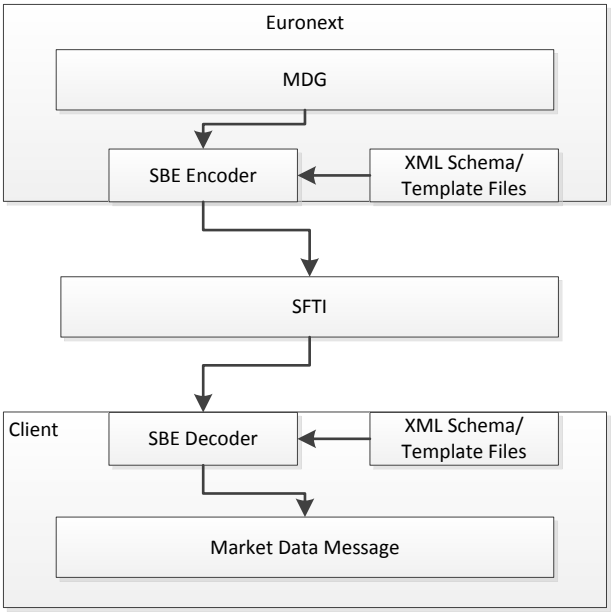
Field	Description	Length	Values
Template ID	Identifier of the message template. This is the **message type** of the Market Data messages.	2 bytes	From 0 to 2^16-1
Schema ID	Identifier of the message schema that contains the template. Used to differentiate exchange Specifications.	2 bytes	From 0 to 2^16-1
Schema version	Version of the message schema in which the message is defined. Used to add messages and/or modify some others.	2 bytes	From 0 to 2^16-1

The Repeating Section Header is defined as follows:

Field	Description	Length	Values
Repeating section header	Defines how many times the repeating section is repeated and the length in bytes of a repeating section. It is set to "0" if there is no repeating section.	2 bytes (the first byte for the count and the second byte for the length)	From 0 to 255 for both

A Schema ID is composed of Template IDs (or message types) and each Template ID has its own Schema version (message version).

The Exchange provides SBE Template XML files that contain all message types supported by MDG. Client systems can decode SBE messages from MDG using the schema and template files as below:



SBE offers the possibility to have backward and forward compatibility. It means that clients are not required to be on the latest Schema Version (message structure version) to be able to read the message. This is only possible if new fields have been added at the end of:

- The block
- The repeating section.

Using message length, SBE is able to know the difference between the block length or the repeating section length managed by a given client and the received message. As such, fields that do not match a client's version of the messages will be skipped.

However, it is crucial to note that the list of available values in any given field can be updated and the length can be changed. In this case, the update *must be taken into account.*

4. MESSAGE OVERVIEW

4.1 TECHNICAL FORMAT FIELDS

The format of the fields contained in the messages will adhere to these rules:

- All integers are numeric unsigned or signed binary using two's complement method.
- Binary data are in Intel byte order (Little-Endian).
- All "Alphanumerical ID" and "Text" fields are alphanumeric based on UTF-8, left aligned and null padded.
- SBE allows optional fields with a null value. The applicable NULL value is defined by the SBE interface.
- All fields will be sent for every message.
- Only field values will appear in the published messages (no name or 'tag' will appear in the messages).
- The field names that appear in this document are for reference purposes only.
- All fields are contiguous.
- All field sizes are fixed and constant.
- Segmentation of messages across packets will not be supported, so a message will never straddle a packet boundary.
- Even if it is not always mandatory to be able to process last message version (Schema Version), it is mandatory to check each update for important or regulation updates.

Format fields	Description
Alphanumerical ID	String type identifying an element.
Amount	Signed numerical field representing the price multiplied by the quantity. See the description in Price, Quantity, Ratio And Amount Formats.
Bitmap	Array of bits, each bit specifying whether an optional value is present (set to "1") or not (set to "0") (in Little-Endian).
Boolean	Indicator having two possible values, either 'true - 1' or 'false - 0'. This value is set on the first bit of the byte (in Little-Endian).
Date	Date of an event (in number of days since 01/01/1970 UTC - 01/01/1970 is the day "0").
Decimal Places	Number of decimals associated to a numerical field. See the description in Price, Quantity, Ratio And Amount Formats.
Enumerated	Information having a delimited set of possible values.
Numerical	Generic numerical field.
Numerical ID	Numerical field identifying an element.
Price	Numerical field representing a price (either signed or not signed). See the description in Price, Quantity, Ratio And Amount Formats.
Quantity	Unsigned numerical field representing a quantity of elements (for example a number of shares). See the description in Price, Quantity, Ratio And Amount Formats.
Sequence	See the description in §4.3 - Sequence Numbers.
Text	Text in UTF-8, left aligned and completed with null padding.
Timestamp	Time in nanosecond since 01/01/1970 UTC.

4.2 DATE AND TIME CONVENTIONS

Times and Timestamps are expressed in UTC (Universal Time, Coordinated) and are synchronised using Precision Time Protocol (PTP). They are defined in number of nanoseconds since 01/01/1970 UTC based on Unix Epoch or number of seconds since the beginning of the day.

Dates are defined in number of days since 01/01/1970 UTC (01/01/1970 is the day “0”).

Dates and Times formatted for ESMA reporting (MiFID II) are defined with a 27 bytes character string following ISO 8601:

YYYY-MM-DDThh:mm:ss.ddddddZ.

where:

- “YYYY” is the year.
- “MM” is the month.
- “DD” is the day.
- “T” is a constant letter used as a separator between “YYYY-MM-DD” and “hh:mm:ss.ddddddZ”.
- “hh” is the hour.
- “mm” is the minute.
- “ss.dddddd” is the second and its fraction of a second.
- “Z” is a constant letter standing for UTC time.

Note: Until the Optiq Matching Engine migration, timestamps will have a microsecond precision for cash and a millisecond precision for derivatives.

4.3 SEQUENCE NUMBERS

The feed contains two sequence numbers:

4.3.1 The Packet Sequence Number (PSN)

The Packet Sequence Number (PSN) is part of the packet header and should be used for UDP gap detection and packet ordering. Each channel has its own PSN sequence.

4.3.2 The Market Data Sequence Number

Aggregators are MDG internal components that are dealing with a set of channels. The Market Data Sequence Numbers are managed at the aggregator level. Each one of them has its own sequence, starting from 0 and incrementing by step of 1 along the day. Since clients may listen to only a subset of the channels managed by one aggregator, they won’t see all the Market Data Sequence Numbers in the messages they

get from the channels they listen to. Therefore on one channel the Market Data Sequence Numbers will increment all along the day but not necessarily by step of 1.

The behaviour of the Market Data Sequence Numbers for the following messages is different. Please refer to their message definition for further explanations:

- "Start Of Day" (1101)
- "End Of Day" (1102)
- "Health Status" (1103)

Reminder: For gap detection: please use the Packet Sequence Number (PSN).

4.4 PRICE, QUANTITY, RATIO AND AMOUNT FORMATS

All prices must be processed with two values: the price value in an integer and its scale code. Each instrument must be linked to the associated Price / Index Level Decimals from the Standing Data message or file.

Prices must be calculated according to the following formula:

$$\text{Price} = \frac{Integer}{10^{Price/Index\ Level\ Decimals}}$$

For example, a price of 27.56 can be represented by an Integer of 275600 and a Price / Index Level Decimals of 4.

Note 1: The same mechanism is used for:

- All quantities with Quantity Decimals
- All ratios and percentages with Ratio / Multiplier Decimals
- All amounts with Amount Decimals

Note 2: Prices, quantities and amounts for MiFID 2 do not follow this Price / Index Level Decimals behaviour. The complete format is described in the Field Description.

4.5 INSTRUMENT TICKS

- For Cash instruments:
  - A Tick Size Index Identifier, within the Standing Data message (1007) and Cash Tick Size Referential File, will link the instrument to a tick table (only in file). This tick table gives a security the "Tick Size Index ID" to apply the base range of the entered price.
  - A Fix Price Tick indicates the tick to apply for this instrument (regardless of the amount)

- For Derivatives instruments:

The tick denominator field is a numeric value indicating how to convert a price, which is denoted in absolute number, to a displayable price. It represents the number of absolute ticks after a decimal point.

Note that Tick Size Denominator and Tick Size Numerator are available in the Contract Standing Data message and in XML file.

The same logic applies on EDSP (Exchange Delivery Settlement Price) with the Instrument Numerator EDSP and on the Settlement Prices (at maturity) with Instrument Numerator Settlement.

4.6 INSTRUMENT IDENTIFIERS

An instrument is identified by its Symbol Index. The Symbol Index is assigned by the exchange and will not change over the lifetime of the instrument, nor used again after instrument expiration.

Any Corporate Action leading to a change of ISIN will lead to change of Symbol Index. These Corporate Actions are generally part of the mandatory reorganisation events; the most frequent ones being stock split, reverse stock split, change of name / denomination. However the ISIN change is not systematic and will be in any case communicated upfront through the Euronext Corporate Action notices.

The following rules apply to the Symbol Index:

Symbol Index value	Used for	Comment
From 1 to 99,999	Indices	
From 100,000 to 1,109,999	Bourse de Luxembourg instruments	In this range: - From 100,000 to 109,999: Indices - From 110,000 to 1,109,999: Shares and Fix Income
From 1,110,000 to 9,999,999	Cash	This range is specific for Equities, Fixed Income, Warrants and ETF.
From 10,000,000 to 4,290,000,000	Derivatives	In this range: - 5 left digits for the contracts. 42,800 contracts are possible. (4,290,000,000-10,000,000 = **4,280,0**00,000) - 5 right digits for the Expiry or Outright or Strategy related to the contract. o 00000 uniquely identifies the contract o From 1 to 49,999 for Expiry and Outrights o From 50,000 to 99,999 for Strategies.

The standard security identifier (for example ISIN), mnemonic, tick size, instrument name and other instrument characteristics are carried only in the Standing Data message (1007), Outright Standing Data (1014), Strategy Standing Data (1012), Contract Standing Data (1013) and in the Standing Data files on servers. As such, the client applications must link the Symbol Index which is sent in all messages, with other instrument characteristics present in the Standing Data messages or files.

4.7 HOW TO …

4.7.1 … Determine the message type

Each message has a type that uniquely defines its structure and its content, and is represented by a numeric identifier. For example the message “Market Update” has the type “1001”. In the SBE message header the “Template ID” field contains this type (see 3.3 - SBE Message Structure).

4.7.2 … Determine the number of repeating sections in a message

The number of repeating sections is defined in the second bytes of the “Repeating Section Header” (see SBE Message Structure).

4.7.3 … Determine the length of a message

The length of a message (including the length of the “Frame” and “SBE header” fields) is in the field “Frame” (see 3.1 - Overview).

4.7.4 … Manage a new version of a message if the client has not implemented the new fields

Please refer to the explanations in the paragraph SBE Message Structure.

4.7.5 … Look for a trade

This is possible by checking in Full Trade Information message (1004) the MiFID Execution ID field. It is the association of Symbol Index, EMM and Execution ID completed with 0 on the left to complete until the 52 bits length fields is filled.

4.7.6 … Look for an order

For a given Symbol Index and EMM, the order can be found using its Order Reference Number that uniquely identifies an order. This value is given in the “Ack” message sent by Order Entry Gateway (CCG).

4.7.7 … Resynchronize with snapshot after packet loss

Please refer to the explanations on the Snapshot: Snapshots.

4.7.8 … Manage BBO and Implied Prices

Clients have to process the last value for both BBO (Best bid and Offer) and Implied Bid and Offer from Market Update message (1001).

4.7.9 … Build the book

Optiq Market Data provides market by limits (with Market Update messages (1001)) or by orders (with Order Update messages (1002)) depending on the instrument type.

- For markets built using aggregated limits (Market Update (1001)), clients have to order the limits by prices (only one price by line):
  - On a new bid or ask clients must add the new limits
  - On an updated bid or ask, clients must replace the current limit with the new limit
  - On a limit deletion, clients will receive an update with quantity set to '0' and the price matching the limit to delete.
- For markets built using Order Updates (1002), clients have to order each order by its Order Priority (the higher the Order Priority, the lower its priority):
  - On a New Order clients must add the new order
  - On an order modification, clients must replace the order identified by its Order Reference Number and order the modified order with its new Order Priority
  - On an order cancelation, clients must remove the order identified by its Order Reference Number.

Clients should not process both the BBO and limits to construct the book. If Best Bid and Offer updates are sent as a part of the same message, then they should be processed as one update to the BBO and not individually. Otherwise, the order book might appear crossed.

4.7.10 … Determine a Closing Price

The last trade price becomes the closing price, when the state of the instrument's trading group is in the "end of day inquiry / closed" state.

If no trades took place during the day, the Last Adjusted Closing Price should be used as the closing price. The Last Adjusted Closing Price is sent every morning in the reference data. It is the previous day's last trade price, adjusted for corporate events (if applicable).

5. MESSAGES

The message specification format is as follow:

Field	Description	Length
Block	The block is all the non-repeated fields.	Variable (in bytes)
Repeating section header	This is how many times the repeating section is repeated and the length of a repeating section. It will not been displayed in any below message. It is set to 0 if there is no repeating section.	2 bytes (1byte for the length 1byte for the count)
Repeating section	All the fields that are repeated. All these fields are in bold and green table borders	Variable (in bytes)

All field lengths are in bytes.

Field definition might not be exhaustive, please go to the Field Description section. Further details will be provided.

5.1 TECHNICAL MESSAGES

5.1.1 Start Of Day (1101)

“Start Of Day” (1101) messages are broadcast evrey 2 seconds on each channel once the Market Data Gateway starts and until a Standing Data message is sent (on any channel). After the Start of Day messages, the “Health Status” messages (1103) are sent.

This mechanism guarantees that “Start Of Day” (1101) messages are the first messages sent by MDG.

Note:

- Start Of Day Market Data Sequence Number will always be set to "0".

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Session Trading Day	Date of the current trading session (in number of days since the 1st of January 1970).	Date	2	From 0 to 2^16-2	Mandatory	129

5.1.2 End Of Day (1102)

At end of day, MDG will stop sending messages (including “Health Status” (1103) and snapshots) and will send every 2 seconds “End Of Day” (1102) messages during a specified period before shutting down.

Note:

- The Market Data Sequence Number of all the “End Of Day” (1102) messages is the Market Data Sequence Number of the last message sent by the aggregator for this set of channels (be aware that this last message can have been sent on another channel managed by this aggregator).

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Session Trading Day	Date of the current trading session (in number of days since the 1st of January 1970).	Date	2	From 0 to 2^16-2	Mandatory	129

5.1.3 Health Status (1103)

Health Status messages (1103) are sent on all channels and have the same behaviour as heartbeats. The Market Data Sequence Number for this message will be the last Market Data Sequence Number of the message sent by the aggregator of this channel (be aware that this message can have been sent on another channel managed by this aggregator).

Message Sending Rules:

- Health Status are sent every 2 seconds even if there are market data messages sent on a channel.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88

5.1.4 Trade Retransmission Start (1104)

Trade retransmissions will only be used in case of internal MDG message loss and will be sent on the real-time channels. The retransmission will always start with the “Trade Retransmission Start” message (1104) that contains the “Trade Retransmission Start Time” and the “Trade Retransmission End Time” fields. These times defines a time window: all trades previously received with an “Event time” included in this time

window must be considered invalid. A new “Full Trade Information” messages (1004) with the “Rebroadcast Indicator” field set to “1” will be sent. The trade retransmission ends with the “Trade Retransmission End” message (1105).

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Trade Retransmission Start Time	All the trades previously received by the clients that have an “Event time” strictly lower than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	138
Trade Retransmission End Time	All the trades previously received by the clients that have an “Event time” strictly higher than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	137
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135

5.1.5 Trade Retransmission End (1105)

The Trade Retransmission End message is sent to the market in case of recovery.

It must be processed along with the Trade Retransmission Start message to allow members to determine the trades, for a given Symbol Index, persisted by the Exchange.

Message Sending Rules:

- The retransmission will always start with the “Trade Retransmission End” message (1105).

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127

Field	Short Description	Format	Len	Values	Presence	Page
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Trade Retransmission Start Time	All the trades previously received by the clients that have an "Event time" strictly lower than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	138
Trade Retransmission End Time	All the trades previously received by the clients that have an "Event time" strictly higher than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	137
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135

5.2 REFERENTIAL MESSAGES

5.2.1 Standing Data (1007)

The Standing Data message provides instrument characteristics for Cash and Index products, valid for the current trading day.

Multi-Listing – Market of Reference – Single Order Book

An instrument can be listed on more than one of the market places operated by the Exchange. Multi-Listed instruments can be identified in the feed by using the field MIC List in the Standing Data (1007) message.

If an instrument is multi-listed, then a Market of Reference (MoR) is designated and Euronext's European Single Order Book will consolidate liquidity in such instruments by ensuring that all order flow in that instrument is concentrated on a single order book in the designated MoR. Companies can decide to be multi-listed on more than one Euronext market to benefit from increased visibility and exposure.

For example, ING Groep (NL0000303600) (headquartered in the Netherlands) is listed on two Euronext markets, Euronext Amsterdam (being its Market of Reference) and Euronext Brussels. Even though order flow in ING Groep is concentrated on the single order book in the designated Market of Reference (being Euronext Amsterdam), ING Groep is still considered a listed company in the Netherlands and Belgium.

The MIC List will show an instrument being listed on more than one of Euronext's markets and it always begins with the MIC of the MoR.

The Euronext website should be used as the reference for correct display of multi-listed instruments; the display of a multi-listed instrument should include the relevant markets on which the instrument is listed and show the real-time quotes of the relevant instrument (based on the single order book in the designated Market of Reference).

Message Sending Rules:

- Every morning following the Session Start messages.

Notes:

- - Standing Data messages are also available in an XML file.
- - The repeating section links the “Exchange Market Mechanism” (EMM) with its “Pattern ID”.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Optiq Segment	This field is not used for phase 1. An Optiq segment is a universe of instruments sharing common trading properties.	Enumerated	1	(See field description)	Mandatory	118
Full Instrument Name	Full Instrument Name.	Text	102	(See field description)	Optional	90
Instrument Name	Instrument Name	Text	18	(See field description)	Mandatory	94
Instrument Trading Code	Is the AMR code on derivatives and the Trading Code on cash.	Alphanumerical ID	15	(See field description)	Mandatory	95
Instrument Group Code	Instrument Group / Class Identifier.	Alphanumerical ID	2	(See field description)	Optional	93
ISIN Code	Instrument ISIN following ISO 6166.	Alphanumerical ID	12	(See field description)	Mandatory	95
Price / Index Level Decimals	Indicates the number of decimals for each Price / Index Level related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Mandatory	123
Quantity Decimals	Indicates the number of decimals for each Quantity related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Optional	125
Amount Decimals	Indicates the number of decimals for each Amount related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Optional	79
Ratio / Multiplier Decimals	Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Mandatory	126

Field	Short Description	Format	Len	Values	Presence	Page
CFI	Classification code of a financial instrument defined by the ISO-10962 standard.	Text	6	(See field description)	Optional	80
Instrument Event Date	Date of the last modification of the characteristics of the instrument except for some exception.	Date	2	From 0 to 2^16-2	Mandatory	93
Strike Price	The specified price of an option contract at which the contract may be exercised, whereby a call option buyer can buy the underlying or a put option buyer can sell the underlying (to be calculated with Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	134
Dark Eligibility	Indicates the Eligibility to dark. 0 is not eligible, 1 is eligible.	Boolean	1	0 False 1 True	Optional	85
Dark LIS Threshold	Define the minimum amount of an order to benefit from the LIS (Large In Scale) pre-transparency waiver.	Amount	8	From 0 to 2^64-2	Optional	85
Dark Minimum Quantity	Define the minimum quantity required for an order to be filled in the Dark liquidity. 0 indicates that no minimum amount is required.	Quantity	4	From 0 to 2^32-2	Optional	85
Date Of Last Trade	Date of the Last Price for the Instrument (in number of days since the 1st of January 1970).	Date	2	From 0 to 2^16-2	Optional	85
Depositary List	Identifies the possible main depository organizations (maximum four) for the shares or fixed incomes for an instrument.	Text	20	(See field description)	Optional	86
Main Depositary	Identifies the default (or main) depository organization of the instrument (between the possible 4 depositaries registered) used by priority for the settlement (for example: multi-listed instruments which have several depositories).	Alphanumerical ID	5	(See field description)	Optional	100
First Settlement Date	Represents the first possible settlement date for a given instrument with the instrument depository.	Date	2	From 0 to 2^16-2	Optional	89

Field	Short Description	Format	Len	Values	Presence	Page
Guarantee Indicator	Indicates if the trade is guaranteed or not (for clearing issues)	Enumerated	1	0 Any trade executed on this instrument will be cleared but not Guaranteed by a Clearing House 1 Any trade executed on this instrument will be cleared and Guaranteed by a Clearing House 2 Any trade executed on this instrument is not clearable by a Clearing House 8 In case of lending and borrowing instrument	Optional	90
ICB	Identifies for a listed instrument, the economic subsector of the issuing company in the ICB (Industry Classification Benchmark) classification.	Alphanumerical ID	16	(See field description)	Optional	91
Issuing Country	Issuing country.	Alphanumerical ID	3	(See field description)	Optional	95
Last Adjusted Closing Price	Last traded price of the previous trading day after application of the adjustment coefficient (to be calculated with the Price/Index Level Decimals).	Price	8	From 0 to 2^64-2	Optional	96
Lot Size	Expressed in number of shares or in an amount or a volume of the capital, of the lot size. The lot size is a minimum tradable quantity that is set for each instrument by the Exchange (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	99
Maturity Date	Maturity Date of the instrument (text formatted as YYYYMMDD).	Text	8	(See field description)	Optional	104
Maximum Decimals In Quantity	Maximum Decimals In Quantity was introduced for Euronext Fund Services Paris and indicates the maximum of relevant decimal number for trading.	Numerical	1	From 0 to 2^8-2	Optional	104
MIC	Identifies the market to which an instrument belongs by its MIC (Market Identification Code), according to ISO 10383.	Alphanumerical ID	4	(See field description)	Optional	105
MIC List	Identifies the Euronext markets on which an instrument is listed by its MIC (Market Identification Code).	Alphanumerical ID	20	(See field description)	Optional	105
Country Of Exchange	Country of exchange	Alphanumerical ID	3	(See field description)	Optional	84

Field	Short Description	Format	Len	Values	Presence	Page
Mnemonic	Mnemonic code of the instrument. This field is not populated for every instrument.	Alphanumerical ID	5	(See field description)	Mandatory	114
Underlying MIC	Identifies the market to which an instrument' underlying belongs by its MIC (Market Identification Code), according to ISO 10383. Refer to MIC field to have all the authorized values.	Alphanumerical ID	4	(See field description)	Optional	143
Underlying ISIN Code	Underlying ISIN.	Alphanumerical ID	12	(See field description)	Optional	142
Trading Currency	Code of the currency (ISO 4217-3A).	Alphanumerical ID	3	(See field description)	Optional	139
Currency Coefficient	When an actual price is displayed in a different 'price expression' than the official instrument trading currency, the Currency Coefficient represents the ratio 'price expression' divided by 'official currency' (To be calculated with Ratio / Multiplier Decimals).	Numerical ID	4	From 0 to 2^32-2	Optional	84
Trading Currency Indicator	Indicates whether the 'price expression' is in the Currency or a ratio of this Currency expressed in the Currency Coefficient field.	Enumerated	1	0 Change rate not applied to the traded price 1 Change rate applied to the traded price	Optional	139
Strike Currency Indicator	Indicates whether the 'price expression' is in the Currency or a ratio of this Currency expressed in the Currency Coefficient field.	Enumerated	1	0 Change rate not applied to the strike price 1 Change rate applied to the strike price	Optional	133
Nominal Market Price	Amount of the nominal value of the instrument (to be calculated with the Price/Index Decimals).	Price	8	From 0 to 2^64-2	Optional	114
Number Instrument Circulating	For stocks: this is the total number of shares issued by the company. For Fix Income: this is the number of Fix Income still to be repaid.	Quantity	8	From 0 to 2^64-2	Optional	115
Par Value	Par Value (also called Nominal value) for Instrument. For Fixed Income it represents the par amount to be repaid at maturity (not including interest revenue) (to be calculated with the Amount Decimals).	Price	8	From 0 to 2^64-2	Optional	122
Quantity Notation	Nature of the quantity expression used for negotiating the instrument on the market.	Text	3	(See field description)	Optional	126
Instrument Unit Expression	Unit in which the instrument is quoted.	Enumerated	1	(See field description)	Optional	95

Field	Short Description	Format	Len	Values	Presence	Page
Settlement Delay	Gives the number of trading days that represents the period between the trade date and the settlement date (delivery and payment) for an instrument to be cleared and settled.	Alphanumerical ID	2	(See field description)	Optional	130
Strike Currency	Code of the strike currency (ISO 4217-3A).	Alphanumerical ID	3	(See field description)	Optional	133
Tax Code	Tax deduction code to which the instrument belongs.	Enumerated	1	0 Not eligible to PEA 3 Eligible to PEA 9 Not Applicable	Optional	135
Type Of Corporate Event	Indicates the last type of corporate event that has occurred on an instrument, such as detachment of rights, or of coupons. The data item is automatically calculated by the adjustment application but in case of problem or error, the data item value could be modified manually, particularly for purging the order book in case of absence of corporate event. This data has to be treated in consideration of the date of the event included into the header of the message.	Alphanumerical ID	2	(See field description)	Optional	141
Type Of Market Admission	Indicates the type of market to which an instrument has been listed.	Enumerated	1	(See field description)	Mandatory	142
Repo Indicator	Indicates whether the instrument listed underlies any loan contracts, meaning it has been admitted to the Deferred Settlement system and/or to the lending market.	Enumerated	1	(See field description)	Optional	127
Repo Settlement Price	The settlement price (to be calculated with Price / Index Level Decimals) is a standard price used to value the trade that initiates an instrument lending transaction and to calculate the return price.	Price	8	From 0 to 2^64-2	Optional	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Pattern ID	Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only.	Numerical ID	2	From 0 to 2^16-2	Mandatory	122
Tick Size Index ID	ID of the tick size table available in the Tick Table file.	Numerical ID	2	From 0 to 2^16-2	Optional	136
Fix Price Tick	Indicates the amount of the fixed tick size (to be calculated with Price/Index Level Decimals).	Price	4	From 0 to 2^32-2	Optional	89

5.2.2 Contract Standing Data (1013)

The Contract Standing Data message provides characteristics for Derivatives contracts, valid for the current trading day.

Message Sending Rules:

- Every morning following the Session Start messages. Contract Standing Data will be sent first, followed by the Outright Standing Data and Strategy Standing Data.

Notes:

- Standing Data messages are also available in an XML file.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Optiq Segment	This field is not used for phase 1. An Optiq segment is a universe of instruments sharing common trading properties.	Enumerated	1	(See field description)	Mandatory	118
Contract Event Date	Date of the last modification of the characteristics of the contract except for some exception.	Date	2	From 0 to 2^16-2	Mandatory	82
Exchange Code	Indicates the Market Place.	Enumerated	1	(See field description)	Mandatory	88
Exercise Style	Type of exercise of a derivatives instrument	Enumerated	1	0 European 1 American	Optional	88
Flex Indicator	Indicates whether a derivatives instrument can be defined using flexible terms, or not.	Boolean	1	0 False 1 True	Mandatory	90
Contract Name	Contract Name	Text	60	(See field description)	Mandatory	83
Contract Type	Generic Contract Type.	Enumerated	1	F Future O Option	Mandatory	83
Underlying Type	Defines the instrument type of the underlying.	Enumerated	1	(See field description)	Mandatory	143
Price / Index Level Decimals	Indicates the number of decimals for each Price / Index Level related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Mandatory	123

Field	Short Description	Format	Len	Values	Presence	Page
Quantity Decimals	Indicates the number of decimals for each Quantity related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Mandatory	125
Amount Decimals	Indicates the number of decimals for each Amount related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Mandatory	79
Ratio / Multiplier Decimals	Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Mandatory	126
Main Depositary	Identifies the default (or main) depository organization of the instrument (between the possible 4 depositaries registered) used by priority for the settlement (for example: multi-listed instruments which have several depositories).	Alphanumerical ID	5	(See field description)	Mandatory	100
MIC	Identifies the market to which an instrument belongs by its MIC (Market Identification Code), according to ISO 10383.	Alphanumerical ID	4	(See field description)	Mandatory	105
Country Of Exchange	Country of exchange	Alphanumerical ID	3	(See field description)	Mandatory	84
Product Code	Physical alphanumerical product code.	Alphanumerical ID	3	(See field description)	Mandatory	124
Underlying MIC	Identifies the market to which an instrument' underlying belongs by its MIC (Market Identification Code), according to ISO 10383. Refer to MIC field to have all the authorized values.	Alphanumerical ID	4	(See field description)	Optional	143
Underlying ISIN Code	Underlying ISIN.	Alphanumerical ID	12	(See field description)	Optional	142
Order Type Rules	Order types supported by the trading host.	Bitmap	2	(See field description)	Mandatory	120
Settlement Method	Settlement method	Alphanumerical ID	1	(See field description)	Mandatory	130
Trading Currency	Code of the currency (ISO 4217-3A).	Alphanumerical ID	3	(See field description)	Mandatory	139
WhRFC Days Before Expiry	Wholesale RFC Days Before Expiry defines the number of days (0 to 99) from expiry from which the RFC will no longer be available. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.	Numerical	1	From 0 to 2^8-2	Optional	145
WhRFC Minutes Before Closing	Wholesale RFC Minutes Before Close allows the setup of the number of minutes (1 to 99) from market close from which the RFC will be deactivated.	Numerical	1	From 0 to 2^8-2	Optional	145
Minimum Quantity For Initiator	Wholesale RFC Minimum Quantity defines the minimum quantity required to submit an RFC as initiator. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.	Quantity	4	From 0 to 2^32-2	Optional	109

Field	Short Description	Format	Len	Values	Presence	Page
Minimum Quantity For Reactor	Wholesale RFC Min Qty defines the minimum quantity required to submit a response to the RFC during the Improvement period. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.	Quantity	4	From 0 to 2^32-2	Optional	109
WhRFC Pick Up Perc	Defines the percentage of the RFC Initiator quantity that is available for RFC responses during the final execution at the RFC price. This pick up percentage is not relevant during the final execution with RFC responses improving the RFC Price. Available only for Wholesale Trade Type = 9.	Numerical	1	From 0 to 2^8-2	Optional	145
WhRFC Improvement Period	Wholesale RFC Improvement Period, in seconds defines the duration of the RFC Improvement Period. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.	Numerical	1	From 0 to 2^8-2	Optional	145
Available Wholesale Trade Type	Wholesale trade type supported by the trading host.	Bitmap	4	(See field description)	Optional	79
Tick Size Denominator	Tick Size Denominator.	Numerical	1	From 0 to 2^8-2	Mandatory	136
Tick Size Numerator	Tick Size Numerator.	Numerical	1	From 0 to 2^8-2	Mandatory	136
Instrument Numerator Settlement	Instrument Numerator Settlement.	Numerical	1	From 0 to 2^8-2	Mandatory	94
Instrument Numerator EDSP	Instrument Numerator EDSP (filled with Null value for exchanges “C”, “G”, “D”, “H” to indicate that it is not assigned).	Numerical	1	From 0 to 2^8-2	Mandatory	94
Strike Price Denominator	Strike Price Denominator.	Numerical	1	From 0 to 2^8-2	Mandatory	134
Delta Protect for MM	Delta Protection for Market Makers Level.	Enumerated	1	0 Protection for Market Makers enabled at a contract level 1 Protection for Market Makers enabled at a contract and expiry level.	Optional	86
Vega Protect for MM	Vega Protection for Market Makers Level.	Enumerated	1	0 Protection for Market Makers enabled at a contract level 1 Protection for Market Makers enabled at a contract and expiry level.	Optional	144

Field	Short Description	Format	Len	Values	Presence	Page
Volume Protect for MM	Volume Protection for Market Makers Level.	Enumerated	1	0 Protection for Market Makers enabled at a contract level 1 Protection for Market Makers enabled at a contract and expiry level.	Optional	144
Contract Trading Type	Contract Trading Type.	Enumerated	1	1 Traded as an outright 2 Not traded, but listed in contract data. Traders may subscribe to it 3 Traded as a simple inter-commodity spread 4 Traded as an inter-commodity spread	Mandatory	83
Throttle for Incoming Orders	Defines the number of order messages that a session on the Common Customer Gateway (CCG) can submit per second in a particular contract.	Numerical	2	From 0 to 2^16-2	Mandatory	136
Strike Price Flex Increment	Strike Price increment for flex contracts (To be calculated with Price / Index Level Decimals).	Numerical	4	From 0 to 2^32-2	Optional	134

5.2.3 Outright Standing Data (1014)

The Outright Standing Data message provides characteristics on Derivatives instruments, valid for the current trading day.

Message Sending Rules:

- Every morning following the Session Start messages. Contract Standing Data will be sent first, followed by the Outright Standing Data and Strategy Standing Data.
- On Derivative instruments created intraday.

Note:

- Standing Data messages are also available in XML.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101

Field	Short Description	Format	Len	Values	Presence	Page
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Contract Symbol Index	Identifies the contract of this instrument by its Symbol Index.	Numerical ID	4	From 0 to 2^32-2	Mandatory	83
Instrument Event Date	Date of the last modification of the characteristics of the instrument except for some exception.	Date	2	From 0 to 2^16-2	Optional	93
ISIN Code	Instrument ISIN following ISO 6166.	Alphanumerical ID	12	(See field description)	Optional	95
CFI	Classification code of a financial instrument defined by the ISO-10962 standard.	Text	6	(See field description)	Optional	80
Maturity Date	Maturity Date of the instrument (text formatted as YYYYMMDD).	Text	8	(See field description)	Mandatory	104
Option Type	Type of the option.	Enumerated	1	1 Call 2 Put	Mandatory	118
Instrument Trading Code	Is the AMR code on derivatives and the Trading Code on cash.	Alphanumerical ID	15	(See field description)	Mandatory	95
Lot Size	Expressed in number of shares or in an amount or a volume of the capital, of the lot size. The lot size is a minimum tradable quantity that is set for each instrument by the Exchange (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Mandatory	99
Strike Price	The specified price of an option contract at which the contract may be exercised, whereby a call option buyer can buy the underlying or a put option buyer can sell the underlying (to be calculated with Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	134
Last Trading Date	Last available trading date for the instrument (in number of days since the 1st of January 1970).	Date	2	From 0 to 2^16-2	Optional	97
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87

5.2.4 Strategy Standing Data (1012)

The Strategy Standing Data message provides the main characteristics of strategies.

The repeating section provides the details of each leg.

Message Sending Rules:

- Every morning following the Session Start Messages. Contract Standing Data will be sent first, followed by the Outright Standing Data and Strategy Standing Data.
- Intraday for the intraday creations of strategies.

Note:

- Standing Data messages are also available in an XML file.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Price / Index Level Decimals	Indicates the number of decimals for each Price / Index Level related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Optional	123
Quantity Decimals	Indicates the number of decimals for each Quantity related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Optional	125
Amount Decimals	Indicates the number of decimals for each Amount related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Optional	79
Ratio / Multiplier Decimals	Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index	Decimal Places	1	From 0 to 2^8-2	Optional	126
Exchange Code	Indicates the Market Place.	Enumerated	1	(See field description)	Mandatory	88
Maturity Date	Maturity Date of the instrument (text formatted as YYYYMMDD).	Text	8	(See field description)	Mandatory	104
Strategy Code	Exchange-recognized market code	Enumerated	1	(See field description)	Mandatory	132
Leg Symbol Index	MDG proprietary identification code of the instrument' leg for the strategy.	Numerical ID	4	From 0 to 2^32-2	Mandatory	97
Leg Price	Price of underlying leg for a delta neutral strategy (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	97
Leg Ratio	Ratio of lots for the leg. For contingent trades, the delta (to be calculated with the Amount Decimals).	Quantity	4	From 0 to 2^32-2	Mandatory	97

Field	Short Description	Format	Len	Values	Presence	Page
Leg Buy or Sell	Leg Side.	Enumerated	1	B Buy S Sell	Mandatory	97

5.2.5 Timetable (1006)

The timetable message is available on cash markets and indicates the instrument trading patterns (state change sequence) for the current trading day.

Instrument books are linked to their trading patterns in the Standing Data Message (1007).

Message Sending Rules:

- Automatically for each Trading Pattern, after the Session Start and Referential messages
- On an exceptional basis, it may be sent during the trading day in case scheduled hours have changed due to manual intervention by Market Operations or if there are multiple openings during the day. If it indicates a Pattern ID, then the change applies on all instruments linked to this Pattern ID, otherwise it only applies on the Symbol Index.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Pattern ID	Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only.	Numerical ID	2	From 0 to 2^16-2	Mandatory	122
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Phase Time	Time of Phase start (Time in number of seconds since the beginning of the day).	Timestamp	4	From 0 to 2^32-2	Mandatory	123
Instrument State	Instrument State.	Enumerated	1	(See field description)	Mandatory	94
Trading Mode	Indicates the Trading Mode.	Bitmap	4	(See field description)	Optional	140
Trading Period	Indicates the trading period.	Enumerated	1	(See field description)	Optional	140

Field	Short Description	Format	Len	Values	Presence	Page
Trading Side	Indicates the trading period.	Enumerated	1	1 Bid Only (Cash Only) 2 Offer Only (Cash Only) 3 PAKO (Cash Only)	Optional	140
Price Limits	Indicates the Price Limits mode.	Enumerated	1	1 Price Limits Enabled - Normal (Derivatives Only) 2 Price Limits Enabled - Wide (Derivatives Only) 3 Price Limits Enabled - Widest (Derivatives Only) 4 Price Limits Disabled (Derivatives Only)	Optional	123
Quote Spread Multiplier	Indicates the Quote Spread Multiplier.	Enumerated	1	1 Quote Spread Multiplier 1 (Derivatives Only) 2 Quote Spread Multiplier 2 (Derivatives Only) 3 Quote Spread Multiplier 3 (Derivatives Only)	Optional	126
Order Entry Qualifier	Field indicating the order entry capabilities in the current market state.	Enumerated	1	0 Order Entry/Cancel/Modify Disabled 1 Order Entry/Cancel/Modify Enabled 2 Cancel and Modify Only (Derivatives Only)	Optional	118
Session	Current market session.	Enumerated	1	(See field description)	Optional	129

5.3 APPLICATION MESSAGES

5.3.1 Market Update (1001)

The Market Update Message provides valuable data to the market in order to build the limits for the order book (Cash and Derivatives).

The "Market Data Update Type" field indicates the type of price/volume update as follows:

- The Bests Bid/Offer are the best explicit buy or sell price and aggregated volume at the best price.
- When there is no more Limit on a book side, last BBO is sent with quantity set to '0' and Price set to null value.

- The Bid/Offer updates are the explicit buy or sell price and aggregated volume at any price level. When the Bid/Offer is the best price, both the Bid/Offer and the Best Bid/Offer will be sent.
- Implied Bid/Offer prices are sent on derivatives for a given outright series when either:
  - An implied out buy/sell price can be calculated, and is better than or equal to the best explicitly quoted price
  - A previously transmitted implied buy/sell price or volume changes, or can no longer be implied.
- A Request for Quote (RFQ) notifies market participants that a member has an interest for the specified instrument. A RFQ may have an associated volume, but no price.
- A Request for Size (RFS) notifies market participants that a member has an interest at the specified instrument price, but no quantity is indicated.
- A Clear Book requests clients to clear all the book for a given Symbol Index. Quantity will be '0' and Price set to null value.
- A Market Order is sent in Market Data with a price set to null value and the quantity is the one from the client order.

Trades will also be notified using the Market Update message. Hidden part of iceberg orders that trade on lit are indicated using a dedicated Market Data Update Type "62 - Hidden Quantity Trade".

On Warrants, all the updates with "Liquidity Provider" flag a limit that contains at least one liquidity provider order. Then a "Liquidity Provider" limit contains one or several liquidity provider orders along with zero to several non-liquidity provider orders.

This message is available for all the markets.

Iceberg

The disclosed quantity of an iceberg order means the quantity of Securities the Member wishes to be apparent to the market. It is the maximum quantity of Securities that will be visible to the market at any given time.

A iceberg order can be placed during order accumulation periods and during the main trading session.

On entry the Member must specify a total volume and a peak volume (the disclosed quantity) which must be greater than a minimum size (ten times the trading unit). The initial peak is introduced into the Central Order Book with the original timestamp of the iceberg order according to price/time priority. When a iceberg order is executed for its disclosed quantity (the “peak”), that quantity is renewed automatically and the order is positioned behind orders at the same limit. For the execution of one entering opposite-side order, the displayed quantities of all orders at the same price first are executed on time priority and secondly the remaining iceberg orders are executed for their total amount according time priority. However, where the member is participating in the Internal Matching Facility and the order is in respect of an Eligible Financial Instrument, the quantity will not lose its time priority after execution of the disclosed quantity provided that the iceberg order is executed pursuant to the Internal Matching Facility. The modification of the total quantity does not affect the order priority.

A iceberg order cannot be stipulated in an “at opening price” order (i.e. a market-to-limit order entered during order accumulation periods).

Market Data Update Types

The following table defines for each Market Data Update Type on which instruments it applies.

Market Data Update Type		Warrants & Certificates		Options and Futures		Commodities		BdL	
		Best Bid and Offer	Full Order Book (MU)	Best Bid and Offer	Full Order Book (MU)	Best Bid and Offer	Full Order Book (MU)	Best Bid and Offer	Full Order Book (MU)
BBO	1 - Best Bid (Cash and Derivatives)	X	X	X	X	X	X	X	X
	2 - Best Offer (Cash and Derivatives)								
	8 - Implied Bid (Derivatives Only)			X	X	X	X		
	9 - Implied Offer (Derivatives Only)								
Full Depth	3 - New Bid (Cash and Derivatives)		X		X		X		X
	4 - New Offer (Cash and Derivatives)								
	5 - Updated Bid (Cash and Derivatives)								
	6 - Updated Offer (Cash and Derivatives)								
	58 - New Bid With Liquidity Provider (Cash Only)		X						
	59 - New Offer With Liquidity Provider (Cash Only)								
	60 - Updated Bid With Liquidity Provider (Cash Only)								
	61 - Updated Offer With Liquidity Provider (Cash Only)								
Clear Book	254 - Clear Book (Cash and Derivatives)	X	X	X	X	X	X	X	X
Trades Types	24 - Conventional Trade (Cash and Derivatives)	X	X	X	X	X	X	X	X
	30 - Guaranteed Cross Trade (Cash and Derivatives)								
	50 - Trade Cancellation (Cash and Derivatives)								
	35 - Dark Trade (Cash Only)								
	46 - BoB Trade (Cash Only)								
	51 - Out of Market Trade (Cash Only)	X	X						
	54 - Euronext Fund Service Trade (Cash Only)								
	55 - Secondary Listing Trade (Cash Only)							X	X
	62 - Hidden Quantity Trade (Cash Only)	X	X					X	X
	65 - Market VWAP Operation Trade (Cash Only)								
	7 - Total Traded Volume (Derivatives Only)			x	x	x	x		
	34 - Exchange for Swap Trade (Derivatives Only)								
	37 - Strategy Leg Conventional Trade (Derivatives Only)								
	41 - Strategy Leg Against Actual Trade (Derivatives Only)								
	44 - Strategy Leg Exchange For Swap Trade (Derivatives Only)								
	52 - Delta Neutral Trade - Underlying Cash Leg (Derivatives Only)								
	53 - Delta Neutral Trade - Underlying Future Leg (Derivatives Only)								
	27 - Large in Scale (LiS) Trade (Derivatives Only)			x	x				
	28 - Basis Trade (Derivatives Only)								
	29 - Large in Scale (LiS) Package Trade (Derivatives Only)								
	32 - Asset Allocation Trade (Derivatives Only)								
	36 - Exchange for Physical Trade - Cash Leg (Derivatives Only)								
	38 - Strategy Leg Large in Scale (LiS) Trade (Derivatives Only)								
	39 - Strategy Leg Basis Trade (Derivatives Only)								
	40 - Strategy Leg Guaranteed Cross Trade (Derivatives Only)								
	42 - Strategy Leg Asset Allocation Trade (Derivatives Only)								
	45 - Strategy Leg Exchange For Physical Trade (Derivatives Only)								
	48 - AtomX Trade (Derivatives Only)								
	31 - Against Actual Trade (Derivatives Only)					x	x		
	56 - Request for Cross Trade (Derivatives Only)								
	57 - Request for Cross Strategy Leg Trade (Derivatives Only)								
Requests	10 - Request for Quote (Cash and Derivatives)			X	X	X	X		
	11 - Request for Quote Bid (Cash and Derivatives)			X	X	X	X		
	13 - Request for Quote Offer (Cash and Derivatives)								
	12 - Request for Size (Cash and Derivatives)	X	X						
	66 - Request for Size Bid (Cash and Derivatives)								
	67 - Request for Size Offer (Cash and Derivatives)								
	25 - Request for Cross (RFC) Queued (Derivatives Only)					X	X		
	26 - Request for Cross (RFC) (Derivatives Only)								
Collars	14 - High Dynamic Collar (Cash Only)	X	X					X	X
	15 - Low Dynamic Collar (Cash Only)								
	63 - Low Static Collar (Cash Only)								
	64 - High Static Collar (Cash Only)								
BoB	16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)								
	17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)								
	18 - Updated Bid RLP Retail Liquidity Provider) (Cash Only)								
	19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only)								
SI	20 - New Bid SI (Cash Only)								
	21 - New Offer SI (Cash Only)								
	22 - Updated Bid SI (Cash Only)								
	23 - Updated Offer SI (Cash Only)								
	47 - SI Trade (Cash Only)								

[1] - only for negociated trade on Euronext Exchange

		Fixed Income		ETFs		Equities			
Market Data Update Type		**Best Bid and Offer**	**Full Order Book (MU)**	**Best Bid and Offer**	**Full Order Book**	**Full Order Book (MU)**	**Full Order Book (OU)**	**BoB Full Order Book**	**SI Full Order Book**
BBO	1 - Best Bid (Cash and Derivatives)	X	X	X	X	X	X		
	2 - Best Offer (Cash and Derivatives)								
	8 - Implied Bid (Derivatives Only)								
	9 - Implied Offer (Derivatives Only)								
Full Depth	3 - New Bid (Cash and Derivatives)		X		X	X			
	4 - New Offer (Cash and Derivatives)								
	5 - Updated Bid (Cash and Derivatives)								
	6 - Updated Offer (Cash and Derivatives)								
	58 - New Bid With Liquidity Provider (Cash Only)								
	59 - New Offer With Liquidity Provider (Cash Only)								
	60 - Updated Bid With Liquidity Provider (Cash Only)								
	61 - Updated Offer With Liquidity Provider (Cash Only)								
Clear Book	254 - Clear Book (Cash and Derivatives)	X	X	X	X	X	X	X	X
Trades Types	24 - Conventional Trade (Cash and Derivatives)	X	X	X	X	X	X		
	30 - Guaranteed Cross Trade (Cash and Derivatives)								
	50 - Trade Cancellation (Cash and Derivatives)								
	35 - Dark Trade (Cash Only)					X	X		
	46 - BoB Trade (Cash Only)					X	X		
	51 - Out of Market Trade (Cash Only)	X	X	X	X	X	X		
	54 - Euronext Fund Service Trade (Cash Only)	X	X	X	X				
	55 - Secondary Listing Trade (Cash Only)					X	X		
	62 - Hidden Quantity Trade (Cash Only)	X	X	X	X	X	X		
	65 - Market VWAP Operation Trade (Cash Only)	x[1]	x[1]	x[1]	x[1]	X	X		
	7 - Total Traded Volume (Derivatives Only)								
	34 - Exchange for Swap Trade (Derivatives Only)								
	37 - Strategy Leg Conventional Trade (Derivatives Only)								
	41 - Strategy Leg Against Actual Trade (Derivatives Only)								
	44 - Strategy Leg Exchange For Swap Trade (Derivatives Only)								
	52 - Delta Neutral Trade - Underlying Cash Leg (Derivatives Only)								
	53 - Delta Neutral Trade - Underlying Future Leg (Derivatives Only)								
	27 - Large in Scale (LiS) Trade (Derivatives Only)								
	28 - Basis Trade (Derivatives Only)								
	29 - Large in Scale (LiS) Package Trade (Derivatives Only)								
	32 - Asset Allocation Trade (Derivatives Only)								
	36 - Exchange for Physical Trade - Cash Leg (Derivatives Only)								
	38 - Strategy Leg Large in Scale (LiS) Trade (Derivatives Only)								
	39 - Strategy Leg Basis Trade (Derivatives Only)								
	40 - Strategy Leg Guaranteed Cross Trade (Derivatives Only)								
	42 - Strategy Leg Asset Allocation Trade (Derivatives Only)								
	45 - Strategy Leg Exchange For Physical Trade (Derivatives Only)								
	48 - AtomX Trade (Derivatives Only)								
	31 - Against Actual Trade (Derivatives Only)								
	56 - Request for Cross Trade (Derivatives Only)								
	57 - Request for Cross Strategy Leg Trade (Derivatives Only)								
Requests	10 - Request for Quote (Cash and Derivatives)								
	11 - Request for Quote Bid (Cash and Derivatives)								
	13 - Request for Quote Offer (Cash and Derivatives)								
	12 - Request for Size (Cash and Derivatives)					X	X		
	66 - Request for Size Bid (Cash and Derivatives)								
	67 - Request for Size Offer (Cash and Derivatives)								
	25 - Request for Cross (RFC) Queued (Derivatives Only)								
	26 - Request for Cross (RFC) (Derivatives Only)								
Collars	14 - High Dynamic Collar (Cash Only)	X	X	X	X	X	X		
	15 - Low Dynamic Collar (Cash Only)								
	63 - Low Static Collar (Cash Only)								
	64 - High Static Collar (Cash Only)								
BoB	16 - New Bid RLP (Retail Liquidity Provider) (Cash Only)							X	
	17 - New Offer RLP (Retail Liquidity Provider) (Cash Only)								
	18 - Updated Bid RLP Retail Liquidity Provider) (Cash Only)								
	19 - Updated Offer RLP (Retail Liquidity Provider) (Cash Only)								
SI	20 - New Bid SI (Cash Only)								X
	21 - New Offer SI (Cash Only)								
	22 - Updated Bid SI (Cash Only)								
	23 - Updated Offer SI (Cash Only)								
	47 - SI Trade (Cash Only)								

[1] - only for negociated trade on Euronext Exchange

Message Sending Rules:

- For Cash and Derivatives:
  - New or updated top of book price and/or volume.
  - New Collars when the update is caused by a new trade which impact collar.
  - A Request for Quote (RFQ).
  - As a short trade message indicating its trade type, traded price and traded quantity.

- For Cash:
  - New or updated RMF depth of book price and/or volume.
  - New or updated SI depth of book price and/or volume.
  - New or updated With Liquidity Provider depth of book price and/or volume for warrants.

- For Derivatives:
  - Every morning for book retransmission.
  - New or updated depth of book price and/or volume.
  - A Request for Cross is set active on an instrument.
  - A Request for Cross is queued on an instrument, due to the fact that another RFC is already active.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Market Data Update Type	Type of market data update.	Enumerated	1	(See field description)	Mandatory	102
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Price	Price per unit of quantity (share) (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	123
Quantity	Number of traded or ordered units (to be calculated with Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	125

5.3.2 Order Update (1002)

On Cash markets, the Order Update Message provides the market with the information needed to build the order book.

Multiple changes can be disseminated within a single Order Update (1002) message.

This message takes into account all order types, with the exception of Stop Loss and Stop Limit orders. Stop orders are not broadcast to market participants until they are triggered.

Message Sending Rules:

- In the morning, before market opening, when the trading engine is initialized, to retransmit orders remaining in the book from previous days (taking into account expired orders and order book purges). This is known as the 'order book retransmission' or 'market sheet retransmission'.
- During the day, on each new order, modify order or deletion order from a member firm.
- During the day, in case of order book retransmission. This is a failsafe in case of order book resynchronization.

To be noted:

- Symbol Index, EMM and Order Reference Number uniquely identify an order
- In case of a Deletion (Market Data Action Type '2' or '3'), the quantity will be set to '0' and the price set to default value.
- Orders must be arranged according to:
  - Order type: Priority should be given first to Market orders, followed by Market to limit and Opening orders, and finally Limit and Peg orders
  - Order price
  - Order priority
- For Market Orders the price will be set to null value and the quantity is the one from the client order.

Client applications should do the following in order to build the market sheet:

- Determine the Market Data Action Type (add, modify, delete)
- Determine the priority of an order based on Order Type, Order Price, and the Order Priority. The priority of orders of the same type and price depends on their order priority. The order with the lowest value of Order Priority has the highest priority. Bid orders with higher prices have higher priority; ask orders with lower price have higher priority.
- Determine the price and size of an order.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127

Field	Short Description	Format	Len	Values	Presence	Page
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Market Data Action Type	Identifies if the order is a New Order, a Deletion, a Modification or a Retransmission.	Enumerated	1	(See field description)	Mandatory	100
Order Priority	Rank giving the priority of the order. The order with the lowest value of Order Priority has the highest priority.	Numerical ID	8	From 0 to 2^64-2	Optional	119
Order Reference Number	Until the matching engine migration to Optiq in phase 2 the Order Reference Number is used as the unique order identifier in Market Data for a given Symbol Index.	Numerical ID	8	From 0 to 2^64-2	Optional	119
Order Type	Type of Order.	Enumerated	1	(See field description)	Optional	120
Order Price	Instrument price per unit of quantity (share) (To be calculated with Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	119
Order Side	Indicates the side of the order.	Enumerated	1	1 Buy 2 Sell 3 Cross	Optional	120
Quantity	Number of traded or ordered units (to be calculated with Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	125

5.3.3 Price Update (1003)

The Price Update Message provides updated reference prices.

For derivatives markets, all settlement prices and Indicative Uncrossing Prices for each uncrossing are provided in the Price Update message (1003).

It is sent for both past settlements (in the morning) and intraday settlements (during the trading day).

Indicative Matching Price:

The Indicative Matching Price (“Market Data Price Type” = 14) indicates the instrument's theoretical opening conditions which consists of:

- the Indicative Matching Price (IMP): price at which the instrument would trade if it opened at the moment the price is calculated

- the Indicative Matching Volume (IMV): quantity that would trade at the IMP if the instrument opened at the moment the price is calculated
- the indicative imbalance volume: remaining unmatched quantity at the IMP
- The indicative imbalance volume side: side of the indicative imbalance volume

An Indicative Matching Price is sent if at least one of the instrument's theoretical opening conditions changes: (indicative matching price or indicative matching volume or imbalance volume or imbalance volume side varies).

- If the Indicative Matching Price remains undetermined, but the reason for this undetermined changes, then an Indicative Matching Price is sent with null values (in field Price).

For Cash markets, all reference prices are published through a Price Update message, for both Central Order Book and Out of Session contexts:

- Closing Price
- Uncrossing Price
- Valuation Price
- Min/Max Out of Session Trade Price
- Net Asset value for eligible instruments

Fund features (subscription and redemption) are also communicated through a Price Update Message.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Market Data Price Type	Type of price update (note: 1 to 9 are settlement price type).	Enumerated	1	(See field description)	Mandatory	101
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Price	Price per unit of quantity (share) (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	123
Quantity	Number of traded or ordered units (to be calculated with Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	125

Field	Short Description	Format	Len	Values	Presence	Page
Imbalance Quantity	Imbalance volume quantity if Uncrossing occurs at this moment. This volume includes hidden quantity (to be calculated with Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	91
Imbalance Quantity Side	Side of the imbalance volume if the Uncrossing occurs at this moment.	Enumerated	1	0 No imbalance 1 Buy 2 Sell	Optional	92

5.3.4 Full Trade Information (1004)

The Full Trade Information Message feeds the Market with a MiFID II compliant trade summary (A short trade message is provided in the Market Update message (1001) for all markets). The Full Trade Information message is also used for trade publications and trade summary reports.

If the Transaction Type is "Summary Report", then it will be a differed publication of aggregated trades. Therefore, only the MiFID Notional Amount will be filled and the high and low prices will be in the Statistics message (1009).

MiFID 2 flags are populated using the Market Model Typology (MMT) in version 3.0. For more information please visit: http://www.fixtradingcommunity.org/pg/group-types/mmt

Message Sending Rules:

- For each trade notification.
- For each trade retransmission.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135

Field	Short Description	Format	Len	Values	Presence	Page
Trading Date Time	Date and time when the transaction was executed.	Text	27	(See field description)	Mandatory	139
Publication Date Time	Date and time when the transaction was published by a trading venue or Approved Publication Arrangement (APA).	Text	27	(See field description)	Mandatory	125
Trade Type	Type of Operation.	Enumerated	1	(See field description)	Mandatory	138
MiFID Instrument ID Type	Code type used to identify the financial instrument.	Alphanumerical ID	4	(See field description)	Mandatory	107
MiFID Instrument ID	Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type.	Alphanumerical ID	12	(See field description)	Mandatory	106
MiFID Execution ID	MiFID Transaction Identification Code is composed of the Symbol Index, the EMM and the Execution ID. It is a unique Execution ID by instrument and per day on the different EMM available.	Alphanumerical ID	52	(See field description)	Mandatory	106
MiFID Price	Traded price of the transaction excluding, where applicable, commission and accrued interest.	Text	20	(See field description)	Mandatory	107
MiFID Quantity	Number of units of the financial instrument. The nominal or monetary value of the financial instrument.	Text	20	(See field description)	Mandatory	108
MiFID Price Notation	Indicates if the price or the strike price is expressed in: monetary, percentage or yield.	Alphanumerical ID	4	(See field description)	Mandatory	108
MiFID Currency	Currency in which the price is expressed (applicable if the price is expressed as monetary value) following ISO 4217 standard.	Alphanumerical ID	3	(See field description)	Mandatory	106
MiFID Qty in Measurement Unit Notation	Indicates the measurement units in which the quantity in measurement unit is expressed.	Text	25	(See field description)	Optional	108
MiFID Quantity Measurement Unit	The equivalent amount of commodity traded expressed in measurement unit.	Text	20	(See field description)	Optional	109
MiFID Notional Amount	Nominal amount or notional amount	Text	20	(See field description)	Mandatory	107
Notional Currency	Currency in which the notional is denominated following ISO 4217 standard.	Alphanumerical ID	3	(See field description)	Mandatory	115
MiFID Clearing Flag	Code to identify whether the transaction will be cleared.	Text	5	(See field description)	Mandatory	106
MMT Market Mechanism	Defines the fundamental functional market mechanism that has facilitated the trade following MMT level 1.	Enumerated	1	(See field description)	Mandatory	111
MMT Trading Mode	Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.	Enumerated	1	(See field description)	Mandatory	113

Field	Short Description	Format	Len	Values	Presence	Page
MMT Transaction Category	Defines the transaction category following MMT level 3.1.	Text	4	(See field description)	Mandatory	114
MMT Negotiation Indicator	Defines the negotiation indicator or pre-trade transparency waiver following MMT level 3.2.	Text	4	(See field description)	Mandatory	112
MMT Agency Cross Trade Indicator	Defines the agency cross trade indicator following MMT level 3.3.	Text	4	(See field description)	Mandatory	110
MMT Modification Indicator	Defines the modification indicator following MMT level 3.4.	Text	4	(See field description)	Mandatory	111
MMT Benchmark Indicator	Defines the benchmark indicator or the reference price indicator following MMT level 3.5.	Text	4	(See field description)	Mandatory	110
MMT Special Dividend Indicator	Defines the special dividend indicator following MMT level 3.6.	Text	4	(See field description)	Mandatory	113
MMT Off Book Automated Indicator	Defines the off book automated indicator following MMT level 3.7.	Enumerated	1	M Off Book Non-Automated Q Off Book Automated - (Hyphen) Unspecified or does not apply	Mandatory	112
MMT Contribution to Price	Defines the contribution to price or the price discovery process following MMT level 3.8.	Text	4	(See field description)	Mandatory	110
MMT Algorithmic Indicator	Defines the algorithmic indicator following MMT level 3.9.	Text	4	(See field description)	Mandatory	110
MMT Publication Mode	Defines the publication mode or post-trade deferral reason following MMT level 4.1.	Text	4	(See field description)	Mandatory	113
MMT Post Trade Deferral	Defines the post trade deferral or enrichment type following MMT level 4.2.	Text	4	(See field description)	Mandatory	112
MMT Duplicative Indicator	Defines the duplicative indicator following MMT level 5.	Text	4	(See field description)	Mandatory	111
Trade Qualifier	Trade Qualifier.	Bitmap	1	(See field description)	Optional	137
Transaction Type	Transaction type or publication type.	Enumerated	1	(See field description)	Mandatory	141
Effective Date Indicator	Indicates if the trade is introduced on the trading session day or earlier.	Enumerated	1	0 If the seller declaration is received on the current trading session day 1 If seller declaration is received before the current trading session day	Mandatory	86
Block Trade Code	Indicates if trade relates to a block or a negotiated deal following MiFID rules.	Enumerated	1	B Block Trade N Regular trade or Negotiated deal - (Hyphen) Undefined	Optional	80

Field	Short Description	Format	Len	Values	Presence	Page
Trade Reference	Reference of the trade reported to the Exchange.	Alphanumerical ID	30	(See field description)	Optional	137
Original Report Timestamp	Timestamp of trade reporting to the Exchange (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Optional	121
Transparency Indicator	Used to define the transparency of the trade.	Enumerated	1	0 Lit/Regular Trade 1 Dark Trade and Immediate Publication 2 Dark Trade and Deferred Publication	Optional	141
Currency Coefficient	When an actual price is displayed in a different 'price expression' than the official instrument trading currency, the Currency Coefficient represents the ratio 'price expression' divided by 'official currency' (To be calculated with Ratio / Multiplier Decimals).	Numerical ID	4	From 0 to 2^32-2	Optional	84
Price Multiplier	Number of units of the financial instrument that are contained in a trading lot.	Numerical	4	From 0 to 2^32-2	Optional	124
Price Multiplier Decimals	Number of decimals for the field Price Multiplier	Numerical	1	From 0 to 2^8-2	Optional	124
Venue	Identification of the venue where the transaction was executed using the ISO 10383 segment MIC for transactions executed on a trading venue.	Alphanumerical ID	11	(See field description)	Mandatory	144
Venue of Publication	Indicates the venue where the trade is published.	Alphanumerical ID	11	(See field description)	Mandatory	144
Start Time Vwap	Start time for the Volume Weight Average price computation period (Number of seconds since the beginning of the day).	Timestamp	4	From 0 to 2^32-2	Optional	131
End Time Vwap	End time for the Volume Weight Average price computation period (Number of seconds since the beginning of the day).	Timestamp	4	From 0 to 2^32-2	Optional	87

5.3.5 Market Status Change (1005)

The Market Status Change message provides the market with all required scheduling data, at the instrument level for cash markets, and both contract and instrument levels on derivatives markets (depending on the scenario). This message is sent each time the status changes, scheduled (following the predefined pattern) or not.

Message Sending Rules:

- Automatically for each Instrument/contract, before the pre-opening to indicate the times at which the market session, in the Market Status Change, will change from one phase to another.
- On an exceptional basis, it may be sent during the trading day in case scheduled hours have changed or there are multiple openings during the day.
- Each time an instrument changes state during the trading day.
- A change of Trading Mode, Trading Period, Trading Side, Price Limits or Quote Spread Multiplier.
- A change in the Order Entry Flag.
- A change of trading Session.
- The Scheduling of an event or the cancellation of a previously Scheduled Event.

The Time of the change (or the Scheduled change) is always provided.

Each time a Market Status Message is sent, the full information on the status is provided. The information that change can be identified using the "Market Data Change Type" field.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Market Data Change Type	Type of scheduled change.	Enumerated	1	0 Status Change(s) 1 Scheduled Event Notification 2 Status Change(s) and Scheduled Event Notification	Mandatory	101
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Instrument State	Instrument State.	Enumerated	1	(See field description)	Optional	94
Status Reason	Provides the reason for instrument state changes.	Enumerated	1	(See field description)	Optional	132
Trading Mode	Indicates the Trading Mode.	Bitmap	4	(See field description)	Optional	140

Field	Short Description	Format	Len	Values	Presence	Page
Trading Period	Indicates the trading period.	Enumerated	1	(See field description)	Optional	140
Trading Side	Indicates the trading period.	Enumerated	1	1 Bid Only (Cash Only) 2 Offer Only (Cash Only) 3 PAKO (Cash Only)	Optional	140
Price Limits	Indicates the Price Limits mode.	Enumerated	1	1 Price Limits Enabled - Normal (Derivatives Only) 2 Price Limits Enabled - Wide (Derivatives Only) 3 Price Limits Enabled - Widest (Derivatives Only) 4 Price Limits Disabled (Derivatives Only)	Optional	123
Quote Spread Multiplier	Indicates the Quote Spread Multiplier.	Enumerated	1	1 Quote Spread Multiplier 1 (Derivatives Only) 2 Quote Spread Multiplier 2 (Derivatives Only) 3 Quote Spread Multiplier 3 (Derivatives Only)	Optional	126
Order Entry Qualifier	Field indicating the order entry capabilities in the current market state.	Enumerated	1	0 Order Entry/Cancel/Modify Disabled 1 Order Entry/Cancel/Modify Enabled 2 Cancel and Modify Only (Derivatives Only)	Optional	118
Session	Current market session.	Enumerated	1	(See field description)	Mandatory	129
Scheduled Event	Type of Scheduled Event.	Enumerated	1	(See field description)	Optional	128
Scheduled Event Time	Scheduled Time for the event to happen (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Optional	128

5.3.6 Statistics (1009)

This message provides statistics on prices and volumes on an instrument. The following table lists the stats available per instrument.

Statistics	Warrants & Certificates		BdL	Fixed Income	ETFs		Cash Equities	Indices	Derivatives option and futures*	Commodities*
	Valuation	All Other			Valuation	All Other				
5 - Daily High (Cash and Derivatives)	x	x	x	x	x	x	x	x	x	x
6 - Daily Low (Cash and Derivatives)	x	x	x	x	x	x	x	x	x	x
7 - Yearly High (Derivatives Only)									x	x
8 - Yearly Low (Derivatives Only)									x	x
9 - Lifetime High (Derivatives Only)									x	x
10 - Lifetime Low (Derivatives Only)									x	x
14 - Variation Last Price (Cash and Derivatives)	x	x	x	x	x	x	x	x	x	x
15 - Open Price (Cash and Derivatives)	x	x	x	x	x	x	x	x	x	x
16 - Trade Count (Cash and Derivatives)		x	x	x		x	x		x	x
17 - Last Traded Price (Cash and Derivatives)	x	x	x	x	x	x	x		x	x
18 - Percent Variation Previous Close (Cash and Derivatives)	x	x	x	x	x	x	x	x	x	x
19 - Off Book Cumulative Quantity (Cash Only)		x	x	x		x	x			
21 - On Book Auction Cumulative Quantity (Cash Only)		x	x	x		x	x			
22 - On Book Continuous Cumulative Quantity (Cash Only)		x	x	x		x	x			
23 - On and Off Book Cumulative Quantity (Cash and Derivatives)		x	x	x		x	x		x	x

* For derivatives flex contracts, no statistics are published

Statistics will not be provided for OTC trades (off-book). Only the "Off Book Cumulative Quantity" will be provided for the off-book on-exchange trades.

Cumulative quantities

On Cash MDG will deliver five cumulative quantity fields that will allow clients to compute all possible statistics based on this. These fields are:

- Off Exchange Cumul Qty
- On Book Auction Cumul Qty
- On book Continuous Cumul Qty
- On and Off Book Cumul Qty which is the sum of: Off Book Cumul Qty, On Book Auction Cumul Qty and On book Continuous Cumul Qty.

On Derivatives there is only one cumulative quantity:

- On and Off Book Cumul Qty that sums all trades done on-book and off-book on-exchange.

Message Sending Rules:

Statistics messages are sent for each trade on an instrument. A minimum of 50 milliseconds is set between 2 statistics messages. Hence, if several trades occur for the same instrument within this interval, only 1 Statistics message is published. Additionally, conflation will send only the latest stats in case of queue. In this case, all the fields are reflecting the change with regards to the last trade except for:

- Open price which does not change intraday
- Daily/Lifetime/Yearly High and Low that are considering all trades

Note:

Some updates are grouped, for example a yearly high will always be published with the daily high.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Stats Update Type	Indicates the type of published statistics update.	Enumerated	1	(See field description)	Mandatory	131
Stats Update Value	Indicates the value of the published statistics update.	Quantity	8	From -2^63-1 to 2^63-1	Mandatory	131

5.3.7 Real Time Index (1008)

A Real-Time Index message handles the real-time characteristics of an index: the level of the index, type of index level (opening index level, real-time, indicative level), and various indicators for the instruments that make up the index. This message is sent for:

- Stock Indices
- Strategy Indices
- Volatility Indices
- Indicative Net Asset Value (iNAV) of an ETF

Message Sending Rules:

Sending of these messages for a given index is conditioned by a flag configured at the index level. These conditions and the nature of these messages that are sent for each index are dependent on two factors:

- The publication mode of the index; there are three publication modes:
  - Continuous: Calculated index levels are published periodically, at a frequency that can be configured for each index. Currently an index that is published continuously can either be published every 15 seconds or every 30 seconds.
  - Discontinuous: A single Closing level (level 5) before the provisional closing phase, occurring at a time (a 'fixed time') that can be configured for each index
  - At closing only: No broadcast before the provisional closing phase
- The current calculation phase of the index

The following sections provide an overview of the different conditions at which an index level can be sent.

CAC 40 Index

At System Start-up

The Closing level of the index of the previous trading day (level 5) is sent at the start of each trading day.

During the Trading Session

Opening Kinematics

Upon reception of the first trade price of any instrument that is part of the composition of the CAC 40, the index moves into the Session phase. If at this point 65% or more of the market cap of the index has traded, the Official Opening level (level A) is calculated and published. The Official Opening level is based on the last trade prices or the last-adjusted closing price if a last traded price is not available. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

If, at the opening of the index, less than 65% of the market cap of the index has traded, an Automatic Indicative level (level 3) is published every 15 seconds following the opening of the market until at least 65% of the market cap of the index has traded. Once this threshold of 65% has been breached (and the index is not in the 'Indicative' phase), the Official Opening level (level A) is calculated and published. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

For most other French indices, there are two thresholds that need to be breached for the index to send an official opening level:

At the opening of the market, at least 65% of the market cap needs to have traded. If at the opening of the market this threshold of 65% has not been reached, an Automatic indicative level (level 3) is sent every 15 seconds.

The Automatic indicative level continues to be sent every 15 seconds until a second threshold has been reached. For most French indices this second threshold is configured at 95% of the market cap. Once this second threshold has been reached, the Official Opening level (level A) is calculated and published. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

If the index remains in an Automatic Indicative state the entire day, the last Automatic Indicative index level (level 3) is considered to be the official close. (There is no official opening level in this case.)

As soon as 100% of the market cap of the non-regulated-halted constituents of the index has traded (and the index is not in 'indicative' state), the Reference level (level B) is calculated and broadcast. This level is calculated using only the opening (first trade) prices of its constituents.

Following the Opening

Once the Official Opening level (level A) has been published, the real-time Session levels (level 2) are calculated and published every 15 seconds.

In the case of an 'Indicative' Phase:

The compiler can decide, following the opening of the index, to change the status of the index. This decision can be made if it is believed that circumstances prevent the proper calculation of the index. In this case, instead of the real-time Session level (level 2), an indicative level (level 0) is sent every 15 seconds. This level 0 is calculated by using the last-traded price or the last-adjusted closing price if a last traded price is not available.

The index levels that are calculated during the 'Indicative' status of an index are not taken into account to update the highest and the lowest levels of the index.

Once the compiler is sure that the index level is representative again, the real-time index levels (level 2) are calculated and published again every 15 seconds.

Options Liquidation Index (Level 7) for CAC 40

Definition / Purpose

- The liquidation index is used as a basis for the automatic exercise of options that are within the price range on their expiration date, as well as for the calculation of resulting payments.
- It is the average of the index level calculated every 15 seconds between 15:40 (CET) and 16:00 (CET). The result of the calculation is published every 15 seconds during the same time interval.
- This average is sent at each expiry date.

At the End of the Trading Day

After all instruments that are part of the composition of the index are closed, the index moves into the Temporary Closing phase. On a normal trading day, this occurs around 18:00:00 (CET). During this phase, the first Closing level (level 5), the first confirmation of the Reference level (level C) and the first Index Summary message (message 1011) are published. During the Temporary Closing phase, Euronext can make any necessary adjustments to the index if deemed necessary. The Temporary Closing phase currently lasts 5 minutes.

At the end of the Closing delay, the index moves into the Final Closing phase. The second Closing level, the second confirmation of the Reference level (level C) and the second Index summary message (message 1011) are published. Any adjustments that are made during the Temporary Closing Phase are taken into account in the second Closing level and the Index Summary message.

The first and second Closing levels (level 5) are calculated based on the last trades of the instruments that take part of the composition of the index. This level represents the official Closing Reference Level of the CAC 40.

The confirmation of the Reference level (level C) is calculated using only the opening (first trade) prices of its constituents not taking into account any cancellation of opening trades.

AEX Index, BEL 20 Index and PSI 20 Index

At System Start-up

The Closing level of the index of the previous trading day (level 5) is sent at the start of each trading day.

During the Trading Session

Opening Kinematics

Upon reception of the first trade price of any instrument that is part of the composition of the index, the index moves into the Session phase. If at this point 100% or more of the market cap of the index has traded, the Official Opening level (level A) is calculated and published. The Official Opening level is based on the last trade prices, including previous day, adjusted closing prices. Subsequently, real-time Session levels (level 2) are calculated and published every 15 seconds.

If by 9:05 the threshold of 100% is still not met, the threshold is dropped to 80% (second threshold). As soon as 80% of the market cap is available any time after 09:05, the Official Opening level (level A) is calculated and published followed by real-time Session levels (level 2).

From the opening of the index up until the first or second threshold is met, an Automatic Indicative level (level 3) is published every 15 seconds.

If the index remains in an Automatic Indicative state the entire day, the last Automatic Indicative index level (level 3) is considered to be the official close. (There is no official opening level in this case.)

Following the Opening

Once the Official Opening level (level A) has been published, the real-time Session levels (level 2) are calculated and published every 15 seconds.

In the case of an 'Indicative' Phase:

The compiler can decide, following the opening of the index, to change the status of the index. This decision can be made if it is believed that circumstances prevent the proper calculation of the index. In this case, instead of the real-time Session level (level 2), an indicative level (level 0) is sent every 15 seconds. This level 0 is calculated by using the last-traded price or the last-adjusted closing price if a last-traded price is not available.

The index levels that are calculated during the 'Indicative' status of an index are not taken into account to update the highest and the lowest levels of the index.

Once the compiler is sure that the index level is representative again, the real-time index levels (level 2) are calculated and published again every 15 seconds.

Options Liquidation Index (Level 7) for AEX Index

Definition / Purpose

- The liquidation index is used as a basis for the automatic exercise of options that are within the price range on their expiration date, as well as for the calculation of resulting payments.

- It is the average of the index level calculated every 15 seconds between 15:30 (CET) and 16:00 (CET). The result of the calculation is published every minute during the same time interval.

At the End of the Trading Day

After all instruments that are part of the composition of the index are closed, the index moves into the Temporary Closing phase. On a normal trading day this occurs around 18:00:00 (CET). During this phase, the first Closing level (level 5) and the first Index Summary message (message 1011) are published. During the Temporary Closing phase, Euronext can make any necessary adjustments to the index if deemed necessary. The temporary Closing phase currently lasts 5 minutes.

At the end of the Closing delay, the index moves into the Final Closing phase. The second Closing level (level 5) and the second Index Summary message (message 1011) are published. Any adjustments that are made during the Temporary Closing Phase are taken into account in the second closing level and the Index Summary message.

The first and second Closing levels (level 5) are calculated based on the last trades of the instruments that take part of the composition of the index. This level represents the official Closing Reference Level of the index.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Index Level	The value of the last level for the index that is the subject of this message (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	92
Percentage of Capitalization	Percentage of capitalization for the active instruments in the index (to be calculated with the Ratio / Multiplier Decimals).	Numerical	8	From 0 to 2^64-2	Mandatory	122
Percentage Var from Prev Close	Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals).	Numerical	8	From -2^63-1 to 2^63-1	Mandatory	122
Number Of Traded Instruments in Index	Number of traded instruments in the index.	Quantity	2	From 0 to 2^16-2	Mandatory	115
Index Level Type	Type of Index Level.	Enumerated	1	(See field description)	Mandatory	92
Index Price Code	Type of Price as positioned in Session High/Low or to indicate the trend or at the contrary the reference value from which the price may change.	Enumerated	1	(See field description)	Mandatory	93

5.3.8 Index Summary (1011)

The Index Summary message is sent twice at the end of the day in order to disseminate the final statistics related to an index, which aggregates daily data.

Message Sending Rules:

- Every trading day, for each index type 'stock index' two types of index summary messages are sent (this rules out iNAVs):
  - The first summary is sent when the index enters the provisional closing phase.
  - The second summary is sent when the index enters the final closing phase.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Opening Level	Official Opening Index Level. This level corresponds to the Index Level Type 6 of the Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	117
Opening Time	Time of Official Opening level (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	117
Confirmed Reference Level	Confirmed Reference level. This level corresponds to the index Level Type 8 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	82
Confirmed Reference Time	Time of (Confirmed) Reference level. See chapter on Timestamps (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	82
Closing Reference Level	Reference closing index level. This level corresponds to the Index Level Type 4 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	81
Closing Reference Time	Time of provisional closing reference index level (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	81

Field	Short Description	Format	Len	Values	Presence	Page
Percentage Var from Prev Close	Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals).	Numerical	8	From -2^63-1 to 2^63-1	Mandatory	122
High Level	Highest index level (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	91
High Time	Time of provisional highest index level (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	91
Low Level	Lowest index level (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	99
Low Time	Time of provisional lowest index level (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	100
Liquidation Level	Index Level of reference at expiration settlement (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	98
Liquidation Time	Time of provisional expiration settlement index level (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	98

5.3.9 Exchange Announcement (1010)

The Exchange Announcement Message provides the market with any exchange announcements which must be published via market data. This message is sent manually by Market Operations to inform member firms about events of general interest that occurred in the market (suspension of securities, deletions of order books, new listings of securities, various technical messages, etc).

The Symbol Index indicates which instrument or contract is concerned by the announcement. It can also be set to null value to indicate that it applies to all instruments of the current channel.

A long mail message can be split into several messages. Information in "Message Number" and "Number Of Messages" enables users to rebuild the entire mail message.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101

Field	Short Description	Format	Len	Values	Presence	Page
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Event Time	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	88
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Message Number	Indicates the message number in case the Exchange Announcement is split into several messages. Clients will be able to rebuild the original Exchange Announcement by ordering the different messages with their Message Number.	Numerical ID	1	From 0 to 2^8-2	Mandatory	104
Priority Indicator	Indicating if the mail is a must read mail (then set to true) or not (set to false).	Boolean	1	0 False 1 True	Mandatory	124
Number Of Messages	Indicates the number of Exchange Announcements needed to rebuild the entire message.	Numerical	1	From 0 to 2^8-2	Mandatory	115
Message Title	Exchange Announcement Title.	Text	90	(See field description)	Mandatory	105
Message Content	Content of the Exchange Announcement in UTF-8. All line breaks and special characters are the ones specified in Unicode.	Alphanumerical ID	900	(See field description)	Mandatory	104

5.4 SNAPSHOT MESSAGES

The Snapshot mechanism uses the same messages as the real-time feed except for statistics (real-time message: “Statistics” (1009), snapshot message: “Snapshot Statistics” (2009)).

When used for the snapshot, the messages have the field “Rebroadcast Indicator” set to “1”.

Message	Purpose	Sending rules
Start Of Snapshot (2101)	Defines the start of a snapshot sequence on all channels	This is the first message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence.
End Of Snapshot (2102)	Defines the end of a snapshot sequence on all channels	This is the last message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence.

Message	Purpose	Sending rules
Start Of Snapshot (2101)	Defines the start of a snapshot sequence on all channels	This is the first message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence.
End Of Snapshot (2102)	Defines the end of a snapshot sequence on all channels	This is the last message of a snapshot sequence. It contains the last Market Data Sequence Number from real-time that is contained in this snapshot sequence.
Outright Standing Data (1014) Strategy Standing Data (1012)	Provides all the characteristics of instruments	Only intraday instrument creation will be snapshotted. For all other standing data please refer to the file servers.
Timetable (1006)	Provides all the scheduled events for the instruments	Only intraday modifications will be snapshotted. Otherwise, use the file servers to retrieve data.
Market Status Change (1005)	Notifies of a market status change along with its reason	Only the Last Market Status Change will be sent.
Market Update (1001) for BBO (with Market Data Update Type set to "1" or "2" only)	Provides the Best Bid and the Best Offer for each instrument	Only the last Best Bid and the last Best Offer will be resent.
Market Update (1001)	Allows clients to rebuilt the book with full depth	Only for market by limits.
Order Update (1002)		Only for market by orders.
Price Update (1003)	Provides all updated reference prices	Only last Price Update will be sent.
Full Trade Information (1004)	Provides Trade reporting for last trades	Last N intraday trades and if they are not older than X seconds, for the whole instrument set on a given channel will be resent. Otherwise, refer to Full Trade Information files on file servers.
Snapshot Statistics (2009)	Provides full statistics per instruments	Only last statistics will be sent.
Real Time Index (1008)	Provides real-time index data	Only the last message will be resent.

Any message that is not in the above table will not be disseminated using the Snapshot mechanism.

5.4.1 Technical messages in Snapshot channels

Start of Day, Health Status and End of Day are also sent on the snapshot channels. They are not part of the Snapshot Sequence and should be processed separately by the clients. Customers need to take into account that they can also be sent between a Start of Snapshot and an End of snapshot messages.

In the Health Status, still on the snapshot channels, the Market Data Sequence Number is the Market Data Sequence Number of the last real-time message sent on the matching real-time channel. Please note that this Market Data Sequence Number may be different from the Last Market Data Sequence Number in the Start / End of Snapshot messages that matches the last real time message taken into account to build the snapshot.

5.4.2 Snapshot Sequence behaviour

The snapshot sequences start as soon as MDG is ready to broadcast messages (and not after the first real-time messages is sent on the real-time channels) and stops only when MDG stops. So Start of Day, Health Status and End of Day messages will be sent along with the snapshots at the beginning of the day, during the day and at the end of the day respectively. At the beginning of the day the snapshots will contain only Start of Snapshot and End of Snapshot messages with no snapshotted messages in between and the Market Data Sequence Number in Start of Snapshot and End of Snapshot will be set to null.

The minimum period between two snapshot sequences for a given channel is set to 2 seconds all along the day.

The snapshot sequence provides messages for all instruments of the channel at the same time, as opposed to instrument by instrument.

5.4.3 Start Of Snapshot (2101)

Provides the Market Data Sequence Number of the last real-time message processed for this snapshot.

Message Sending Rules:

- Start Of Snapshot message is always the first message of a snapshot sequence, and indicates the beginning of a snapshot sequence.

Field	Short Description	Format	Len	Values	Presence	Page
Last Market Data Sequence Number	Indicates the Market Data Message Sequence Number of the last real-time message processed for this snapshot.	Sequence	8	From 0 to 2^64-2	Mandatory	96
Snapshot Time	Indicates the time of the start/end of the snapshot (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	130

5.4.4 End Of Snapshot (2102)

The End Of Snapshot message indicates the end of a snapshot sequence.

It provides the Market Data Sequence Number of the last real time message processed for this snapshot. It also indicates that processing queued messages from the real-time feed with a higher Market Data Sequence member is now possible.

Message Sending Rules:

- End Of Snapshot message is always the last message of a snapshot sequence.

Field	Short Description	Format	Len	Values	Presence	Page
Last Market Data Sequence Number	Indicates the Market Data Message Sequence Number of the last real-time message processed for this snapshot.	Sequence	8	From 0 to 2^64-2	Mandatory	96
Snapshot Time	Indicates the time of the start/end of the snapshot (Time in number of nanoseconds since 01/01/1970 UTC).	Timestamp	8	From 0 to 2^64-2	Mandatory	130

5.4.5 Snapshot Statistics (2009)

The Snapshot Statistics message provides all statistics available for a specific instrument, at a regular frequency.

Field	Short Description	Format	Len	Values	Presence	Page
Market Data Sequence Number	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.	Sequence	8	From 0 to 2^64-2	Mandatory	101
Rebroadcast Indicator	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.	Boolean	1	0 False 1 True	Mandatory	127
EMM	Defines the Exchange Market Mechanism applied on each platform.	Enumerated	1	(See field description)	Mandatory	87
Symbol Index	Exchange identification code of the instrument.	Numerical ID	4	From 0 to 2^32-2	Mandatory	135
Daily High	Highest traded price for the current trading day (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	84
Daily Low	Lowest traded price for the current trading day (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	84
Yearly High	Highest traded price for the Year (to be calculated with Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	146
Yearly Low	Lowest traded price for the Year (to be calculated with Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	146
Lifetime High	Highest traded price for the lifetime of the instrument for booked trades only (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	98

Field	Short Description	Format	Len	Values	Presence	Page
Lifetime Low	Lowest traded price for the lifetime of the instrument for booked trades only (to be calculated with the Price/Index Level Decimals).	Price	8	From -2^63-1 to 2^63-1	Optional	98
Off Book Cumul Qty	On Cash: cumulated Off-book volume traded since the start of the current trading session. On Derivatives: cumulated volume traded on flex contracts (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	116
Off Exchange Cumul Qty	Cumulated volume of off-regulated market trades since the start of the current trading session (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	116
On Book Auction Cumul Qty	Cumulated volume of regulated market trades done in Auction phase since the start of the current trading session (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	116
On book Continuous Cumul Qty	Cumulated volume of regulated market trades done in Continuous phase since the start of the current trading session (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	117
On and Off Book Cumul Qty	Cumulated volume of on-book and off-book trades since the start of the current trading session (to be calculated with the Quantity Decimals).	Quantity	8	From 0 to 2^64-2	Optional	116
Percentage Var from Prev Close	Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals).	Numerical	8	From -2^63-1 to 2^63-1	Mandatory	122
Variation Last Price	Percentage variation of last price/last reference price with previous price.	Quantity	8	From -2^31-1 to 2^31-1	Mandatory	143
Last Traded Price	The Last Traded Price indicates the price of last fill on an instrument (to be calculated with the Price/Index Decimals).	Price	8	From -2^63-1 to 2^63-1	Mandatory	96
Open Price	Opening Price of the instrument (to be calculated with the Price/Index Level Decimals).	Price	8	From 0 to 2^64-2	Optional	117
Trade Count	The number of trades done intra-day on the instrument.	Numerical	4	From 0 to 2^32-2	Mandatory	137

FIELD DESCRIPTION

A

Amount Decimals

Field Name	Amount Decimals
Description	Indicates the number of decimals for each Amount related to this Symbol Index
Used For	Cash and Derivatives
Format	Decimal Places
Length	1
Possible Values	From 0 to 2^8-2
Used In	Standing Data (1007) Strategy Standing Data (1012) Contract Standing Data (1013)

Available Wholesale Trade Type

Field Name	Available Wholesale Trade Type
Description	Wholesale trade type supported by the trading host. For Phase 1 and 2 this has to be considered with the field WholesaleTradeType from the New Order Cross message in CCG: 0 - Large in Scale Trade (Formerly Block Trade) is the value '1' in WholesaleTradeType 1 - Basis Trade is the value '2' in WholesaleTradeType 2 - Against Actual is the value '3' in WholesaleTradeType 3 - Asset Allocation is the value '4' in WholesaleTradeType 4 - Large In Scale Package Trade is the value '5' in WholesaleTradeType 5 - Guaranteed Cross Trade is the value '6' in WholesaleTradeType 6 - Exchange For Swap is the value '7' in WholesaleTradeType 7 - Request For Cross is the value '9' in WholesaleTradeType
Used For	Derivatives
Format	Bitmap
Length	4
Possible Values	0 Large in Scale Trade (Formerly Block Trade) 1 Basis Trade 2 Against Actual 3 Asset Allocation 4 Large In Scale Package Trade (former Prof Trade) 5 Guaranteed Cross Trade 6 Exchange For Swap 7 Request For Cross
Used In	Contract Standing Data (1013)

B

Block Length

Field Name	Block Length
Description	Length of the block. The Block is the message without the repeating sections. This is especially useful for new message versions in the case Exchange adds fields at the end of the block. Clients will remain able to process the block fields and know where the repeating sections starts.
Used For	Cash and Derivatives
Format	Numerical
Length	2
Possible Values	From 0 to 2^16-2
Used In	SBE Header

Block Trade Code

Field Name	Block Trade Code
Description	Indicates if trade relates to a block or a negotiated deal following MiFID rules.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	B Block Trade N Regular trade or Negotiated deal - (Hyphen) Undefined
Used In	Full Trade Information (1004)

C

CFI

Field Name	CFI
Description	Classification code of a financial instrument defined by the ISO-10962 standard. The structure of the CFI code: The CFI reflects characteristics that are defined when a financial instrument is issued, and remain unchanged during its entire lifetime. The CFI consists of six alphabetical characters. The first character indicates the highest level of classification (Categories): - 'E' – Equities - 'D' – Debt instruments - 'R' – Entitlements (Rights) - 'O' – Options - 'F' – Futures - 'M' – Others/Miscellaneous The second character indicates specific groups within each category: Groups, for example, for equities: - Shares - Preferred shares

	- Convertible preferred shares - Units, i.e. unit trusts/mutual funds etc. - Others The four last characters indicate the most important attributes applicable to each group: whereas voting rights, restrictions, payment status and form are useful information in Equities, these features do not exist for Options, which have other attributes (underlying instruments, type of scheme, delivery, standardized/non-standardized). In Equities, Debt instruments and Entitlements, the sixth (last) character indicates the form of the instrument. If the information is not available or applicable at the time of assignment, the code "X" is to be used for the respective element, i.e. X = not applicable, unknown, not available.
Used For	Cash and Derivatives
Format	Text
Length	6
Possible Values	(See field description)
Used In	Standing Data (1007) Outright Standing Data (1014)

Channel ID

Field Name	Channel ID
Description	Identifies the channel. A Bitmap in little-endian giving: - Bits 0 to 2: are channel identifier. - Bit 3: is a MDG identifier. - Bit 4: defines if it is Real-Time feed (1 or 3) or Snapshot feed (2 and 4).
Used For	Cash and Derivatives
Format	Numerical
Length	2
Possible Values	From 0 to 2^16-2
Used In	Market Data Packet Header

Closing Reference Level

Field Name	Closing Reference Level
Description	Reference closing index level. This level corresponds to the Index Level Type 4 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Index Summary (1011)

Closing Reference Time

Field Name	Closing Reference Time
Description	Time of provisional closing reference index level (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash

Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Index Summary (1011)

Confirmed Reference Level

Field Name	Confirmed Reference Level
Description	Confirmed Reference level. This level corresponds to the index Level Type 8 of the message Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Index Summary (1011)

Confirmed Reference Time

Field Name	Confirmed Reference Time
Description	Time of (Confirmed) Reference level. See chapter on Timestamps (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Index Summary (1011)

Contract Event Date

Field Name	Contract Event Date
Description	Date of the last modification of the characteristics of the contract except for some exception. The following exceptions (since they are modified every day) are not updating the Event Date and allow members to know when a change occurs on instrument characteristics: - Previous day's adjusted closing price (LastAdjPrice) - Previous day capital traded (Prev Day Capital Traded) - Number of shares for this instrument traded on previous day (Previous Volume Traded) - Date instrument last traded (DateOfLastTrade) (in number of days since the 1st of January 1970).
Used For	Derivatives
Format	Date
Length	2
Possible Values	From 0 to 2^16-2
Used In	Contract Standing Data (1013)

Contract Name

Field Name	Contract Name
Description	Contract Name
Used For	Derivatives
Format	Text
Length	60
Possible Values	(See field description)
Used In	Contract Standing Data (1013)

Contract Symbol Index

Field Name	Contract Symbol Index
Description	Identifies the contract of this instrument by its Symbol Index.
Used For	Derivatives
Format	Numerical ID
Length	4
Possible Values	From 0 to 2^32-2
Used In	Outright Standing Data (1014)

Contract Trading Type

Field Name	Contract Trading Type
Description	Contract Trading Type.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	1 Traded as an outright 2 Not traded, but listed in contract data. Traders may subscribe to it 3 Traded as a simple inter-commodity spread 4 Traded as an inter-commodity spread
Used In	Contract Standing Data (1013)

Contract Type

Field Name	Contract Type
Description	Generic Contract Type.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	F Future O Option
Used In	Contract Standing Data (1013)

Country Of Exchange

Field Name	Country Of Exchange
Description	Country of exchange
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Standing Data (1007) Contract Standing Data (1013)

Currency Coefficient

Field Name	Currency Coefficient
Description	When an actual price is displayed in a different 'price expression' than the official instrument trading currency, the Currency Coefficient represents the ratio 'price expression' divided by 'official currency' (To be calculated with Ratio / Multiplier Decimals). For example a UK-listed instrument with its trading currency GBP having a price expressed in Pence -, the CurrencyCoefficient will be 0.01. The Currency Coefficient may be used for the Instrument Trading Price (the Referential field Trading Currency Indicator is then set to 1), and/or for the Derivatives and Warrants Instrument Strike Price (the Referential field Strike Currency Indicator is then set to 1).
Used For	Cash
Format	Numerical ID
Length	4
Possible Values	From 0 to 2^32-2
Used In	Full Trade Information (1004) Standing Data (1007)

D

Daily High

Field Name	Daily High
Description	Highest traded price for the current trading day (to be calculated with the Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

Daily Low

Field Name	Daily Low
Description	Lowest traded price for the current trading day (to be calculated with the Price/Index Level Decimals).

Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

Dark Eligibility

Field Name	Dark Eligibility
Description	Indicates the Eligibility to dark. 0 is not eligible, 1 is eligible.
Used For	Cash
Format	Boolean
Length	1
Possible Values	0 False 1 True
Used In	Standing Data (1007)

Dark LIS Threshold

Field Name	Dark LIS Threshold
Description	Define the minimum amount of an order to benefit from the LIS (Large In Scale) pre-transparency waiver.
Used For	Cash
Format	Amount
Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007)

Dark Minimum Quantity

Field Name	Dark Minimum Quantity
Description	Define the minimum quantity required for an order to be filled in the Dark liquidity. 0 indicates that no minimum amount is required.
Used For	Cash
Format	Quantity
Length	4
Possible Values	From 0 to 2^32-2
Used In	Standing Data (1007)

Date Of Last Trade

Field Name	Date Of Last Trade
Description	Date of the Last Price for the Instrument (in number of days since the 1st of January 1970).
Used For	Cash
Format	Date
Length	2

Possible Values	From 0 to 2^16-2
Used In	Standing Data (1007)

Delta Protect for MM

Field Name	Delta Protect for MM
Description	Delta Protection for Market Makers Level.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	0 Protection for Market Makers enabled at a contract level 1 Protection for Market Makers enabled at a contract and expiry level.
Used In	Contract Standing Data (1013)

Depositary List

Field Name	Depositary List
Description	Identifies the possible main depository organizations (maximum four) for the shares or fixed incomes for an instrument. Used the clearing house to determine the relevant system for settling trades. Valid values are: - '00001' – Euroclear France - '00002' – CIK (Belgium) - '00003' – NECIGEF (the Netherlands) - '00004' – X/N (RMF system) - '00005' – VIF (non-fungible Belgian instruments) - '00006' – Euroclear Bank - '00007' – NIEC - '00008' – Physical - '00009' – Euronext Paris non Euroclear France - '00010' – Interbolsa - '00000' – No depository organization - Nulls – Not significant
Used For	Cash
Format	Text
Length	20
Possible Values	(See field description)
Used In	Standing Data (1007)

E

Effective Date Indicator

Field Name	Effective Date Indicator
Description	Indicates if the trade is introduced on the trading session day or earlier.
Used For	Cash and Derivatives

Format	Enumerated
Length	1
Possible Values	0 If the seller declaration is received on the current trading session day 1 If seller declaration is received before the current trading session day
Used In	Full Trade Information (1004)

EMM

Field Name	EMM
Description	Defines the Exchange Market Mechanism applied on each platform.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Cash and Derivative Central Order Book (COB) 2 NAV Trading Facility 3 Primary Market 4 Derivative Wholesales 5 Cash On Exchange Off book 6 Euronext off-exchange trade reports 7 Derivative On Exchange Off book 50 Societe Generale Systematic Internaliser (SI) 254 Not Applicable (For indices and iNAV)
Used In	Market Update (1001) Order Update (1002) Price Update (1003) Full Trade Information (1004) Market Status Change (1005) Timetable (1006) Standing Data (1007) Real Time Index (1008) Statistics (1009) Exchange Announcement (1010) Index Summary (1011) Strategy Standing Data (1012) Outright Standing Data (1014) Trade Retransmission Start (1104) Trade Retransmission End (1105) Snapshot Statistics (2009)

End Time Vwap

Field Name	End Time Vwap
Description	End time for the Volume Weight Average price computation period (Number of seconds since the beginning of the day).
Used For	Cash Only
Format	Timestamp
Length	4
Possible Values	From 0 to 2^32-2
Used In	Full Trade Information (1004)

Event Time

Field Name	Event Time
Description	Time when an event has been processed (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash and Derivatives
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Market Update (1001) Order Update (1002) Price Update (1003) Full Trade Information (1004) Market Status Change (1005) Real Time Index (1008) Exchange Announcement (1010) Index Summary (1011) Health Status (1103)

Exchange Code

Field Name	Exchange Code
Description	Indicates the Market Place.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	A Amsterdam Equity Derivatives B Brussels Equity Derivatives C Paris Equity Underlyings D Brussels Cash Underlyings F Brussels Index Derivatives G Amsterdam Cash Underlyings H Lisbon Cash Underlyings J Paris Index Derivatives K Amsterdam Index Derivatives M Lisbon Index Derivatives P Paris Equity Derivatives R Amsterdam Commodities Derivatives S Lisbon Equity Derivatives Y Paris Commodities Derivatives Z Amsterdam Currency Derivatives
Used In	Strategy Standing Data (1012) Contract Standing Data (1013)

Exercise Style

Field Name	Exercise Style
Description	Type of exercise of a derivatives instrument

Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	0 European 1 American
Used In	Contract Standing Data (1013)

F

First Settlement Date

Field Name	First Settlement Date
Description	Represents the first possible settlement date for a given instrument with the instrument depository. When this date is not provided, it means that the first possible settlement date is the same as the instrument flotation date. This item is provided solely for Amsterdam-listed instruments of the type As If and When Issued. In other words, it is provided solely for new issues for which the first settlement date is a considerable length of time in the future, or is still not known even though it is already possible to trade the instrument. As long as the date remains unknown, this is a fictitious date that must be modified as soon as the real date is known. In terms of instrument types, the instrument can be either a Fix Income or a warrant. This item is determined as follows. If the marketplace = 038 (Amsterdam), then: - If the instrument is a Fix Income, the first possible settlement date is the settlement date for the issue price if this item is not set to zero. - If the instrument is a warrant, the first possible settlement date is the settlement date for the issue price (taken from the Warrant Characteristics message) if this item is not set to zero. In all other cases, this item is not provided. Used by the clearing house in the rule for determining the theoretical settlement date for a trade. Possible values are: - Nulls – If not provided - '20111111' is the value date used for Dutch warrants for which the settlement date is unknown at the time the instrument is floated.(in number of days since the 1st of January 1970).
Used For	Cash
Format	Date
Length	2
Possible Values	From 0 to 2^16-2
Used In	Standing Data (1007)

Fix Price Tick

Field Name	Fix Price Tick
Description	Indicates the amount of the fixed tick size (to be calculated with Price/Index Level Decimals). Provided only for tradable instruments.
Used For	Cash
Format	Price
Length	4
Possible Values	From 0 to 2^32-2
Used In	Standing Data (1007)

Flex Indicator

Field Name	Flex Indicator
Description	Indicates whether a derivatives instrument can be defined using flexible terms, or not.
Used For	Derivatives
Format	Boolean
Length	1
Possible Values	0 False 1 True
Used In	Contract Standing Data (1013)

Frame

Field Name	Frame
Description	Is the total length of the message including the Frame, SBE header and message content.
Used For	Cash and Derivatives
Format	Numerical ID
Length	2
Possible Values	From 0 to 2^16-2
Used In	Frame

Full Instrument Name

Field Name	Full Instrument Name
Description	Full Instrument Name.
Used For	Cash
Format	Text
Length	102
Possible Values	(See field description)
Used In	Standing Data (1007)

G

Guarantee Indicator

Field Name	Guarantee Indicator
Description	Indicates if the trade is guaranteed or not (for clearing issues)
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Any trade executed on this instrument will be cleared but not Guaranteed by a Clearing House 1 Any trade executed on this instrument will be cleared and Guaranteed by a Clearing House 2 Any trade executed on this instrument is not clearable by a Clearing House 8 In case of lending and borrowing instrument
Used In	Standing Data (1007)

H

High Level

Field Name	High Level
Description	Highest index level (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Index Summary (1011)

High Time

Field Name	High Time
Description	Time of provisional highest index level (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Index Summary (1011)

I

ICB

Field Name	ICB
Description	Identifies for a listed instrument, the economic subsector of the issuing company in the ICB (Industry Classification Benchmark) classification.
Used For	Cash
Format	Alphanumerical ID
Length	16
Possible Values	(See field description)
Used In	Standing Data (1007)

Imbalance Quantity

Field Name	Imbalance Quantity
Description	Imbalance volume quantity if Uncrossing occurs at this moment. This volume includes hidden quantity (to be calculated with Quantity Decimals).
Used For	Cash
Format	Quantity

Length	8
Possible Values	From 0 to 2^64-2
Used In	Price Update (1003)

Imbalance Quantity Side

Field Name	Imbalance Quantity Side
Description	Side of the imbalance volume if the Uncrossing occurs at this moment.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 No imbalance 1 Buy 2 Sell
Used In	Price Update (1003)

Index Level

Field Name	Index Level
Description	The value of the last level for the index that is the subject of this message (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Real Time Index (1008)

Index Level Type

Field Name	Index Level Type
Description	Type of Index Level.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Indicative Index 1 Official Opening Index 2 Real-Time Index 3 Automatic Indicative Index 4 (Preliminary) Reference Index 5 Closing Reference Index 6 (Confirmed) Reference Index 7 Options Liquidation Index
Used In	Real Time Index (1008)

Index Price Code

Field Name	Index Price Code
Description	Type of Price as positioned in Session High/Low or to indicate the trend or at the contrary the reference value from which the price may change.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Only Index 1 Index and Session High 2 Index and Session Low 3 Index and Session High and Low (typically first price) 4 Only Session High 5 Only Session Low 6 Previous Day Close
Used In	Real Time Index (1008)

Instrument Event Date

Field Name	Instrument Event Date
Description	Date of the last modification of the characteristics of the instrument except for some exception. The following exceptions (since they are modified every day) are not updating the Event Date and allow members to know when a change occurs on instrument characteristics: - Previous day's adjusted closing price (LastAdjPrice) - Previous day capital traded (Prev Day Capital Traded) - Number of shares for this instrument traded on previous day (Previous Volume Traded) - Date instrument last traded (DateOfLastTrade) (in number of days since the 1st of January 1970).
Used For	Cash and Derivatives
Format	Date
Length	2
Possible Values	From 0 to 2^16-2
Used In	Standing Data (1007) Outright Standing Data (1014)

Instrument Group Code

Field Name	Instrument Group Code
Description	Instrument Group / Class Identifier.
Used For	Cash
Format	Alphanumerical ID
Length	2
Possible Values	(See field description)
Used In	Standing Data (1007)

Instrument Name

Field Name	Instrument Name
Description	Instrument Name
Used For	Cash and Derivatives
Format	Text
Length	18
Possible Values	(See field description)
Used In	Standing Data (1007)

Instrument Numerator EDSP

Field Name	Instrument Numerator EDSP
Description	Instrument Numerator EDSP (filled with Null value for exchanges “C”, “G”, “D”, “H” to indicate that it is not assigned).
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

Instrument Numerator Settlement

Field Name	Instrument Numerator Settlement
Description	Instrument Numerator Settlement.
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

Instrument State

Field Name	Instrument State
Description	Instrument State.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Inaccessible 2 Closed 3 Call 4 Uncrossing 5 Continuous 6 Halted (used in Market Status Change message only)
Used In	Market Status Change (1005) Timetable (1006)

Instrument Trading Code

Field Name	Instrument Trading Code
Description	Is the AMR code on derivatives and the Trading Code on cash. Cash: Trading code is a 12-character string, the only instrument identifier that is unique in the feed in addition to the symbol index. Derivatives: The AMR code is a 15-character string, allocated by the trading engine. It is unique per instrument.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	15
Possible Values	(See field description)
Used In	Standing Data (1007) Outright Standing Data (1014)

Instrument Unit Expression

Field Name	Instrument Unit Expression
Description	Unit in which the instrument is quoted.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	1 Units 2 Percentage of Nominal Excluding Accrued Interest (Clean) 5 Percentage of Nominal Including Accrued Interest (Dirty) 8 Kilograms 9 Ounces
Used In	Standing Data (1007)

ISIN Code

Field Name	ISIN Code
Description	Instrument ISIN following ISO 6166. Identifier of a product. Combined with MIC and Currency, identifies an instrument traded on a given market using a given currency.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	12
Possible Values	(See field description)
Used In	Standing Data (1007) Outright Standing Data (1014)

Issuing Country

Field Name	Issuing Country

Description	Issuing country. Provides the ISO 4217 (3A) code for the country of location for the corporate headquarters of the company that issued the instrument.
Used For	Cash
Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Standing Data (1007)

L

Last Adjusted Closing Price

Field Name	Last Adjusted Closing Price
Description	Last traded price of the previous trading day after application of the adjustment coefficient (to be calculated with the Price/Index Level Decimals). Not provided for European instruments.
Used For	Cash
Format	Price
Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007)

Last Market Data Sequence Number

Field Name	Last Market Data Sequence Number
Description	Indicates the Market Data Message Sequence Number of the last real-time message processed for this snapshot.
Used For	Cash and Derivatives
Format	Sequence
Length	8
Possible Values	From 0 to 2^64-2
Used In	Start Of Snapshot (2101) End Of Snapshot (2102)

Last Traded Price

Field Name	Last Traded Price
Description	The Last Traded Price indicates the price of last fill on an instrument (to be calculated with the Price/Index Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

Last Trading Date

Field Name	Last Trading Date
Description	Last available trading date for the instrument (in number of days since the 1st of January 1970).
Used For	Derivatives
Format	Date
Length	2
Possible Values	From 0 to 2^16-2
Used In	Outright Standing Data (1014)

Leg Buy or Sell

Field Name	Leg Buy or Sell
Description	Leg Side.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	B Buy S Sell
Used In	Strategy Standing Data (1012)

Leg Price

Field Name	Leg Price
Description	Price of underlying leg for a delta neutral strategy (to be calculated with the Price/Index Level Decimals).
Used For	Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Strategy Standing Data (1012)

Leg Ratio

Field Name	Leg Ratio
Description	Ratio of lots for the leg. For contingent trades, the delta (to be calculated with the Amount Decimals).
Used For	Derivatives
Format	Quantity
Length	4
Possible Values	From 0 to 2^32-2
Used In	Strategy Standing Data (1012)

Leg Symbol Index

Field Name	Leg Symbol Index
Description	MDG proprietary identification code of the instrument' leg for the strategy.

	This identifier is unique per triplet: MIC, ISIN and currency. Once the instrument is expired its number can be used for a new instrument.
Used For	Derivatives
Format	Numerical ID
Length	4
Possible Values	From 0 to 2^32-2
Used In	Strategy Standing Data (1012)

Lifetime High

Field Name	Lifetime High
Description	Highest traded price for the lifetime of the instrument for booked trades only (to be calculated with the Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

Lifetime Low

Field Name	Lifetime Low
Description	Lowest traded price for the lifetime of the instrument for booked trades only (to be calculated with the Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

Liquidation Level

Field Name	Liquidation Level
Description	Index Level of reference at expiration settlement (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Index Summary (1011)

Liquidation Time

Field Name	Liquidation Time
Description	Time of provisional expiration settlement index level (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash

Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Index Summary (1011)

Lot Size

Field Name	Lot Size
Description	Expressed in number of shares or in an amount or a volume of the capital, of the lot size. The lot size is a minimum tradable quantity that is set for each instrument by the Exchange (to be calculated with the Quantity Decimals). The quantity of an order entered by a trading member on the market must be a multiple of the lot size. This number is also called the "Quotité de Marché" (Minimum market tradable quantity). For fixed income, this data has to be considered with the data “Amount of par value for instrument for calculating trade amount”. This item is calculated in the following way: For Brussels-listed fixed incomes that are quoted in %: - If 1 ≤ market par value ≤99 999 999, then the Instrument Lot Size is the integer part of the market nominal (and, moreover, the lot size and the par value for trade amount are set to 1). For Amsterdam-listed fixed income quoted in %: - If 1≤ initial par value ≤ 99 999 999, then the Instrument Lot Size is the integer part of the initial nominal (and, moreover, the lot size and the par value for trade amount are set to 1). For Lisbon-listed fixed incomes quoted in %: - If 1≤ market par value ≤ 99 999 999, then the Instrument Lot Size is the integer part of the market nominal (and, moreover, the lot size and the par value for trade amount are set to 1). - If the market par value is not an integer, until 4 decimals the Instrument Lot Size is set to an integer multiple of the market par value (and, moreover, the par value for trade amount is set to 1). Over for decimals the number is rounded to 4 decimals. Note: Only integer values that are equal to or greater than one are accepted until the Exchange systems have been adapted for using quantities expressed as a par value amount (Decimalization project).
Used For	Cash and Derivatives
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007) Outright Standing Data (1014)

Low Level

Field Name	Low Level
Description	Lowest index level (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1

Used In	Index Summary (1011)

Low Time

Field Name	Low Time
Description	Time of provisional lowest index level (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Index Summary (1011)

M

Main Depositary

Field Name	Main Depositary
Description	Identifies the default (or main) depository organization of the instrument (between the possible 4 depositaries registered) used by priority for the settlement (for example: multi-listed instruments which have several depositories). For Cash Markets this data has to be treated in consideration of the data Depositary List. Used by the clearing house to determine the relevant system for settling trades. Valid values are the same as for "Depositary List".
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	5
Possible Values	(See field description)
Used In	Standing Data (1007) Contract Standing Data (1013)

Market Data Action Type

Field Name	Market Data Action Type
Description	Identifies if the order is a New Order, a Deletion, a Modification or a Retransmission.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	1 New Order 2 Deletion of order identified by Order Reference Number 3 Deletion of all orders for the given instrument (depending on the side. If side is not provided, it means both) 4 Modification of existing order 5 Retransmission of all orders for the given instrument
Used In	Order Update (1002)

Market Data Change Type

Field Name	Market Data Change Type
Description	Type of scheduled change.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	0 Status Change(s) 1 Scheduled Event Notification 2 Status Change(s) and Scheduled Event Notification
Used In	Market Status Change (1005)

Market Data Price Type

Field Name	Market Data Price Type
Description	Type of price update (note: 1 to 9 are settlement price type).
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Provisional Daily (Derivatives Only) 2 Official Daily (Derivatives Only) 3 Provisional Market Close (Derivatives Only) 4 Official Market Close (Derivatives Only) 5 Provisional Expiry (Derivatives Only) 6 Official Expiry (Derivatives Only) 7 Provisional Intraday (Derivatives Only) 8 Official Intraday (Derivatives Only) 9 Official YDSP (Derivatives Only) 10 Net Asset Value (+/-) for the instruments eligible to the NAV Trading Facility (Cash Only) 11 New Last Price (Cash Only) 12 Adjusted Closing Price (Cash Only) 13 Subscription Price (Cash Only) 14 Indicative Matching Price (Cash and Derivatives) 19 Min Price Out of Session Trades (Cash Only) 20 Max Price Out of Session Trades (Cash Only) 21 Min Price Out of Session Block Trades (Cash Only) 22 Max Price Out of Session Block Trades (Cash Only) 23 Valuation Price (Cash Only) 24 Fund Subscription (Cash Only) 25 Fund Redemption (Cash Only) 26 Uncrossing Price (Cash and Derivatives) 27 Last Traded Price (Cash and Derivatives) 28 Alternative Indicative Price (AIP) (Cash Only)
Used In	Price Update (1003)

Market Data Sequence Number

Field Name	Market Data Sequence Number
Description	Assigned by MDG for each message. Each channel has its own Market Data Sequence Number sequence.

	This sequence will always increment but not by 1 during the day, except for "Health Status" messages that will contain the Market Data Sequence Number of the last message (that is not a "Health Status" message) sent on the channel.
Used For	Cash and Derivatives
Format	Sequence
Length	8
Possible Values	From 0 to 2^64-2
Used In	Market Update (1001) Order Update (1002) Price Update (1003) Full Trade Information (1004) Market Status Change (1005) Timetable (1006) Standing Data (1007) Real Time Index (1008) Statistics (1009) Exchange Announcement (1010) Index Summary (1011) Strategy Standing Data (1012) Contract Standing Data (1013) Outright Standing Data (1014) Start Of Day (1101) End Of Day (1102) Health Status (1103) Trade Retransmission Start (1104) Trade Retransmission End (1105) Snapshot Statistics (2009)

Market Data Update Type

Field Name	Market Data Update Type
Description	Type of market data update.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Best Bid (Cash and Derivatives) 2 Best Offer (Cash and Derivatives) 3 New Bid (Cash and Derivatives) 4 New Offer (Cash and Derivatives) 5 Updated Bid (Cash and Derivatives) 6 Updated Offer (Cash and Derivatives) 7 Total Traded Volume (Derivatives Only) 8 Implied Bid (Derivatives Only) 9 Implied Offer (Derivatives Only) 10 Request for Quote (Cash and Derivatives) 11 Request for Quote Bid (Cash) 12 Request for Size (Cash) 13 Request for Quote Offer (Cash) 14 High Dynamic Collar (Cash Only) 15 Low Dynamic Collar (Cash Only) 16 New Bid RLP (Retail Liquidity Provider) (Cash Only)

	17	New Offer RLP (Retail Liquidity Provider) (Cash Only)
	18	Updated Bid RLP Retail Liquidity Provider) (Cash Only)
	19	Updated Offer RLP (Retail Liquidity Provider) (Cash Only)
	20	New Bid SI (Cash Only)
	21	New Offer SI (Cash Only)
	22	Updated Bid SI (Cash Only)
	23	Updated Offer SI (Cash Only)
	24	Conventional Trade (Cash and Derivatives)
	25	Request for Cross (RFC) Queued (Derivatives Only)
	26	Request for Cross (RFC) (Derivatives Only)
	27	Large in Scale (LiS) Trade (Derivatives Only)
	28	Basis Trade (Derivatives Only)
	29	Large in Scale (LiS) Package Trade (Derivatives Only)
	30	Guaranteed Cross Trade (Cash and Derivatives)
	31	Against Actual Trade (Derivatives Only)
	32	Asset Allocation Trade (Derivatives Only)
	34	Exchange for Swap Trade (Derivatives Only)
	35	Dark Trade (Cash Only)
	36	Exchange for Physical Trade - Cash Leg (Derivatives Only)
	37	Strategy Leg Conventional Trade (Derivatives Only)
	38	Strategy Leg Large in Scale (LiS) Trade (Derivatives Only)
	39	Strategy Leg Basis Trade (Derivatives Only)
	40	Strategy Leg Guaranteed Cross Trade (Derivatives Only)
	41	Strategy Leg Against Actual Trade (Derivatives Only)
	42	Strategy Leg Asset Allocation Trade (Derivatives Only)
	44	Strategy Leg Exchange For Swap Trade (Derivatives Only)
	45	Strategy Leg Exchange For Physical Trade (Derivatives Only)
	46	RMF Trade (Cash Only)
	47	SI Trade (Cash Only)
	48	AtomX Trade (Derivatives Only)
	50	Trade Cancellation (Cash and Derivatives)
	51	Out of Market Trade (Cash Only)
	52	Delta Neutral Trade - Underlying Cash Leg (Cash Only)
	53	Delta Neutral Trade - Underlying Future Leg (Derivatives Only)
	54	Euronext Fund Service Trade (Cash Only)
	55	Secondary Listing Trade (Cash Only)
	56	Request for Cross Trade (Derivatives Only)
	57	Request for Cross Strategy Leg Trade (Derivatives Only)
	58	New Bid With Liquidity Provider (Cash Only)
	59	New Offer With Liquidity Provider (Cash Only)
	60	Updated Bid With Liquidity Provider (Cash Only)
	61	Updated Offer With Liquidity Provider (Cash Only)
	62	Hidden Quantity Trade (Cash Only)
	63	Low Static Collar (Cash Only)
	64	High Static Collar (Cash Only)
	65	Market VWAP Operation Trade
	66	Request for Size Bid(Cash)
	67	Request for Size Ask(Cash)
	254	Clear Book (Cash and Derivatives)
Used In	Market Update (1001)	

Maturity Date

Field Name	Maturity Date
Description	Maturity Date of the instrument (text formatted as YYYYMMDD). For contracts with one expiry per month the day component may be "00" (text formatted as YYYYMMDD). For AtomX instruments this field contains the exact expiry date. For repo it represents the inclusive date until which a lending/borrowing contract can be traded.
Used For	Cash and Derivatives
Format	Text
Length	8
Possible Values	(See field description)
Used In	Standing Data (1007) Strategy Standing Data (1012) Outright Standing Data (1014)

Maximum Decimals In Quantity

Field Name	Maximum Decimals In Quantity
Description	Maximum Decimals In Quantity was introduced for Euronext Fund Services Paris and indicates the maximum of relevant decimal number for trading.
Used For	Cash
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Standing Data (1007)

Message Content

Field Name	Message Content
Description	Content of the Exchange Announcement in UTF-8. All line breaks and special characters are the ones specified in Unicode.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	900
Possible Values	(See field description)
Used In	Exchange Announcement (1010)

Message Number

Field Name	Message Number
Description	Indicates the message number in case the Exchange Announcement is split into several messages. Clients will be able to rebuild the original Exchange Announcement by ordering the different messages with their Message Number.
Used For	Cash and Derivatives
Format	Numerical ID
Length	1
Possible Values	From 0 to 2^8-2

Used In	Exchange Announcement (1010)

Message Title

Field Name	Message Title
Description	Exchange Announcement Title.
Used For	Cash and Derivatives
Format	Text
Length	90
Possible Values	(See field description)
Used In	Exchange Announcement (1010)

MIC

Field Name	MIC
Description	Identifies the market to which an instrument belongs by its MIC (Market Identification Code), according to ISO 10383. Euronext owns the following MICs: - 'ALXA' – ALTERNEXT AMSTERDAM - 'ALXB' – ALTERNEXT BRUSSELS - 'ALXP' – ALTERNEXT PARIS - 'EMTF' – EURO MTF - 'ENXB' – EASYNEXT BRUSSELS - 'ENXL' – EASYNEXT LISBON - 'MLXB' - MARCHE LIBRE BRUSSELS - 'TNLA' – TRADED BUT NOT LISTED AMSTERDAM - 'TNLB' – EURONEXT – TRADING FACILITY BRUSSELS - 'VPXB' - EURONEXT - VENTES PUBLIQUES BRUSSELS - 'WQXL' – MARKET WITHOUT QUOTATIONS LISBON - 'XAMS' – EURONEXT AMSTERDAM - 'XBRU' – EURONEXT BRUSSELS - 'XLIS' – EURONEXT LISBON - 'XLDN' – EURONEXT LONDON - 'XLUX' – LUXEMBOURG STOCK EXCHANGE - 'XMLI' – MARCHE LIBRE PARIS - 'XPAR' – EURONEXT PARIS
Used For	Cash
Format	Alphanumerical ID
Length	4
Possible Values	(See field description)
Used In	Standing Data (1007) Contract Standing Data (1013)

MIC List

Field Name	MIC List
Description	Identifies the Euronext markets on which an instrument is listed by its MIC (Market Identification Code). For an instrument listed on a single Euronext market, the listing MIC code is the same than “Market

	Identification Code (MIC) of the listed instrument" For an instrument listed on several Euronext Markets: - The first MIC is the same than the "Market Identification Code (MIC) of the listed instrument - The others MIC indicate the other listing places
Used For	Cash
Format	Alphanumerical ID
Length	20
Possible Values	(See field description)
Used In	Standing Data (1007)

MiFID Clearing Flag

Field Name	MiFID Clearing Flag
Description	Code to identify whether the transaction will be cleared. - 'true': Transaction to be cleared. - 'false': Transaction not to be cleared.
Used For	Cash and Derivatives
Format	Text
Length	5
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Currency

Field Name	MiFID Currency
Description	Currency in which the price is expressed (applicable if the price is expressed as monetary value) following ISO 4217 standard.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Execution ID

Field Name	MiFID Execution ID
Description	MiFID Transaction Identification Code is composed of the Symbol Index, the EMM and the Execution ID. It is a unique Execution ID by instrument per day on the different available EMM.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	52
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Instrument ID

Field Name	MiFID Instrument ID

Description	Code used to identify the financial instrument. This code has to be processed with the MiFID Instrument ID Type.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	12
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Instrument ID Type

Field Name	MiFID Instrument ID Type
Description	Code type used to identify the financial instrument. Possible values: - 'ISIN' = ISIN code, where ISIN is available. - 'OTHR' = other identifier.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Notional Amount

Field Name	MiFID Notional Amount
Description	Nominal amount or notional amount For spread bets, the notional amount shall be the monetary value wagered per point movement in the underlying financial instrument. For credit default swaps, it shall be the notional amount for which the protection is acquired or disposed of. Possible values: - Maximum of 18 digits with a maximum of 5 decimals. Note 1: Decimal separator is '.' (full stop). Note 2: On the left of the value, it will be completed with '0'(zero) to fill the 20 characters long of the field.
Used For	Cash and Derivatives
Format	Text
Length	20
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Price

Field Name	MiFID Price
Description	Traded price of the transaction excluding, where applicable, commission and accrued interest. Where price is reported in monetary terms, it shall be provided in the major currency unit. Where price is currently not available but pending, the value should be 'PNDG'. Where price is not applicable the field shall not be populated.

	Possible values: - For price expressed as monetary value: maximum of 18 digits with a maximum of 13 decimals. - For price expressed as percentage or yield: maximum of 11 digits with a maximum of 10 decimals. - For not available price (only for derivatives): 'PNDG'. Note 1: Decimal separator is '.' (full stop). Note 2: Negative numbers are prefixed with '-' (minus). Note 3: Where applicable, values shall be rounded and not truncated. Note 4: On the left of the value, it will be completed with '0'(zero) to fill the 20 characters long of the field.
Used For	Cash and Derivatives
Format	Text
Length	20
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Price Notation

Field Name	MiFID Price Notation
Description	Indicates if the price or the strike price is expressed in: monetary, percentage or yield. Possible values: - MONE: monetary value. - PERC: percentage. - YIEL: yield.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Qty in Measurement Unit Notation

Field Name	MiFID Qty in Measurement Unit Notation
Description	Indicates the measurement units in which the quantity in measurement unit is expressed. Possible values: - For Tons of Carbon Dioxide: TOCD. - Otherwise: 25 characters long.
Used For	Cash and Derivatives
Format	Text
Length	25
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Quantity

Field Name	MiFID Quantity
Description	Number of units of the financial instrument. The nominal or monetary value of the financial instrument. Possible values: - For quantity expressed as number of units: maximum of 18 digits with a maximum of 17 decimals.

	- For quantity expressed as monetary or nominal value: maximum of 18 digits with a maximum of 5 decimals. Note 1: Decimal separator is '.' (full stop). Note 2: On the left of the value, it will be completed with '0'(zero) to fill the 20 characters long of the field.
Used For	Cash and Derivatives
Format	Text
Length	20
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MiFID Quantity Measurement Unit

Field Name	MiFID Quantity Measurement Unit
Description	The equivalent amount of commodity traded expressed in measurement unit. Possible values: - For quantity expressed as number of units: maximum of 18 digits with a maximum of 17 decimals. Note 1: Decimal separator is '.' (full stop). Note 2: On the left of the value, it will be completed with '0'(zero) to fill the 20 characters long of the field.
Used For	Cash and Derivatives
Format	Text
Length	20
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Minimum Quantity For Initiator

Field Name	Minimum Quantity For Initiator
Description	Wholesale RFC Minimum Quantity defines the minimum quantity required to submit an RFC as initiator. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.
Used For	Derivatives
Format	Quantity
Length	4
Possible Values	From 0 to 2^32-2
Used In	Contract Standing Data (1013)

Minimum Quantity For Reactor

Field Name	Minimum Quantity For Reactor
Description	Wholesale RFC Min Qty defines the minimum quantity required to submit a response to the RFC during the Improvement period. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.
Used For	Derivatives
Format	Quantity
Length	4
Possible Values	From 0 to 2^32-2
Used In	Contract Standing Data (1013)

MMT Agency Cross Trade Indicator

Field Name	MMT Agency Cross Trade Indicator
Description	Defines the agency cross trade indicator following MMT level 3.3. Possible values: - 'ACTX': Agency Cross Trade - '-': No Agency Cross Trade
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Algorithmic Indicator

Field Name	MMT Algorithmic Indicator
Description	Defines the algorithmic indicator following MMT level 3.9. Possible values: - 'ALGO': Algorithmic Trade - '-': No Algorithmic Trade
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Benchmark Indicator

Field Name	MMT Benchmark Indicator
Description	Defines the benchmark indicator or the reference price indicator following MMT level 3.5. Possible values: - 'BENC': Benchmark Trade - 'RFPT': Reference Price Trade - '-': No Benchmark or Reference Price Trade
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Contribution to Price

Field Name	MMT Contribution to Price
Description	Defines the contribution to price or the price discovery process following MMT level 3.8. Possible values: - 'P': Plain-Vanilla Trade - 'NPFT': Non-Price Forming Trade (formerly known as the Technical Trade)

	- 'TNCP': Trade not Contributing to the Price Discovery Process
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Duplicative Indicator

Field Name	MMT Duplicative Indicator
Description	Defines the duplicative indicator following MMT level 5. Possible values: - 'DUPL': Duplicative Trade Report (reported to more than one APA) - '-': Unique Trade Report
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Market Mechanism

Field Name	MMT Market Mechanism
Description	Defines the fundamental functional market mechanism that has facilitated the trade following MMT level 1.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Central Limit Order Book 2 Quote Driven Market 3 Dark Order Book 4 Off Book (including Voice or Messaging Trading) 5 Periodic Auction (= Uncrossing) 6 Request for Quotes
Used In	Full Trade Information (1004)

MMT Modification Indicator

Field Name	MMT Modification Indicator
Description	Defines the modification indicator following MMT level 3.4. Possible values: - 'CANC': Trade Cancellation - 'AMND': Trade Amendment - '-': New Trade
Used For	Cash and Derivatives
Format	Text
Length	4

Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Negotiation Indicator

Field Name	MMT Negotiation Indicator
Description	Defines the negotiation indicator or pre-trade transparency waiver following MMT level 3.2. Possible values: - 'N': Negotiated Trade - 'NLIQ': Negotiated Trade in Liquid Financial Instruments - 'OILQ': Negotiated Trade in Illiquid Financial Instruments - 'PRIC': Negotiated Trade Subject to Conditions Other Than The Current Market Price - '-': No Negotiated Trade
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Off Book Automated Indicator

Field Name	MMT Off Book Automated Indicator
Description	Defines the off book automated indicator following MMT level 3.7.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	M Off Book Non-Automated Q Off Book Automated - (Hyphen) Unspecified or does not apply
Used In	Full Trade Information (1004)

MMT Post Trade Deferral

Field Name	MMT Post Trade Deferral
Description	Defines the post trade deferral or enrichment type following MMT level 4.2. Possible values for the original trade: - 'LMTF': Limited Details Trade - 'DATF': Daily Aggregated Trade - 'VOLO': Volume Omission Trade - 'FWAF': Four Weeks Aggregation Trade - 'IDAF': Indefinite Aggregation Trade - 'VOLW': Volume Omission Trade, Eligible for Subsequent Enrichment in Aggregated Form Possible values for the subsequent enrichment trade: - 'FULF': Full Details of Earlier "Limited Details Trade (LMTF)" - 'FULA': Full Details of Earlier "Daily Aggregated Trade (DATF)" - 'FULV': Full Details of Earlier "Volume Omission Trade (VOLO)" - 'FULJ': Full Details of Earlier "Four Weeks Aggregation Trade (FWAF)" - 'COAF': Full Details in Aggregated Form of Earlier "Volume Omission Trade, Eligible for Subsequent

	Enrichment in Aggregated Form (VOLW)" Possible values if neither apply: - '-': Not Applicable / No Relevant Deferral or Enrichment Type
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Publication Mode

Field Name	MMT Publication Mode
Description	Defines the publication mode or post-trade deferral reason following MMT level 4.1. Possible values: - '-': Immediate Publication - '1': Non-Immediate Publication - 'LRGS': Non-Immediate Publication: Deferral for "Large in Scale" - 'ILQD': Non-Immediate Publication: Deferral for "Illiquid Instrument" - 'SIZE': Non-Immediate Publication: Deferral for "Size Specific"
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Special Dividend Indicator

Field Name	MMT Special Dividend Indicator
Description	Defines the special dividend indicator following MMT level 3.6. Possible values: - 'SDIV': Special Dividend Trade - '-': No Special Dividend Trade
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

MMT Trading Mode

Field Name	MMT Trading Mode
Description	Differentiates transactions by defining the trading mode under which the trade was executed following MMT level 2.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Undefined Auction (= Uncrossing)

	2 Continuous Trading 3 At Market Close Trading 4 Out of Main Session Trading 5 Trade Reporting (On Exchange) 6 Trade Reporting (Off Exchange) 7 Trade Reporting (Systematic Internaliser) I Scheduled Intraday Auction (= Uncrossing) K Scheduled Closing Auction (= Uncrossing) O Scheduled Opening Auction (= Uncrossing) U Unscheduled Auction (= Uncrossing)
Used In	Full Trade Information (1004)

MMT Transaction Category

Field Name	MMT Transaction Category
Description	Defines the transaction category following MMT level 3.1. Possible values: - 'D': Dark Trade - 'RPRI': Trade that has Received Price Improvement - 'TPAC': Package Trade (excluding Exchange for Physicals) - 'XFPH': Exchange for Physicals Trade - '-': None apply (a standard trade for the Market Mechanism and Trading Mode)
Used For	Cash and Derivatives
Format	Text
Length	4
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Mnemonic

Field Name	Mnemonic
Description	Mnemonic code of the instrument. This field is not populated for every instrument.
Used For	Cash
Format	Alphanumerical ID
Length	5
Possible Values	(See field description)
Used In	Standing Data (1007)

N

Nominal Market Price

Field Name	Nominal Market Price
Description	Amount of the nominal value of the instrument (to be calculated with the Price/Index Decimals).
Used For	Cash
Format	Price

Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007)

Notional Currency

Field Name	Notional Currency
Description	Currency in which the notional is denominated following ISO 4217 standard.
Used For	Cash
Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Number Instrument Circulating

Field Name	Number Instrument Circulating
Description	For stocks: this is the total number of shares issued by the company. For Fix Income: this is the number of Fix Income still to be repaid.
Used For	Cash
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007)

Number Of Messages

Field Name	Number Of Messages
Description	Indicates the number of Exchange Announcements needed to rebuild the entire message.
Used For	Cash and Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Exchange Announcement (1010)

Number Of Traded Instruments in Index

Field Name	Number Of Traded Instruments in Index
Description	Number of traded instruments in the index.
Used For	Cash
Format	Quantity
Length	2
Possible Values	From 0 to 2^16-2
Used In	Real Time Index (1008)

O

Off Book Cumul Qty

Field Name	Off Book Cumul Qty
Description	On Cash: cumulated Off-book volume traded since the start of the current trading session. On Derivatives: cumulated volume traded on flex contracts (to be calculated with the Quantity Decimals).
Used For	Cash and Derivatives
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Snapshot Statistics (2009)

Off Exchange Cumul Qty

Field Name	Off Exchange Cumul Qty
Description	Cumulated volume of off-regulated market trades since the start of the current trading session (to be calculated with the Quantity Decimals).
Used For	Cash
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Snapshot Statistics (2009)

On and Off Book Cumul Qty

Field Name	On and Off Book Cumul Qty
Description	Cumulated volume of on-book and off-book trades since the start of the current trading session (to be calculated with the Quantity Decimals). For cash, this is the sum of Off Book Cumul Qty, On Book Auction Cumul Qty and On book Continuous Cumul Qty. For Derivatives, this is the cumulative quantity of on-book and off-book trades.
Used For	Cash and Derivatives
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Snapshot Statistics (2009)

On Book Auction Cumul Qty

Field Name	On Book Auction Cumul Qty
Description	Cumulated volume of regulated market trades done in Auction phase since the start of the current trading session (to be calculated with the Quantity Decimals).
Used For	Cash
Format	Quantity
Length	8

Possible Values	From 0 to 2^64-2
Used In	Snapshot Statistics (2009)

On book Continuous Cumul Qty

Field Name	On book Continuous Cumul Qty
Description	Cumulated volume of regulated market trades done in Continuous phase since the start of the current trading session (to be calculated with the Quantity Decimals).
Used For	Cash
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Snapshot Statistics (2009)

Open Price

Field Name	Open Price
Description	Opening Price of the instrument (to be calculated with the Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From 0 to 2^64-2
Used In	Snapshot Statistics (2009)

Opening Level

Field Name	Opening Level
Description	Official Opening Index Level. This level corresponds to the Index Level Type 6 of the Real Time Index (1008) of the corresponding index (to be calculated with the Price/Index Level Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Index Summary (1011)

Opening Time

Field Name	Opening Time
Description	Time of Official Opening level (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Index Summary (1011)

Option Type

Field Name	Option Type
Description	Type of the option.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	1 Call 2 Put
Used In	Outright Standing Data (1014)

Optiq Segment

Field Name	Optiq Segment
Description	This field is not used for phase 1. An Optiq segment is a universe of instruments sharing common trading properties. Instruments have the flexibility to be moved from one partition to another within an Optiq segment.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Equities 2 Exchange Traded Funds 3 Fixed Income 4 Warrants and Certificates 5 Bourse de Luxembourg 6 Financial Options 7 Financial Futures 8 Commodities Derivatives 9 Indices
Used In	Standing Data (1007) Contract Standing Data (1013)

Order Entry Qualifier

Field Name	Order Entry Qualifier
Description	Field indicating the order entry capabilities in the current market state.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	0 Order Entry/Cancel/Modify Disabled 1 Order Entry/Cancel/Modify Enabled 2 Cancel and Modify Only (Derivatives Only)
Used In	Market Status Change (1005) Timetable (1006)

Order Price

Field Name	Order Price
Description	Instrument price per unit of quantity (share) (To be calculated with Price/Index Level Decimals). - Set to Null Value for priceless orders in Market Data. - In Order Entry it is mandatory for priced orders (Limit, Stop Limit) and must be set to Null Value for priceless orders (Market, Stop, Peg, MTL).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Order Update (1002)

Order Priority

Field Name	Order Priority
Description	Rank giving the priority of the order. The order with the lowest value of Order Priority has the highest priority. Order Priority is unique per Symbol Index and EMM on a given day.
Used For	Cash
Format	Numerical ID
Length	8
Possible Values	From 0 to 2^64-2
Used In	Order Update (1002)

Order Reference Number

Field Name	Order Reference Number
Description	Until the matching engine migration to Optiq in phase 2 the Order Reference Number is used as the unique order identifier in Market Data for a given Symbol Index. For members who want to reconcile with their private order entry messages: Order Reference Number is filled with the order date and the order id. To retrieve the order id members have to compute the modulo 10^8 of the Order Reference Number. To retrieve the order the order date members have to divide the Order Reference Number by 10^8. Example: Order Reference Number: 2016010100054342 Order Id = 2016010100054342 % 10^8 = 00054342 Order Date = 2016010100054342 / 10^8 = 20160101 For phase 2: This field will be renamed to Previous Order Priority and will only provide the previous order priority as in phase 2, Order Priority will be the unique order identifier in Market Data for a given Symbol Index.
Used For	Cash
Format	Numerical ID
Length	8
Possible Values	From 0 to 2^64-2
Used In	Order Update (1002)

Order Side

Field Name	Order Side
Description	Indicates the side of the order. Please note that the value Cross is used only for the Order Entry, it will never be populated in the Market Data feed.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	1 Buy 2 Sell 3 Cross
Used In	Order Update (1002)

Order Type

Field Name	Order Type
Description	Type of Order. Please note that the values Stop/Stop on Quote, Stop limit/Stop on quote limit and Mid-Point PEg are used only for the Order Entry, they will never be populated in the Market Data feed.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	1 Market 2 Limit 3 Stop / Stop on quote 4 Stop limit / Stop on quote limit 5 Primary Peg 6 Market to limit / Market on opening 7 Market Peg 8 Mid-Point Peg
Used In	Order Update (1002)

Order Type Rules

Field Name	Order Type Rules
Description	Order types supported by the trading host.
Used For	Derivatives
Format	Bitmap
Length	2
Possible Values	0 Market 1 Limit 2 Stop / Stop Loss 3 Stop Limit 4 Market on Open (MOO) 5 Trade at Settlement
Used In	Contract Standing Data (1013)

Original Report Timestamp

Field Name	Original Report Timestamp
Description	Timestamp of trade reporting to the Exchange (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash and Derivatives
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Full Trade Information (1004)

P

Packet Flags

Field Name	Packet Flags
Description	Used to flag information (Little-Endian): - Bit 0: Compression - 0 = body of the packet not compressed (the body is the packet without the packet header) - 1 = body of the packet compressed - Bit 1 to 3: will be set to 1 every morning and incremented for each restart of MDG in the same day (wrapping to 0 if the field overflows) - Bit 4 to 6: High-weighted bits used if the Packet Sequence Number goes over (2^32)-1 - Bit 7 to 15: for future use.
Used For	Cash and Derivatives
Format	Numerical
Length	2
Possible Values	From 0 to 2^16-2
Used In	Market Data Packet Header

Packet Sequence Number

Field Name	Packet Sequence Number
Description	Each channel has its own PSN sequence. Starting from 1 at every MDG start and increasing by step of 1. In case of overflow (over 4.2 billons) Packet Flags will increase for bits 4-6. With this mechanism the PSN has 35 bits available.
Used For	Cash and Derivatives
Format	Numerical ID
Length	4
Possible Values	From 0 to 2^32-2
Used In	Market Data Packet Header

Packet Time

Field Name	Packet Time
Description	Time when the packet is pushed to the clients (Time in number of nanoseconds since 01/01/1970 UTC).

Used For	Cash and Derivatives
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Market Data Packet Header

Par Value

Field Name	Par Value
Description	Par Value (also called Nominal value) for Instrument. For Fixed Income it represents the par amount to be repaid at maturity (not including interest revenue) (to be calculated with the Amount Decimals).
Used For	Cash
Format	Price
Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007)

Pattern ID

Field Name	Pattern ID
Description	Numerical Pattern identifier available as a characteristic of an instrument in Standing Data file and message, and used in the MDG timetable message. Cash Markets only.
Used For	Cash
Format	Numerical ID
Length	2
Possible Values	From 0 to 2^16-2
Used In	Timetable (1006) Standing Data (1007)

Percentage of Capitalization

Field Name	Percentage of Capitalization
Description	Percentage of capitalization for the active instruments in the index (to be calculated with the Ratio / Multiplier Decimals).
Used For	Cash
Format	Numerical
Length	8
Possible Values	From 0 to 2^64-2
Used In	Real Time Index (1008)

Percentage Var from Prev Close

Field Name	Percentage Var from Prev Close
Description	Percentage of variation for last price (or index) versus previous closing price (or closing reference price) (to be calculated with the Ratio / Multiplier Decimals).
Used For	Cash and Derivatives

Format	Numerical
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Real Time Index (1008) Index Summary (1011) Snapshot Statistics (2009)

Phase Time

Field Name	Phase Time
Description	Time of Phase start (Time in number of seconds since the beginning of the day).
Used For	Cash and Derivatives
Format	Timestamp
Length	4
Possible Values	From 0 to 2^32-2
Used In	Timetable (1006)

Price

Field Name	Price
Description	Price per unit of quantity (share) (to be calculated with the Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Market Update (1001) Price Update (1003)

Price / Index Level Decimals

Field Name	Price / Index Level Decimals
Description	Indicates the number of decimals for each Price / Index Level related to this Symbol Index
Used For	Cash and Derivatives
Format	Decimal Places
Length	1
Possible Values	From 0 to 2^8-2
Used In	Standing Data (1007) Strategy Standing Data (1012) Contract Standing Data (1013)

Price Limits

Field Name	Price Limits
Description	Indicates the Price Limits mode.
Used For	Derivatives

Format	Enumerated
Length	1
Possible Values	1 Price Limits Enabled - Normal (Derivatives Only) 2 Price Limits Enabled - Wide (Derivatives Only) 3 Price Limits Enabled - Widest (Derivatives Only) 4 Price Limits Disabled (Derivatives Only)
Used In	Market Status Change (1005) Timetable (1006)

Price Multiplier

Field Name	Price Multiplier
Description	Number of units of the financial instrument that are contained in a trading lot.
Used For	Cash
Format	Numerical
Length	4
Possible Values	From 0 to 2^32-2
Used In	Full Trade Information (1004)

Price Multiplier Decimals

Field Name	Price Multiplier Decimals
Description	Number of decimals for the field Price Multiplier
Used For	Cash
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Full Trade Information (1004)

Priority Indicator

Field Name	Priority Indicator
Description	Indicating if the mail is a must read mail (then set to true) or not (set to false).
Used For	Cash and Derivatives
Format	Boolean
Length	1
Possible Values	0 False 1 True
Used In	Exchange Announcement (1010)

Product Code

Field Name	Product Code
Description	Physical alphanumerical product code.
Used For	Derivatives

Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Contract Standing Data (1013)

Publication Date Time

Field Name	Publication Date Time
Description	Date and time when the transaction was published by a trading venue or Approved Publication Arrangement (APA). Date and time in the following format: YYYY-MM-DDThh:mm:ss.dddddddZ. Where: - 'YYYY' is the year. - 'MM' is the month. - 'DD' is the day. - 'T' constant 'T' letter used as separator between YYYY-MM-DD and hh:mm:ss.dddddddZ. - 'hh' is the hour. - 'mm' is the minute. - 'ss.dddddd' is the second and its fraction of a second. - 'Z' constant 'Z' letter that stands for UTC time.
Used For	Cash and Derivatives
Format	Text
Length	27
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Q

Quantity

Field Name	Quantity
Description	Number of traded or ordered units (to be calculated with Quantity Decimals).
Used For	Cash and Derivatives
Format	Quantity
Length	8
Possible Values	From 0 to 2^64-2
Used In	Market Update (1001) Order Update (1002) Price Update (1003)

Quantity Decimals

Field Name	Quantity Decimals
Description	Indicates the number of decimals for each Quantity related to this Symbol Index
Used For	Cash and Derivatives
Format	Decimal Places

Length	1
Possible Values	From 0 to 2^8-2
Used In	Standing Data (1007) Strategy Standing Data (1012) Contract Standing Data (1013)

Quantity Notation

Field Name	Quantity Notation
Description	Nature of the quantity expression used for negotiating the instrument on the market. Possible values: "UNT" - Units "FMT" - Facial Amount "-" - Not Applicable
Used For	Cash
Format	Text
Length	3
Possible Values	(See field description)
Used In	Standing Data (1007)

Quote Spread Multiplier

Field Name	Quote Spread Multiplier
Description	Indicates the Quote Spread Multiplier.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	1 Quote Spread Multiplier 1 (Derivatives Only) 2 Quote Spread Multiplier 2 (Derivatives Only) 3 Quote Spread Multiplier 3 (Derivatives Only)
Used In	Market Status Change (1005) Timetable (1006)

R

Ratio / Multiplier Decimals

Field Name	Ratio / Multiplier Decimals
Description	Indicates the number of decimals for each Ratio / Multiplier related to this Symbol Index
Used For	Cash and Derivatives
Format	Decimal Places
Length	1
Possible Values	From 0 to 2^8-2
Used In	Standing Data (1007) Strategy Standing Data (1012) Contract Standing Data (1013)

Rebroadcast Indicator

Field Name	Rebroadcast Indicator
Description	Indicates if this message is resent or new (1 if resent, 0 otherwise). For a snapshot, this field will be always set to '1'.
Used For	Cash and Derivatives
Format	Boolean
Length	1
Possible Values	0 False 1 True
Used In	Market Update (1001) Order Update (1002) Price Update (1003) Full Trade Information (1004) Market Status Change (1005) Timetable (1006) Standing Data (1007) Real Time Index (1008) Statistics (1009) Exchange Announcement (1010) Index Summary (1011) Strategy Standing Data (1012) Contract Standing Data (1013) Outright Standing Data (1014) Trade Retransmission Start (1104) Trade Retransmission End (1105) Snapshot Statistics (2009)

Repo Indicator

Field Name	Repo Indicator
Description	Indicates whether the instrument listed underlies any loan contracts, meaning it has been admitted to the Deferred Settlement system and/or to the lending market.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Instrument neither eligible for the SRD, nor eligible for the Loan and Lending Market 1 Instrument eligible for the SRD and for the Loan and Lending Market 2 Instrument eligible for the SRD long only 3 Instrument eligible for the Loan and Lending Market and for the SRD long only 4 Easy-to-borrow Instrument eligible for the SRD and the for Loan and Lending Market 5 Instrument eligible for the Loan and Lending Market 8 Non significant
Used In	Standing Data (1007)

Repo Settlement Price

Field Name	Repo Settlement Price

Description	The settlement price (to be calculated with Price / Index Level Decimals) is a standard price used to value the trade that initiates an instrument lending transaction and to calculate the return price. - If the instrument was listed on day D-1, its settlement price, calculated on day D, will be given by the closing price on D-1, with no adjustment for OST effective as of day D - If the instrument was not listed on day D-1, its settlement price, calculated on day D, will be given by the latest price, adjusted and super-adjusted for Corporate Action effective as of day D-1, but not as of day D.
Used For	Cash
Format	Price
Length	8
Possible Values	From 0 to 2^64-2
Used In	Standing Data (1007)

S

Scheduled Event

Field Name	Scheduled Event
Description	Type of Scheduled Event. Notifies an event that will occur at the Scheduled Event Time.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	0 Cancel Previously Scheduled Event(Cash and Derivatives) 1 Unhalt (Cash Only) 4 Closed (Cash and Derivatives) 5 Expiry (Derivatives Only) 6 Wholesale Large in Scale (LiS) trades open extension (Derivatives Only) 7 Wholesale Basis trades open extension (Derivatives Only) 8 Wholesale Against Actuals trades open extension (Derivatives Only) 9 Wholesale Large in Scale (LiS) Package trades open extension (Derivatives Only) 10 Wholesale Exchange For Swaps trades open extension (Derivatives Only) 11 Wholesale Trades Open Extension (Derivatives Only)
Used In	Market Status Change (1005)

Scheduled Event Time

Field Name	Scheduled Event Time
Description	Scheduled Time for the event to happen (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash and Derivatives
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Market Status Change (1005)

Schema ID

Field Name	Schema ID

Description	Identifier of the message schema that contains the template. Used to differentiate Exchange Specifications.
Used For	Cash and Derivatives
Format	Numerical ID
Length	2
Possible Values	From 0 to 2^16-2
Used In	SBE Header

Schema Version

Field Name	Schema Version
Description	Version of the message schema in which the message is defined. Used to add messages and/or modify some others.
Used For	Cash and Derivatives
Format	Numerical ID
Length	2
Possible Values	From 0 to 2^16-2
Used In	SBE Header

Session

Field Name	Session
Description	Current market session.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	0 Session 0 1 Session 1 2 Session 2 3 Session 3 4 Session 4 5 Session 5 6 Session 6 7 Session 7 8 Session 8 9 Session 9
Used In	Market Status Change (1005) Timetable (1006)

Session Trading Day

Field Name	Session Trading Day
Description	Date of the current trading session (in number of days since the 1st of January 1970).
Used For	Cash and Derivatives
Format	Date
Length	2
Possible Values	From 0 to 2^16-2

Used In	Start Of Day (1101) End Of Day (1102)

Settlement Delay

Field Name	Settlement Delay
Description	Gives the number of trading days that represents the period between the trade date and the settlement date (delivery and payment) for an instrument to be cleared and settled. This is generally a standard period for Euronext Cash markets. Permitted Values - From 2 to 10 (Standard values) - X: This value is assigned for a lot of products and internal management rules shared by Euronext and LCH-Clearnet. - Z: This value is assigned for Lending/Borrowing instruments. This value is especially interpreted to manage the associated management rules.
Used For	Cash
Format	Alphanumerical ID
Length	2
Possible Values	(See field description)
Used In	Standing Data (1007)

Settlement Method

Field Name	Settlement Method
Description	Settlement method - “C” = Cash Settlement - “P” = Physical Settlement - Blank/null for exchanges “C”, “G”, “D”, “H” containing Underlying instruments
Used For	Derivatives
Format	Alphanumerical ID
Length	1
Possible Values	(See field description)
Used In	Contract Standing Data (1013)

Snapshot Time

Field Name	Snapshot Time
Description	Indicates the time of the start/end of the snapshot (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash and Derivatives
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Start Of Snapshot (2101) End Of Snapshot (2102)

Start Time Vwap

Field Name	Start Time Vwap
Description	Start time for the Volume Weight Average price computation period (Number of seconds since the beginning of the day).
Used For	Cash Only
Format	Timestamp
Length	4
Possible Values	From 0 to 2^32-2
Used In	Full Trade Information (1004)

Stats Update Type

Field Name	Stats Update Type
Description	Indicates the type of published statistics update.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	5 Daily High (Cash and Derivatives) 6 Daily Low (Cash and Derivatives) 7 Yearly High (Cash and Derivatives) 8 Yearly Low (Cash and Derivatives) 9 Lifetime High (Cash and Derivatives) 10 Lifetime Low (Cash and Derivatives) 14 Variation Last Price (Cash and Derivatives) 15 Open Price (Cash and Derivatives) 16 Trade Count (Cash and Derivatives) 17 Last Trade Price (Cash and Derivatives) 18 Percent Variation Previous Close (Cash and Derivatives) 19 Off Book Cumulative Quantity (Cash) 20 Off Exchange Cumulative Quantity (Cash) 21 On Book Auction Cumulative Quantity (Cash) 22 On book Continuous Cumulative Quantity (Cash) 23 On and Off Book Cumulative Quantity (Cash and Derivatives)
Used In	Statistics (1009)

Stats Update Value

Field Name	Stats Update Value
Description	Indicates the value of the published statistics update. This field has to be calculated with a scale code field depending on the "Stats Update Type" as follow: - Price / Index Level Decimals for "Stats Update Type": "5 - Daily High", "6 - Daily Low", "7 - Yearly High", "8 - Yearly Low", "9 - Lifetime High", "10 - Lifetime Low", "15 - Open Price" and "17 - Last Trade Price" - Quantity Decimals for "Stats Update Type": "19 - Off Book Cumulative Quantity", "20 - Off Exchange Cumulative Quantity", "21 - On Book Auction Cumulative Quantity", "22 - On book Continuous Cumulative Quantity" and "23 - On and Off Book Cumulative Quantity" - Ratio / Multiplier Decimals for "Stats Update Type": "14 - Variation Last Price" and "18 - Percent Variation Previous Close" "16 - Trade Count" has no scale code.
Used For	Cash and Derivatives

Format	Quantity
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Statistics (1009)

Status Reason

Field Name	Status Reason
Description	Provides the reason for instrument state changes.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	0 Scheduled (Cash and Derivatives) 1 Suspension by Market Operations (Cash and Derivatives) 2 Unhalted by Market Operations (Cash Only) 3 Suspension (Cash Only) 4 Collars Breach (Cash Only) 6 Automatic Halting by Matching Engine (Cash Only) 7 Automatic Unhalting by Matching Engine (Cash Only) 8 No Liquidity Provider (Cash Only) 11 Knock-In by Issuer (Cash Only) 12 Knock-Out by Exchange (Cash Only) 13 Knock-Out by Issuer (Cash Only) 15 Action by Market Operations (Cash and Derivatives) 16 Waiting for Tradable State (Derivatives Only) 17 Uncrossing By Market Operations (Cash and Derivatives) 18 Closing Due to Suspended Underlying (Cash and Derivatives) 19 Closing Due to Halted Underlying (Derivatives Only)
Used In	Market Status Change (1005)

Strategy Code

Field Name	Strategy Code
Description	Exchange-recognized market code
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	A Jelly Roll B Butterfly C Call or Put Cabinet D Spread E Calendar Spread F Diagonal Calendar Spread G Guts H Two by One Ratio Spread I Iron Butterfly J Combo K Strangle L Ladder

	M Strip N Straddle Calendar Spread O Pack P Diagonal Straddle Calendar Spread Q Simple Inter Commodity Spread R Conversion / Reversal S Straddle V Volatility Trade W Condor X Box Y Bundle Z Reduced Tick Spread a Ladder versus Underlying b Butterfly versus Underlying c Call Spread versus Put versus Underlying d Call or Put Spread versus Underlying e Call or Put Calendar Spread versus Underlying f Call/Put Diagonal Calendar Spread versus Underlying g Guts versus Underlying h Two by One Call or Put Ratio Spread versus Underlying i Iron Butterfly versus Underlying j Combo versus Underlying k Strangle versus Underlying m Exchange for Physical n Straddle Calendar Spread versus Underlying p Put Spread versus Call versus Underlying q Diagonal Straddle Calendar Spread versus Underlying r Synthetic s Straddle versus Underlying t Condor versus Underlying u Buy Write v Iron Condor versus Underlying w Iron Condor x Call Spread versus Sell a Put y Put Spread versus Sell a Call z Put Straddle versus Sell a Call or a Put
Used In	Strategy Standing Data (1012)

Strike Currency

Field Name	Strike Currency
Description	Code of the strike currency (ISO 4217-3A).
Used For	Cash
Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Standing Data (1007)

Strike Currency Indicator

Field Name	Strike Currency Indicator

Description	Indicates whether the 'price expression' is in the Currency or a ratio of this Currency expressed in the Currency Coefficient field. This is the case for strike instruments in pennies. The currency will be 'GBP', Strike Currency Indicator sets to '1' and Currency Coefficient set to '0.001'.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Change rate not applied to the strike price 1 Change rate applied to the strike price
Used In	Standing Data (1007)

Strike Price

Field Name	Strike Price
Description	The specified price of an option contract at which the contract may be exercised, whereby a call option buyer can buy the underlying or a put option buyer can sell the underlying (to be calculated with Price/Index Level Decimals). The buyer's profit from exercising the option is the amount by which the strike price exceeds the cash instrument price (in the case of a call), or the amount by which the cash instrument price exceeds the strike price (in the case of a put). In general, the smaller the difference between spot (cash instrument price) and strike price, the higher the option premium. Also called exercise price. Only provided for warrants or other derivatives instruments.
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Standing Data (1007) Outright Standing Data (1014)

Strike Price Denominator

Field Name	Strike Price Denominator
Description	Strike Price Denominator.
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

Strike Price Flex Increment

Field Name	Strike Price Flex Increment
Description	Strike Price increment for flex contracts (To be calculated with Price / Index Level Decimals). Used for options only.
Used For	Derivatives
Format	Numerical
Length	4

Possible Values	From 0 to 2^32-2
Used In	Contract Standing Data (1013)

Symbol Index

Field Name	Symbol Index
Description	Exchange identification code of the instrument. This identifier is unique per triplet: MIC, ISIN and currency.
Used For	Cash and Derivatives
Format	Numerical ID
Length	4
Possible Values	From 0 to 2^32-2
Used In	Market Update (1001) Order Update (1002) Price Update (1003) Full Trade Information (1004) Market Status Change (1005) Timetable (1006) Standing Data (1007) Real Time Index (1008) Statistics (1009) Exchange Announcement (1010) Index Summary (1011) Strategy Standing Data (1012) Contract Standing Data (1013) Outright Standing Data (1014) Trade Retransmission Start (1104) Trade Retransmission End (1105) Snapshot Statistics (2009)

T

Tax Code

Field Name	Tax Code
Description	Tax deduction code to which the instrument belongs.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Not eligible to PEA 3 Eligible to PEA 9 Not Applicable
Used In	Standing Data (1007)

Template ID

Field Name	Template ID

Description	Identifier of the message template. This is the message type of the Market Data messages.
Used For	Cash and Derivatives
Format	Numerical ID
Length	2
Possible Values	From 0 to 2^16-2
Used In	SBE Header

Throttle for Incoming Orders

Field Name	Throttle for Incoming Orders
Description	Defines the number of order messages that a session on the Common Customer Gateway (CCG) can submit per second in a particular contract.
Used For	Derivatives
Format	Numerical
Length	2
Possible Values	From 0 to 2^16-2
Used In	Contract Standing Data (1013)

Tick Size Denominator

Field Name	Tick Size Denominator
Description	Tick Size Denominator.
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

Tick Size Index ID

Field Name	Tick Size Index ID
Description	ID of the tick size table available in the Tick Table file.
Used For	Cash
Format	Numerical ID
Length	2
Possible Values	From 0 to 2^16-2
Used In	Standing Data (1007)

Tick Size Numerator

Field Name	Tick Size Numerator
Description	Tick Size Numerator.
Used For	Derivatives
Format	Numerical
Length	1

Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

Trade Count

Field Name	Trade Count
Description	The number of trades done intra-day on the instrument.
Used For	Cash and Derivatives
Format	Numerical
Length	4
Possible Values	From 0 to 2^32-2
Used In	Snapshot Statistics (2009)

Trade Qualifier

Field Name	Trade Qualifier
Description	Trade Qualifier. Please note that in the Market Data feed the values Passive Order and Aggressive Order always qualify the Buy order.
Used For	Cash and Derivatives
Format	Bitmap
Length	1
Possible Values	0 Uncrossing Trade 1 Opening Trade 2 Passive Order 3 Aggressive Order 4 Trade Creation by Market Operations
Used In	Full Trade Information (1004)

Trade Reference

Field Name	Trade Reference
Description	Reference of the trade reported to the Exchange.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	30
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Trade Retransmission End Time

Field Name	Trade Retransmission End Time
Description	All the trades previously received by the clients that have an “Event time” strictly higher than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash and Derivatives
Format	Timestamp

Length	8
Possible Values	From 0 to 2^64-2
Used In	Trade Retransmission Start (1104) Trade Retransmission End (1105)

Trade Retransmission Start Time

Field Name	Trade Retransmission Start Time
Description	All the trades previously received by the clients that have an “Event time” strictly lower than this field are valid (Time in number of nanoseconds since 01/01/1970 UTC).
Used For	Cash and Derivatives
Format	Timestamp
Length	8
Possible Values	From 0 to 2^64-2
Used In	Trade Retransmission Start (1104) Trade Retransmission End (1105)

Trade Type

Field Name	Trade Type
Description	Type of Operation.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Conventional Trade (Cash and Derivatives) 2 Large in Scale (LiS) Trade (Derivatives Only) 3 Basis Trade (Derivatives Only) 4 Large in Scale (LiS) Package Trade (Derivatives Only) 5 Guaranteed Cross Trade (Cash and Derivatives) 6 Against Actual Trade (Derivatives Only) 7 Asset Allocation Trade (Derivatives Only) 9 Exchange for Swap Trade (Derivatives Only) 10 Exchange for Physical Trade - Cash Leg (Derivatives Only) 11 Strategy Leg Conventional Trade (Derivatives Only) 12 Strategy Leg Large in Scale (LiS) Trade (Derivatives Only) 13 Strategy Leg Basis Trade (Derivatives Only) 14 Strategy Leg Guaranteed Cross Trade (Derivatives Only) 15 Strategy Leg Against Actual Trade (Derivatives Only) 16 Strategy Leg Asset Allocation Trade (Derivatives Only) 18 Strategy Leg Exchange For Swap Trade (Derivatives Only) 19 Strategy Leg Exchange For Physical Trade (Derivatives Only) 20 RMF Trade (Cash Only) 21 SI Trade (Cash Only) 22 AtomX Trade (Derivatives Only) 23 Valuation Trade (Cash Only) 24 Trade Cancellation (Cash and Derivatives) 25 Out of Market Trade (Cash Only) 26 Delta Neutral Trade - Cash Leg (Cash and Derivatives) 27 Market VWAP Operation Trade (Cash Only)

	28 Euronext Fund Service Trade (Cash Only) 29 Secondary Listing Trade (Cash Only) 30 Request for Cross Trade (Derivatives Only) 31 Request for cross strategy Leg Trade (Derivatives Only) 32 Trade Publication (Cash Only) 33 Dark Trade (Cash Only)
Used In	Full Trade Information (1004)

Trading Currency

Field Name	Trading Currency
Description	Code of the currency (ISO 4217-3A).
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	3
Possible Values	(See field description)
Used In	Standing Data (1007) Contract Standing Data (1013)

Trading Currency Indicator

Field Name	Trading Currency Indicator
Description	Indicates whether the 'price expression' is in the Currency or a ratio of this Currency expressed in the Currency Coefficient field. This is the case for instruments traded in pennies. The currency will be 'GBP', Trading Currency Indicator sets to '1' and Currency Coefficient set to '0.001'.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Change rate not applied to the traded price 1 Change rate applied to the traded price
Used In	Standing Data (1007)

Trading Date Time

Field Name	Trading Date Time
Description	Date and time when the transaction was executed. Date and time in the following format: YYYY-MM-DDThh:mm:ss.ddddddZ. Where: - 'YYYY' is the year. - 'MM' is the month. - 'DD' is the day. - 'T' constant 'T' letter used as separator between YYYY-MM-DD and hh:mm:ss.ddddddZ. - 'hh' is the hour. - 'mm' is the minute. - 'ss.dddddd' is the second and its fraction of a second. - 'Z' constant 'Z' letter that stands for UTC time.
Used For	Cash and Derivatives

Format	Text
Length	27
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Trading Mode

Field Name	Trading Mode
Description	Indicates the Trading Mode.
Used For	Cash and Derivatives
Format	Bitmap
Length	4
Possible Values	0 Call BBO Only (Cash Only) 1 Trading At Last (Cash Only) 2 Random Uncrossing (Cash) 3 Suspended (Derivatives Only) 4 Wholesale Allowed (Derivatives Only)
Used In	Market Status Change (1005) Timetable (1006)

Trading Period

Field Name	Trading Period
Description	Indicates the trading period.
Used For	Cash and Derivatives
Format	Enumerated
Length	1
Possible Values	1 Standard Opening (Cash and Derivatives) 2 Standard Core (Cash and Derivatives) 3 Standard Closing (Cash and Derivatives) 4 Late Opening (Cash and Derivatives) 5 Late Core (Cash and Derivatives 6 Late Closing (Cash and Derivatives) 7 Early Opening (For Future use) 8 Early Core (For Future use) 9 Early Closing (For Future use)
Used In	Market Status Change (1005) Timetable (1006)

Trading Side

Field Name	Trading Side
Description	Indicates the trading period.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	1 Bid Only (Cash Only)

	2 Offer Only (Cash Only) 3 PAKO (Cash Only)
Used In	Market Status Change (1005) Timetable (1006)

Transaction Type

Field Name	Transaction Type
Description	Transaction type or publication type.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	1 Plain Vanilla Trade 2 Dark Trade 3 Benchmark Trade 4 Technical Trade 5 Give-up/Give-in Trade 6 Ex/Cum dividend Trade 7 Trade With Condition 15 Summary Report
Used In	Full Trade Information (1004)

Transparency Indicator

Field Name	Transparency Indicator
Description	Used to define the transparency of the trade.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	0 Lit/Regular Trade 1 Dark Trade and Immediate Publication 2 Dark Trade and Deferred Publication
Used In	Full Trade Information (1004)

Type Of Corporate Event

Field Name	Type Of Corporate Event
Description	Indicates the last type of corporate event that has occurred on an instrument, such as detachment of rights, or of coupons. The data item is automatically calculated by the adjustment application but in case of problem or error, the data item value could be modified manually, particularly for purging the order book in case of absence of corporate event. This data has to be treated in consideration of the date of the event included into the header of the message. Valid values are: - "00" – No specific event - "01" – Dividend payment in cash or in stocks - "02" – Interest payment (Fix Income for which the price is not expressed in% of the nominal, only) - "04" – Split - "05" – Bonus (i.e. attribution) - "06" – Subscription

	- "07" – Share allocation - "08" – Share swap - "09" – Reverse split - "10" – Merger - "11" – Final Fix Income redemption - "12" – Capital amortization - "13" – Draw announcement (Belgian Fix Income only) - "14" – Block trade of controlling interest - "15" – Optional corporate events(dividend option) - "16" – Complex corporate event - "17" – Purge of the order book (purge is initiated manually in the absence of a corporate event, for example, following the modification of the variable tick of the listed instrument) - "22" Bourse de Luxembourg corporate event
Used For	Cash
Format	Alphanumerical ID
Length	2
Possible Values	(See field description)
Used In	Standing Data (1007)

Type Of Market Admission

Field Name	Type Of Market Admission
Description	Indicates the type of market to which an instrument has been listed.
Used For	Cash
Format	Enumerated
Length	1
Possible Values	A Instruments traded on the primary market B Instruments traded on the secondary market C Instruments traded on the New Market D Non-regulated market / instruments traded on the free market ('Marche Libre') E Non-regulated market / Alternext F Non listed G Regulated Market / Non equities H Regulated Market / Equities / Segment A I Regulated Market / Equities / Segment B J Regulated Market / Equities / Segment C K Regulated Market / All securities / Special Segment L Regulated Market / Equities / Other instruments S OPCVM, SICOMI non listed (French Investment Funds) 6 Off Market 7 Gold, Currencies, and Indices 9 Foreign
Used In	Standing Data (1007)

U

Underlying ISIN Code

Field Name	Underlying ISIN Code

Description	Underlying ISIN. For Repo: Underlying instrument (instrument used in the loan quotation system) for loan contracts on centralized lending market. For Warrant: Gives the trading code of the underlying listed instrument of a warrant.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	12
Possible Values	(See field description)
Used In	Standing Data (1007) Contract Standing Data (1013)

Underlying MIC

Field Name	Underlying MIC
Description	Identifies the market to which an instrument' underlying belongs by its MIC (Market Identification Code), according to ISO 10383. Refer to MIC field to have all the authorized values.
Used For	Cash and Derivatives
Format	Alphanumerical ID
Length	4
Possible Values	(See field description)
Used In	Standing Data (1007) Contract Standing Data (1013)

Underlying Type

Field Name	Underlying Type
Description	Defines the instrument type of the underlying.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	C Commodity F Future I Index S Stock X Exchange Rate
Used In	Contract Standing Data (1013)

V

Variation Last Price

Field Name	Variation Last Price
Description	Percentage variation of last price/last reference price with previous price.
Used For	Derivatives
Format	Quantity

Length	8
Possible Values	From -2^31-1 to 2^31-1
Used In	Snapshot Statistics (2009)

Vega Protect for MM

Field Name	Vega Protect for MM
Description	Vega Protection for Market Makers Level.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	0 Protection for Market Makers enabled at a contract level 1 Protection for Market Makers enabled at a contract and expiry level.
Used In	Contract Standing Data (1013)

Venue

Field Name	Venue
Description	Identification of the venue where the transaction was executed using the ISO 10383 segment MIC for transactions executed on a trading venue. Otherwise the BIC is sent following ISO 9362.
Used For	Derivatives
Format	Alphanumerical ID
Length	11
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Venue of Publication

Field Name	Venue of Publication
Description	Indicates the venue where the trade is published.
Used For	Derivatives
Format	Alphanumerical ID
Length	11
Possible Values	(See field description)
Used In	Full Trade Information (1004)

Volume Protect for MM

Field Name	Volume Protect for MM
Description	Volume Protection for Market Makers Level.
Used For	Derivatives
Format	Enumerated
Length	1
Possible Values	0 Protection for Market Makers enabled at a contract level

	1 Protection for Market Makers enabled at a contract and expiry level.
Used In	Contract Standing Data (1013)

W

WhRFC Days Before Expiry

Field Name	WhRFC Days Before Expiry
Description	Wholesale RFC Days Before Expiry defines the number of days (0 to 99) from expiry from which the RFC will no longer be available. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

WhRFC Improvement Period

Field Name	WhRFC Improvement Period
Description	Wholesale RFC Improvement Period, in seconds defines the duration of the RFC Improvement Period. Available only if the Request For Cross (7) is set in Available Wholesale Trade Type.
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

WhRFC Minutes Before Closing

Field Name	WhRFC Minutes Before Closing
Description	Wholesale RFC Minutes Before Close allows the setup of the number of minutes (1 to 99) from market close from which the RFC will be deactivated.
Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

WhRFC Pick Up Perc

Field Name	WhRFC Pick Up Perc
Description	Defines the percentage of the RFC Initiator quantity that is available for RFC responses during the final execution at the RFC price. This pick up percentage is not relevant during the final execution with RFC responses improving the RFC Price. Available only for Wholesale Trade Type = 9.

Used For	Derivatives
Format	Numerical
Length	1
Possible Values	From 0 to 2^8-2
Used In	Contract Standing Data (1013)

Y

Yearly High

Field Name	Yearly High
Description	Highest traded price for the Year (to be calculated with Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

Yearly Low

Field Name	Yearly Low
Description	Lowest traded price for the Year (to be calculated with Price/Index Level Decimals).
Used For	Cash and Derivatives
Format	Price
Length	8
Possible Values	From -2^63-1 to 2^63-1
Used In	Snapshot Statistics (2009)

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APPENDIX B: DOCUMENT HISTORY

Version	Date	Author	Change Description
1.0.0	12 Jul 2016	IT Solutions – BA team –BGA	**First Version**
1.1.0	27 Sep 2016	IT Solutions – BA team –BGA	**Specification changes:** - The addition of the SBE Template Version that this document refers to is located on the first page - Section 2.1.3 Market Data Messages per Channel: addition of Standing data messages for derivatives o Contract Standing Data (1013) o Outright Standing Data (1014) o Strategy Standing Data (1012) - In 4.1 Technical Format Fields: o New link for description of "Price, Quantity, Ratio And Amount Decimals" for Amount and Quantity o Modification of Amount fields. - 4.3 Sequence Numbers have been improved - 4.6 Instrument Identifier: o Added specific ranges applying for Bourse de Luxembourg instruments o Adding Standing Data messages for Derivatives - 4.5 Added a chapter on how to manage Ticks - In 5.4 Snapshot Messages: o Replaced "Standing Data (1007)" with Outright and Strategy Standing Data messages o Precision regarding the beginning of the day for snapshot, only the Start Of Snapshot and End of Snapshot will be sent o Chapter enriched with the behaviour of technical messages - Renamed "Ratio/Coefficient Decimals" by "Ratio / Multiplier Decimals" - Added expected behaviour for Market Orders in Market Update and Order Update descriptions - Removing fields: "Prev Day Capital Traded", "Previous Volume Traded", "Time Lag Euronext UTC", "Time Lag MiFID Regulator UTC", "Instrument Category", "Partition ID" and "Routing Information" from all messages - "Prev Day Capital Traded", "Previous Volume Traded", "Instrument Category" and "Routing Information" are available in files. - List of all optional fields as defined by SBE **Message changes:** - Start Of Day, End Of Day and Health Status messages description improved with their frequency and Market Data Sequence Number - Start Of Day and End Of Day message structure changed

Version	Date	Author	Change Description
			- Health Status (1103): o Added emission frequency (set to 2 seconds) o Added in description that the Market Data Sequence Number will not be incremented for this message - Standing Data (1007): o new section on multi-listed instruments in message description o Added Full Instrument Name Field o Removed: Previous Volume Traded and Prev Day Capital Traded o "Fix Price Tick" and "Tick Size Index ID" moved to the repeating section - Contract Standing Data (1013): "Country Of Exchange" added - Outright Standing Data (1014): o Added a repeating section containing EMM to identify outrights that can be traded at both the COB and OTC o Removed Instrument Group Code, Open Interest and Open Interest Date. They will be available via a new file o "Optiq Segment" removed - Strategy Standing Data (1012): o Added EMM field o Added in description a note to inform that the message is also available on file servers o "Product Code" removed - Timetable (1006) message: Symbol Index has been moved outside the repeating section where the message description has been modified - Market Update (1001) message description enriched with: o Details on Liquidity Provider updates o Iceberg orders o Values sent on BBO removal when there is no more BBO on one side of the order book o "Valuation Trade (49)" has been removed - Market Status Change (1005): o The Trading Mode values have been split into 5 fields: ▪ Trading Mode (with less possible values) ▪ Trading Period ▪ Trading Side ▪ Price Limits ▪ Quote Spread Multiplier o Event Time has replaced Change Time and o Change time field has been removed - Price Update (1003): o Added IMP description o Added Alternative Indicative Price (AIP) in possible values

Version	Date	Author	Change Description

			- Full Trade Information (1004):
			  o Added a link to MMT website and definition of the version used.
			  o MiFID MIC field has been merged with Venue. Description of Venue has been updated accordingly
			- Real Time Index message (1008): Message description completed
			- Exchange Announcement (1010):
			  o "Message Number" field modified from 2 bytes to 1 byte and moved closer to "Number of Messages" field
			  o "Line break is done with '@' and page breaks with '#'" has been replaced by "All line break and special characters are the ones specified in Unicode"
			- Full Trade Information messages is located within the snapshot: rules regarding the snapshot message changed
			- Snapshot Statistics (2009): 9 new fields:
			  o Variation Last Price
			  o Open Price
			  o Trade Count
			  o Last Traded Price
			  o Off Book Cumul Qty
			  o Off Exchange Cumul Qty
			  o On Book Auction Cumul Qty
			  o On book Continuous Cumul Qty
			  o On and Off Book Cumul Qty
			Field changes:
			- "Block Length", "Number Of Messages", "Packet Flags", "Percentage of Capitalization", "Price Multiplier Decimal" and "Price Multiplier" fields become Numerical
			- "Instrument State" and "Exchange Code" become Enumerated
			- "Stats Update Value" description improved with decimal fields to use for each update type
			- Field descriptions improved for "Order Entry Qualifier", "Symbol Index" and "Order Price"
			- "(To be calculated with the Quantity Decimals)" added for Cumulative Quantity fields.
			- All updates for indices have been removed in "Transaction Type" field
			- EMM defined as Euronext Market Mechanism has been replaced by Exchange Market Mechanism
			- "Order Price" field origin has been changed from Cash to Cash and Derivatives
			- "Order Priority" field description now contains the uniqueness criteria
			- "Instrument Event Date" and "Date Of Last Trade" type changed to "Date"
			- "Original Order Priority" renamed as "Order Reference Number"
			- "Session" field: possible value '10' removed and '0' added

Version	Date	Author	Change Description

			- "Last traded Price" description improved with the field decimal to apply
			- How is formatted the timestamp described for: "Snapshot Time", "Trade Retransmission End Time" and "Trade Retransmission Start Time"
			- "Priority Indicator" description enriched
			- Peg orders added in "Order Type"
			- "Main Depositary" now on 5 characters
			- "Guarantee Indicator":
			  o Value 0 and 1 switched
			  o Added value 8 for lending and borrowing
			- "Wholesale Trade Type":
			  o Name changed to "Available Wholesale Trade Type"
			  o Description improved
			- "WhRFC Improvement Period", "Minimum Quantity For Reactor", "Minimum Quantity For Initiator" and "WhRFC Days Before Expiry" description changed
			- "Trade Qualifier" possible values has been enriched
			- "Trading At Last" "Currency Coefficient", "Last Adjusted Closing Price", "Maximum Decimals In Quantity", "Mnemonic", "Nominal Market Price", "Instrument Group Code", "Guarantee Indicator", "Quantity Notation", "Trading Currency Indicator", "Settlement Delay", "Full Instrument Name", "Notional Currency", "First Settlement Date", "Strike Currency" and "Strike Currency Indicator" are cash only
			- "Market Data Update Type" following possible values are cash only:
			  o "Request for Quote Bid"
			  o "Request for Size Bid"
			  o "Request for Size Offer"
			  o "Request for Size"
			  o "Request for Quote Offer"
			- "Last Trading Date", "Contract Symbol Index" and "Option Type" are derivative only
			- "Phase Time" and "Scheduled Event Time" changed in number of seconds since the beginning of the day
			- "Market Data Update Type": possible values removed:
			  o 33 - External Match Trade
			  o 43 - Strategy Leg External Match Trade
			- "Trade Type": possible values removed:
			  o 8 - External Match Trade
			  o 17 - Strategy Leg External Match Trade

Version	Date	Author	Change Description

			- Stats Update Type: possible value "Cumulative Quantity" replaced by:
			  o "Off Book Cumul Qty"
			  o "Off Exchange Cumul Qty"
			  o "On Book Auction Cumul Qty "
			  o "On book Continuous Cumul Qty "
			  o "On and Off Book Cumul Qty"
			- "Currency Ratio" replaced by "Currency Coefficient"
			- "Euronext Code" renamed "Instrument Trading Code"
			- "EMM" possible values have been renamed
			- "First Settlement Date", "Last Trading Date", "Currency Coefficient", "Trading Currency Indicator" and "Strike Currency Indicator" descriptions have been improved

1.2.0	4 Jan 2017	IT Solutions – BA team –BGA	**Specification changes:** - Section 2.1.3 Market Data Messages per Channel: Specify that Cash represents also BdL and tables split into 3 different tables - Section 2.4 Compression: Added Compression behaviour and LZ4 confirmed - Section 2.8.1 Clear the Book: Fields to clear specified - Section 2.9 Cancellations: Adding new section describing trade cancellation, Order cancellation and limit cancellation - Section 2.11: Description improved - Section 4.1 Technical Format Fields: Added description for Decimal Places - Section 4.6 Instrument Identifiers: Added behaviour in case of corporate action **Message changes:** - "Standing Data" (1007): Description updated by removing : "For phase 1 it will be populated only once, only for the COB." - "Market Update" (1001): Description improved with the update types per channel - "Price Update" (1003): change for undetermined IMP the values are not 0 but null - "Statistics" (1009): Description improved with the update types per asset class **Field changes:** - "Strike Price Flex Increment" description improved with the Decimal field to apply on - "Nominal Market Price" is now Price Format - "Trade Type": Trade Cancellation is now for both Cash and Derivatives - "Start Time Vwap" and "End Time Vwap" are cash only fields - "Optiq Segment" is now an Enumerated with all the possible values - "Market Data Price Type", Official YDSP is Derivatives Only

Version	Date	Author	Change Description
			- "Scheduled Event Date" is now in number of nanoseconds since 1970/01/01 - "Order Reference Number" description improved by adding for phase 1 the order date with the order id