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CHANGE HIGHLIGHTS - XDP TO OPTIQ™ MDG MIGRATION - PHASE 1

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PREFACE

PURPOSE

The purpose of this document is to explain changes and improvements between the current Euronext Market Data Exchange Data Publisher (XDP) and the Optiq Market Data Gateway (MDG) messages and processes, for the first phase of the migration. During the first phase of the migration, the Euronext UTP trading engines and order entry gateways (CCG's) remain unchanged and only XDP will be replaced by Optiq MDG.

The intended audience of this document is any client consuming Euronext Cash and Derivative market data.

Note: This document is for informational purposes only, and should be consulted alongside its associated documents, as outlined below.

During the transition phases, while Optiq MDG is still connected to the Cash and Derivatives Euronext UTP matching engines, all trading functionalities remain the same and behaviors are not altered. As such, the message sequencing logic for Market Data will still be driven by the Euronext UTP matching engine during the transition phases. It should be noted, however, that this is not necessarily the logic that the full Optiq platform will deliver, once the Cash matching engine migrates onto Optiq in Phase 2, and Derivatives in Phase 3.

SCOPE

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

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WHAT'S NEW?

The following lists only the most recent modifications made to this revision/version. For the Document History table, see the Appendix.

REVISION NO./ VERSION NO.	DATE	CHANGE DESCRIPTION
1.3.0	01/02/2017	Section 2 : Highlight about Timestamps management and details about conflation added Section 4.1 : Table updated with latest Market Data Update types values in line with MDG Client Spec v1.3.0 Section 4.6.3 is removed Section 4.7 : Added removed message : 544 Section 5.3 : table updated with renamed and removed/added fields

ASSOCIATED DOCUMENTS

The following documents should be read in conjunction with this document:

- Euronext Cash Market - UTP to Optiq MDG Transition Kinematics Specifications v1.3.0
- Euronext Derivatives Market - UTP to Optiq MDG Transition Kinematics Specifications v1.3.0
- Euronext Cash and Derivatives Markets - Optiq MDG Client Specifications v1.3.0

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1. OVERVIEW

The aim of this document is to explain changes and improvements between the existing XDP Cash, Indices and Derivatives market data feed and the new Optiq Market Data Gateway (MDG) for the first migration phase to the Euronext Optiq trading platform.

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 Euronext 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.

During the first migration phase, the Euronext UTP trading engines and CCG's remain unchanged. The current market data feed, XDP, will be replaced by Optiq MDG, a faster and more efficient Market Data feed. MDG will be harmonized for all Euronext markets and fully MiFID II compliant.

This document will describe:

1. Technical evolutions
2. Functional evolutions
3. Mapping between existing XDP Cash, Indices and Derivatives and new Optiq MDG messages
4. Message sending logic and mapping
5. Evolutions made at the message and field level.

Note: SmartPool and BondMatch are out of scope for the migration from XDP to Optiq MDG.

2. XDP TO MDG TECHNICAL AND FUNCTIONAL CHANGES

■ Unsolicited Snapshots will replace Request based Refresh and Retransmission

Currently on XDP, customers can recover missed packets using the Refresh Service (RFS) and Retransmission Service (RTS) by connecting to the refresh server, sending a refresh request and retrieving the refresh data via the refresh multicast channels. The current request-based system will be replaced by Snapshots on Optiq MDG and will send unsolicited Snapshots periodically on dedicated multicast channels to recover from packet loss or for intraday starts. Customers can 'hop on' (connect) and 'hop off' the Snapshot channels as needed, which is a much more efficient recovery mechanism.

To synchronize real-time and snapshots, clients will need to store real-time messages and process a full snapshot sequence. Stored real-time messages may then be integrated starting from the last Market Data Sequence Number provided by the snapshot, as opposed to the Packet Sequence Number (PSN) as currently used on XDP.

■ Compression

XDP Cash uses Zlib compression for the refresh data and XDP Derivatives uses FAST compression for both real-time and refresh data.

Optiq MDG will bring a harmonized approach for both Euronext Cash and Derivatives markets, and will replace both methods using LZ4 compression. It will offer compression for real-time market data used on low bandwidth connections (100Mbps) and for all snapshots.

■ Conflation

Conflation is a process developed to manage peak activity and is only performed on real-time compressed channels used by customers with 100Mbps connections. Its aim is to ensure that customers with limited bandwidth are provided an accurate state of the books during peaks in volume. 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, we ensure that the customer will 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.

NOTE : Conflation will be available only in the second phase of the migration.

■ 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 aims to:

1. Optimize the use of available bandwidth on 1 Gbps and 10Mbps connections
2. Prevent packet loss: Optiq MDG will keep track of what is being sent out per millisecond and will guarantee packets are sent the next available millisecond in case packet loss could occur during microbursts
3. Guarantee performance available on 1Gbps and 100Mbps connections
4. Minimise latency

■ Optiq MDG unshaped

Optiq MDG will provide unshaped real-time market data for customers on 10Gbps connections. Unshaped means that messages are sent out without any restrictions.

Optiq MDG unshaped is available for:

1. Cash Regulated Markets - Equities - France and the Netherlands
2. Cash Regulated Markets - ETF's
3. Derivatives – Index Futures - France and the Netherlands
4. Derivatives – Index Options - France and the Netherlands

■ Unified Timestamps management

With Optiq MDG, all timestamps on all markets and for all message types will follow the same formatting rules and will be provided in UTC. For the full details of those rules, clients may refer to the MDG client specifications.

3. FUNCTIONAL CHANGES DELIVERED WITH OPTIQ PHASE 1

The following section describes the functional changes delivered alongside Optiq MDG in the first phase of the Optiq programme.

3.1 MIFID II DATA DISAGGREGATION

The MiFID II data disaggregation service is delivered with the first phase of Optiq.

MiFID II RTS 14 defines requirements for disaggregation of data by :

1. Asset Class
2. Country of issue
3. Currency in which an instrument is traded
4. Pre / post trade
5. Whether the data is from scheduled daily auctions or from continuous trading

Euronext will provide the service based on disaggregated commercial data packages. For a full description of the channel management and packages, client may refer to the Market Data Gateway Production Environment document and Market Data Gateway User Acceptance Environment document.

3.2 GRANULARITY OF MARKET DATA DISSAMINATION

In UTP, Market Data messages are published on the following levels of granularity :

- Cash markets : Trading Groups and Single Instrument level
- Derivatives markets : Contract level, Expiry level and Single Instrument level

In Optiq, Market Data messages are disseminated on the following levels :

- Cash markets : Single Instrument level
- Derivatives markets : Contract level and Single Instrument level

This change of granularity impacts the way several market events (such as instruments expiries – see section below) are communicated. For a full description, client may refer to the client messaging specification for an overview of the messages structure, kinematics specifications for details about behaviour. The main changes in behaviour are described in the Optiq Messaging System section below, and the tables provided in this document allow to analyse the gap in messages structure between XDP and Optiq MDG.

3.3 VALUATION PRICE ON CASH MARKETS

In UTP The valuation prices were generated by sending Valuation Trades through the market data feed for one trading lot.

In Optiq the functionality slightly differs and the prices are sent to the market through a MDG price update (1003) message being published on post trade channels

In the first phase of migration, private messaging side remains unchanged while CCGs are not replaced by Optiq Order Entry Gateway (phase 2 of the migration on Cash markets).

Clients may refer to Cash transition kinematics for the full details of the described behaviour.

3.4 TRADE CANCELLATION ON DERIVATIVES MARKETS

In UTP, cancelled trades by market operators were not disseminated on public Market Data, but only on the private feed. Following MiFID II requirements, this will no longer be the case. Cancelled trade will be published following the same rules as executed trades as described in the derivatives transition kinematics document.

3.5 DISAGGREGATED TRADES ON DERIVATIVES MARKETS

In UTP, Trade publication on Market Data feed was aggregated on a book limit basis : execution reports mention an aggregated volume and a price regardless of the number of trades triggered by a transaction on the limit defined in the book by the given price.

Following MiFID II requirements, this will no longer be the case with Optiq starting from the first migration phase. Trades will be published unitarily for each transaction. Which means that the computation of aggregated volumes slightly differs.

For a full description, client may refer to derivatives transition kinematics specifications.

3.6 DELTA NEUTRAL TRADES : FUTURE AS UNDERLYING

Delta neutral trades may involve both cash instrument or future as underlying. If the underlying is a cash instrument, the trade on the cash leg is reported on cash markets through TCS facility. If the underlying is a future, the trade on the future leg was not publicly published on Market Data.

In Optiq, the corresponding trade type is introduced, and the trade will be published on public Market Data feed.

3.7 WHOLESALERS EXTENDED HOURS

In UTP, the Wholesales hours are common for all wholesale types, supported by one common wholesale extended hours Market Mode on derivatives markets. Specific hours being posted according to the wholesale trade type is a functionality not enabled.

In Optiq, starting from the first migration phase, specific hours according to the wholesale trade type will be available and published in Market Data through Scheduled Events supported by the MDG Market Status Change (1005) message. For the full details of the behaviour, clients may refer to derivatives transition kinematics document. An overview is provided in this document, in the Market Status Change dedicated paragraph in Optiq Messaging System section.

3.8 PRICE LIMITS & QUOTE SPREAD MULTIPLIERS : FAST DERIVATIVES MARKETS

In UTP, price limits being enabled or disabled are disseminated through Market Data (specific Market Mode). However, the mode is not automatically indicated if enabled (Normal or Wide or Widest), and was disseminated to the market through text messages sent by market operations. Quote Spread Multipliers updated values are also mentioned through text messages.

In Optiq, the publication of the price limits mode and quote spreads multiplier values is made automatic when enabled, and text message will no longer be required to be processed. They are disseminated through the Market Status Change (1005) message – Clients may refer to the dedicated section.

3.9 INSTRUMENT EXPIRY MANAGEMENT ON DERIVATIVES MARKETS

With the change of granularity when it comes to Market Data publication and the disappearance of Expiry level of publication, the logic around expiry time and phases (pre-expiry) change with Optiq.

The pre-expiry is no longer a market phase at instrument level, since it has no constraint on market rules. The contract and its associated series are kept in Continuous state. The pre-expiry is handled at contract through scheduled Event. If a series expire within the trading date, scheduled event are sent at contract level mentioning the time of expiry. When that time is reached, another event is sent at contract level to mention that expiry (with no associated time).

For a full description, clients may refer to derivatives transition kinematics specifications document.

3.10 DECOMMISSION OF UNDERLYING REFERENTIAL DATA ON DERIVATIVES MARKETS

In UTP, a dedicated referential message Underlying Standing Data was disseminated to the market to provide underlying referential data.

In Optiq, this message is decommissioned and the data provided is encapsulated in the newly introduced Contract Standing Data that provides both underlying and contract level referential data, common for all associated series and strategies.

3.11 RETAIL MATCHING FACILITY BECOMES BEST OF BOOK ON CASH MARKETS

The recently enhanced service has been renamed to become Best of Book. However, to let clients be able to easily identify the changes related to current XDP-C fields, the legacy Retail Matching Facility (RMF) denomination is kept when referring to XDP-C messages.

3.12 LZ4 COMPRESSION METHOD VALIDATED

The LZ4 method for compression on dedicated channels for client using 100 M connexions for both RT and snapshot channels is confirmed by Euronext

3.13 NORMALIZED TIMESTAMPS

As a MiFID II requirement, all timestamps provided by the Optiq MDG will be framed in UTC timezone.

4. OPTIQ MESSAGING SYSTEM

The messaging system of Euronext's market data feed has been totally redesigned with Optiq MDG, and this was driven by these five objectives:

1. The harmonization of Cash & Derivatives Market Data feeds. With Optiq, all markets rely on one unique messaging system. The messages are the same across all markets, in terms of message structure and fields. Specifics for each market are aggregated within the fields' authorized values: some are common to both cash and derivatives, some are specific to cash markets, others to derivatives market. The exceptions are listed below:

- Referential Data: four dedicated messages (Cash Markets Instruments, Derivatives Contracts, Derivatives Outrights, Derivatives Strategies)
- Market per orders: the Order Update message is dedicated to Euronext Cash Regulated Markets
- Trade reporting, MiFID II compliant: some fields of the Full Trade Information message are specific for cash markets
- Market Status Change (1005) message : Trading Side is a Cash – Warrants market specific field, Quote Spread Multiplier, Price Limits are Derivatives market specific fields.

2. A simpler messaging system: The types of messages from XDP to Optiq MDG has been reduced. Using only fourteen market data application messages on both cash and derivatives markets, Optiq MDG not only maintains the quality of information sent by XDP, even enriching the information in some cases. Optiq messages are also easier to process. Technically, this has been achieved with the introduction of new Simple Binary Encoding (SBE) field types, allowing the use of bitmaps. Furthermore, all messages share the same new common header.

3. Eight administrative messages have been created in order to inform customers of the system's state and health, or related to snapshot functionality.

4. An agile messaging system: with SBE technology, messages can evolve without a retro-compatibility impact, giving Euronext customers total freedom when it comes to adaptability.

5. A MIFID II compliant data feed.

4.1 XDP TO MDG MESSAGES SENDING RULES MAPPING

#	XDP Cash or Deriv	XDP Message	XDP Message Number	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Comments
1	C	Auction Summary – 245 Message	245	Statistics	1009	
2	C	Authorized Out of Session Limits – 534 Message	534	Price Update	1003	
3	C	Class State Change – 516 Message	516	Market Status Change	1005	
4	C	Collars – 537 Message	537	Market Update	1001	
5	C	End Reference Data – 551 Message	551	N/A	NA	
6	C	Index Summary – 543 Message	543	Index Summary	1011	
7	C	Indicative Matching Price – 530 Message	530	Price Update	1003	
8	C	Mail – 523 Message	523	Exchange Message	1010	
9	C	Order Book Retransmission Delimiter – 231 Message	231	N/A	NA	
10	C	Order Update / Market Sheet – 230 Message	230	Order Update	1002	
11	C	Price Update – 241 Message	241	Price Update; Statistics	1009	See details on messages and fields in Full Mapping
12	C	Quotes – 140 Message	140	Market Update	1001	
13	C	Real-Time Index – 542 Message	542	Real Time Index	1008	
14	C	Reference Data – 553 Message	553	Standing Data	1007	
15	C	Request For Size – 524 message	524	Market Update	1001	
16	C	Retail Matching Facility (RMF) Quotes – 146 Message	146	Market Update	1001	
17	C	Session Timetable – 539 Message	539	Timetable	1006	
18	C	Settlement Price – 244 Message	244	Dedicated File	NA	
19	C	SG SI Quotes - 145	145	Market Update	1001	
20	C	Start Reference Data – Message 550	550	N/A	NA	
21	C	Stock State Change – 505 Message	505	Market Status Change	1005	

#	XDP Cash or Deriv	XDP Message	XDP Message Number	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Comments
22	C	TCS State Change – 535 Message	535	Market Status Change	1005	
23	C	TCS Trade – 242 Message	242	Full Trade Information ; Market Update; Statistics	1004;1001;1009	See details on messages and fields in Full Mapping
24	C	Trade Cancel – 221 Message	221	Full Trade Information ; Market Update	1004;1001	See details on messages and fields in Full Mapping
25	C	Trade Full Information – 240 Message	240	Full Trade Information ; Market Update ; Statistics	1004;1001;1009	See details on messages and fields in Full Mapping
26	C	Trade Publication – 243 Message	243	Full Trade Information	1004	
27	C	Trade Publication – 243 Message (For Si)	243	Full Trade Information	1004	
28	C	Weighted Average Spread (WAS) – 141 Message	141	N/A	NA	
29	D	End Refresh	581	Snapshot Functionality	NA	
30	D	Exchange Message	761	Exchange Message	1010	
31	D	Market Status	752	Market Status Change	1005	
32	D	Market Update	702	Full Trade Information ; Market Update ; Price Update	1004;1001;1003	See details on messages and fields in Full Mapping
33	D	Open Interest	782	Outright Standing Data	1014	
34	D	Outright Standing Data	722	Outright Standing Data/Contract Standing Data	1014;1013	
35	D	Product Availability	741	Market Status Change	1005	
36	D	Settlement Prices	712	Price Update	1003	See details on fields in Full Mapping
37	D	Start Refresh	580	Snapshot Functionality	NA	
38	D	Strategy Standing Data	732	Strategy Standing Data	1012	
39	D	Value-added Parameters	772	Statistics	1009	See details on fields in Full Mapping
40				End of day	1102	
41				Start of day	1101	

The chart below contains the full detailed mapping.

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
1	C	Auction Summary – 245 Message	245	-	-	Statistics	1009	Stats Update Type	21;22;23
2	C	Authorized Out of Session Limits – 534 Message	534	-	-	Price Update	1003	Market Data Price Type	19;20;21;22
3	C	Class State Change – 516 Message	516	-	-	Market Status Change	1005	(See dedicated table in the 1005 message dedicated section)	-
4	C	Collars – 537 Message	537	-	-	Market Update	1001	Market Data Update Type	13;14
5	C	End Reference Data – 551 Message	551	-	-	N/A	NA	-	-
6	C	Index Summary – 543 Message	543	-	-	Index Summary	1011	-	-
7	C	Indicative Matching Price – 530 Message	530	-	-	Price Update	1003	Market Data Price Type	14
8	C	Mail – 523 Message	523	-	-	Exchange Announcement	1010	-	-
9	C	Order Book Retransmission Delimiter – 231 Message	231	-	-	N/A	NA	-	-
10	C	Order Update / Market Sheet – 230 Message	230	-	-	Order Update	1002	-	-
11	C	Price Update – 241 Message	241	TypeOfPrice	'04' - Net Asset Value (+/-) for the instruments eligible to the Euronext Fund Service	Price Update	1003	Market Data Price Type	10

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
12	C	Price Update – 241 Message	241	TypeOfPrice	'33' – New last price	Price Update	1003	Market Data Price Type	11
13	C	Price Update – 241 Message	241	TypeOfPrice	'34' – New previous day's closing price	Price Update	1003	Market Data Price Type	12
14	C	Price Update – 241 Message	241	TypeOfPrice	'43' – Subscription Price	Price Update	1003	Market Data Price Type	13
15	C	Price Update – 241 Message	241	TypeOfPrice	'51' – Indicative price	Price Update	1003	Market Data Price Type	14
16	C	Price Update – 241 Message	241	TypeOfPrice	'28' – Subscription price for instruments eligible to Euronext Fund service	Price Update	1003	Market Data Price Type	24
17	C	Price Update – 241 Message	241	TypeOfPrice	'29' – Redemption price for instruments eligible to Euronext Fund service'	Price Update	1003	Market Data Price Type	25
18	C	Price Update – 241 Message	241	TypeOfPrice	'27' – Net Asset Value (NAV)	Price Update	1003	Market Data Price Type	10
20	C	Quotes – 140 Message	140	-	-	Market Update	1001	Market Data Update Type	1;2;3;4;5;6;58;59;60;61
21	C	Real-Time Index – 542 Message	542	-	-	Real Time Index	1008	-	-
22	C	Reference Data – 553 Message	553	-	-	Standing Data	1007	-	-
23	C	Request For Size – 524 message	524	-	-	Market Update	1001	Market Data Update Type	12;66;67
24	C	Retail Matching Facility (RMF) Quotes – 146 Message	146	-	-	Market Update	1001	Market Data Update Type	16;17;18;19
25	C	Session Timetable – 539 Message	539	-	-	Timetable	1006	-	-
26	C	Settlement Price – 244 Message	244	-	-	Dedicated File	NA	-	-
27	C	SG SI Quotes - 145	145			Market Update	1001	Market Data Update Type	20;21;22;23

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
28	C	Start Reference Data – Message 550	550	-	-	N/A	NA	-	-
29	C	Stock State Change – 505 Message	505	-	-	Market Status Change	1005	(See dedicated table in the 1005 message dedicated section)	-
30	C	TCS State Change – 535 Message	535	-	-	Market Status Change	1005	-	-
31	C	TCS Trade – 242 Message	242	TradeType	‘Y’ – Exchange for Physical	Full Trade Information	1004	Trade Type	10
32	C	TCS Trade – 242 Message	242	TradeType	‘H’ – Out of Market	Full Trade Information	1004	Trade Type	25
33	C	TCS Trade – 242 Message	242	TradeType	‘D’ – Delta Neutral Liffe Connect	Full Trade Information	1004	Trade Type	26
34	C	TCS Trade – 242 Message	242	TradeType	‘I’ – Euronext Fund Service	Full Trade Information	1004	Trade Type	28
35	C	TCS Trade – 242 Message	242	TradeType	‘R’ – Secondary listing place	Full Trade Information	1004	Trade Type	29
36	C	TCS Trade – 242 Message	242	TradeType	‘Y’ – Exchange for Physical	Market Update	1001	Market Data Update Type	36
37	C	TCS Trade – 242 Message	242	TradeType	‘H’ – Out of Market	Market Update	1001	Market Data Update Type	51
38	C	TCS Trade – 242 Message	242	TradeType	‘D’ – Delta Neutral Liffe Connect	Market Update	1001	Market Data Update Type	52
39	C	TCS Trade – 242 Message	242	TradeType	‘I’ – Euronext Fund Service	Market Update	1001	Market Data Update Type	54
40	C	TCS Trade – 242 Message	242	TradeType	‘R’ – Secondary listing place	Market Update	1001	Market Data Update Type	55
41	C	TCS Trade – 242 Message	242	TradeType	‘E’ – Market VWap operation	Full Trade Information	1004	Trade Type	27
43	C	TCS Trade – 242 Message	242	-	-	Statistics	1009	-	-

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
44	C	Trade Cancel – 221 Message	221	-	-	Full Trade Information	1004	Trade Type	24
45	C	Trade Cancel – 221 Message	221	-	-	Market Update	1001	Market Data Update Type	50
46	C	Trade Full Information – 240 Message	240	-	-	Full Trade Information	1004	Trade Type	1
47	C	Trade Full Information – 240 Message	240	TradeCond3	4	Full Trade Information	1004	Trade Type	23
48	C	Trade Full Information – 240 Message	240	-	-	Market Update	1001	Market Data Update Type	24
49	C	Trade Full Information – 240 Message	240	TradeCond3	4	Market Update	1001	Market Data Update Type	47
50	C	Trade Full Information – 240 Message	240	-	-	Statistics	1009	-	-
51	C	Trade Publication – 243 Message	243	-	-	Full Trade Information	1004	Trade Type	32
52	C	Trade Publication – 243 Message (For Si)	243	-	-	Full Trade Information	1004	Trade Type	21
53	C	Weighted Average Spread (WAS) – 141 Message	141	-	-	N/A	NA	-	-
54	D	End Refresh	581	-	-	Snapshot Functionality	NA		-
55	D	Exchange Message	761	-	-	Exchange Announcement	1010	-	-
56	D	Market Status	752	-	-	Market Status Change	1005	-	-
57	D	Market Update	702	Update Type	'6' - Conventional Trade	Full Trade Information	1004	Trade Type	1
58	D	Market Update	702	Update Type	'7' - Large in Scale (LiS) Trade	Full Trade Information	1004	Trade Type	2
59	D	Market Update	702	Update Type	'8' - Basis Trade	Full Trade Information	1004	Trade Type	3
60	D	Market Update	702	Update Type	'9' - Large in Scale (LiS) PackageTrade	Full Trade Information	1004	Trade Type	4
61	D	Market Update	702	Update Type	'10' - Guaranteed Cross Trade	Full Trade Information	1004	Trade Type	5

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
62	D	Market Update	702	Update Type	'11' - Against Actual Trade	Full Trade Information	1004	Trade Type	6
63	D	Market Update	702	Update Type	'12' - Asset Allocation Trade	Full Trade Information	1004	Trade Type	7
64	D	Market Update	702	Update Type	'13' - External Match Trade	Full Trade Information	1004	Trade Type	8
65	D	Market Update	702	Update Type	'14' - Exchange For Swap Trade	Full Trade Information	1004	Trade Type	9
66	D	Market Update	702	Update Type	'15' - Exchange For Physical Trade	Full Trade Information	1004	Trade Type	10
67	D	Market Update	702	Update Type	'29' - Strategy Leg Conventional Trade	Full Trade Information	1004	Trade Type	11
68	D	Market Update	702	Update Type	'30' - Strategy Leg Large in Scale (LIS) Trade	Full Trade Information	1004	Trade Type	12
69	D	Market Update	702	Update Type	'31' - Strategy Leg Basis Trade	Full Trade Information	1004	Trade Type	13
70	D	Market Update	702	Update Type	'33' - Strategy Leg Guaranteed Cross Trade	Full Trade Information	1004	Trade Type	14
71	D	Market Update	702	Update Type	'34' - Strategy Leg Against Actual Trade	Full Trade Information	1004	Trade Type	15
72	D	Market Update	702	Update Type	'35' - Strategy Leg Asset Allocation Trade	Full Trade Information	1004	Trade Type	16
73	D	Market Update	702	Update Type	'36' - Strategy Leg External Match Trade	Full Trade Information	1004	Trade Type	17
74	D	Market Update	702	Update Type	'37' - Strategy Leg Exchange For Swap Trade	Full Trade Information	1004	Trade Type	18
75	D	Market Update	702	Update Type	'38' - Strategy Leg Exchange For Physical Trade	Full Trade Information	1004	Trade Type	19
76	D	Market Update	702	Update Type	'39' - AtomX Trade	Full Trade Information	1004	Trade Type	22
77	D	Market Update	702	Update Type	'43' - Request for Cross Trade	Full Trade Information	1004	Trade Type	30
78	D	Market Update	702	Update Type	'44' - Strategy Leg Request for Cross	Full Trade Information	1004	Trade Type	31

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
79	D	Market Update	702	Update Type	'1' - Best Bid	Market Update	1001	Market Data Update Type	1
80	D	Market Update	702	Update Type	'2' - Best Offer	Market Update	1001	Market Data Update Type	2
81	D	Market Update	702	Update Type	'3' - Bid	Market Update	1001	Market Data Update Type	3;5
82	D	Market Update	702	Update Type	'4' - Offer	Market Update	1001	Market Data Update Type	4;6
83	D	Market Update	702	Update Type	'5' - Total Traded Volume	Market Update	1001	Market Data Update Type	7
84	D	Market Update	702	Update Type	'17' - Implied Bid	Market Update	1001	Market Data Update Type	8
85	D	Market Update	702	Update Type	'18' - Implied Offer	Market Update	1001	Market Data Update Type	9
86	D	Market Update	702	Update Type	'40' - Request for Quote	Market Update	1001	Market Data Update Type	10
87	D	Market Update	702	Update Type	'6' - Conventional Trade	Market Update	1001	Market Data Update Type	24
88	D	Market Update	702	Update Type	'7' - Large in Scale (LiS) Trade	Market Update	1001	Market Data Update Type	27
89	D	Market Update	702	Update Type	'8' - Basis Trade	Market Update	1001	Market Data Update Type	28
90	D	Market Update	702	Update Type	'9' - Large in Scale (LiS) PackageTrade	Market Update	1001	Market Data Update Type	29
91	D	Market Update	702	Update Type	'10' - Guaranteed Cross Trade	Market Update	1001	Market Data Update Type	30
92	D	Market Update	702	Update Type	'11' - Against Actual Trade	Market Update	1001	Market Data Update Type	31
93	D	Market Update	702	Update Type	'12' - Asset Allocation Trade	Market Update	1001	Market Data Update Type	32
94	D	Market Update	702	Update Type	'13' - External Match Trade	NA	NA	NA	NA

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
95	D	Market Update	702	Update Type	'14' - Exchange For Swap Trade	Market Update	1001	Market Data Update Type	34
96	D	Market Update	702	Update Type	'15' - Exchange For Physical Trade	Market Update	1001	Market Data Update Type	36
97	D	Market Update	702	Update Type	'29' - Strategy Leg Conventional Trade	Market Update	1001	Market Data Update Type	37
98	D	Market Update	702	Update Type	'30' - Strategy Leg Large in Scale (LiS) Trade	Market Update	1001	Market Data Update Type	38
99	D	Market Update	702	Update Type	'31' - Strategy Leg Basis Trade	Market Update	1001	Market Data Update Type	39
100	D	Market Update	702	Update Type	'33' - Strategy Leg Guaranteed Cross Trade	Market Update	1001	Market Data Update Type	40
101	D	Market Update	702	Update Type	'34' - Strategy Leg Against Actual Trade	Market Update	1001	Market Data Update Type	41
102	D	Market Update	702	Update Type	'35' - Strategy Leg Asset Allocation Trade	Market Update	1001	Market Data Update Type	42
103	D	Market Update	702	Update Type	'36' - Strategy Leg External Match Trade	Market Update	1001	Market Data Update Type	43
104	D	Market Update	702	Update Type	'37' - Strategy Leg Exchange For Swap Trade	Market Update	1001	Market Data Update Type	44
105	D	Market Update	702	Update Type	'38' - Strategy Leg Exchange For Physical Trade	Market Update	1001	Market Data Update Type	45
106	D	Market Update	702	Update Type	'39' – AtomX Trade	Market Update	1001	Market Data Update Type	46
107	D	Market Update	702	Update Type	'43' - Request for Cross Trade	Market Update	1001	Market Data Update Type	56
108	D	Market Update	702	Update Type	'44' - Strategy Leg Request for Cross	Market Update	1001	Market Data Update Type	57
109	D	Market Update	702	Update Type	'41' - Request for Cross Activated	Market Update	1001	Market Data Update Type	25
110	D	Market Update	702	Update Type	'42' - Request for Cross Queued	Market Update	1001	Market Data Update Type	26

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
111	D	Market Update	702	Update Type	'19' - Indicative Open Price	Price Update	1003	Market Data Price Type	14
112	D	Open Interest	782	-	-	Dedicated File	NA	NA	NA
113	D	Outright Standing Data	722	-	-	Outright Standing Data	1014	-	-
114	D	Product Availability	741	-	-	Market Status Change	1005	-	-
116	D	Settlement Prices	712	Update Type	'2' - Official Daily	Price Update	1003	Market Data Price Type	2
117	D	Settlement Prices	712	Update Type	'3' - Provisional Market Close	Price Update	1003	Market Data Price Type	3
118	D	Settlement Prices	712	Update Type	'4' - Official Market Close	Price Update	1003	Market Data Price Type	4
119	D	Settlement Prices	712	Update Type	'5' - Provisional Expiry	Price Update	1003	Market Data Price Type	5
120	D	Settlement Prices	712	Update Type	'6' - Official Expiry	Price Update	1003	Market Data Price Type	6
121	D	Settlement Prices	712	Update Type	'7' - Provisional IntraDay	Price Update	1003	Market Data Price Type	7
122	D	Settlement Prices	712	Update Type	'8' - Official IntraDay	Price Update	1003	Market Data Price Type	8
123	D	Settlement Prices	712	Update Type	'10' - Official YDSP	Price Update	1003	Market Data Price Type	9
124	D	Start Refresh	580	-	-	Snapshot Functionality	NA		-
125	D	Strategy Standing Data	732	-	-	Strategy Standing Data	1012	-	-
126	D	Value-added Parameters	772	Update Type	'1' - Daily High	Statistics	1009	Stats Update Type	5
127	D	Value-added Parameters	772	Update Type	'2' - Daily Low	Statistics	1009	Stats Update Type	6
128	D	Value-added Parameters	772	Update Type	'3' - Yearly High	Statistics	1009	Stats Update Type	7
129	D	Value-added Parameters	772	Update Type	'4' - Yearly Low	Statistics	1009	Stats Update Type	8

#	XDP Cash or Deriv	XDP Message	Message Number	Field	Value	Optiq MDG Message Cash & Derivatives	Optiq Message Number	Optiq Field	Value
130	D	Value-added Parameters	772	Update Type	'5' - Lifetime High	Statistics	1009	Stats Update Type	9
131	D	Value-added Parameters	772	Update Type	'6' - Lifetime Low	Statistics	1009	Stats Update Type	10
132	D	Value-added Parameters	772	Update Type	'10' - Open Price	Statistics	1009	Stats Update Type	15
133	D	Value-added Parameters	772	Update Type	'11' - Trade Count	Statistics	1009	Stats Update Type	16
134	D	Value-added Parameters	772	Update Type	'13' - Last Trade Price	Statistics	1009	Stats Update Type	17
135	D	Value-added Parameters	772	Update Type	'12' - Percentage Change	Statistics	1009	Stats Update Type	18
136						End of day	1102		
137						Start of day	1101		

4.2 HEADER

Message Header management is applied at two levels of encapsulation:

- Packet header: in all packets sent to the market, as in XDP, packets can contain several SBE messages.
- SBE header: Each SBE message has an SBE header which provides information on the message type and version.

4.3 TECHNICAL MESSAGES

4.3.1 Start Of Day

The Start of Day message announces the start of Optiq MDG at the beginning of each trading day.

Main sending rule: first message of the day, except for Health Status

Corresponding XDP features: None.

4.3.2 End Of Day

The End of Day message announces the shutdown of Optiq MDG after the full closing of a trading day.

Main sending rule: last message of the day.

Corresponding XDP features: None

4.3.3 Health Status

The Health Status Message is a heartbeat and informs the Market that Optiq MDG engines are up-and-running on the network during a trading day.

Main sending rule: The message is sent at a defined frequency throughout the trading day.

Corresponding XDP features: None

4.3.4 Trade Retransmission Start

The Trade Retransmission Start message indicates the start of a trade retransmission sequence sent in case of a failure.

The message must be taken alongside the Trade Retransmission End message. A trade's status is overwritten by such a retransmission sequence, and each message provides a start and end time.

The rules whereby this message should be interpreted are as follows:

1. Trades broadcast with an associated Event Time *lower than* the Trade Retransmission Start Time should be considered persisted and therefore valid
2. Trades broadcast in the real-time feed before the retransmission start, and with an associated Event Time within the time window defined by the Retransmission Start and End messages should

be considered invalid, and therefore ignored. As such, they should be replaced by the retransmitted data.

3. Trades broadcast with an associated Event Time *higher than* the Trade Retransmission End Time should be considered as officially persisted and therefore valid.

Main sending rule: First message of a trade retransmission sequence following a failure

Corresponding XDP features: None

4.3.5 Trade Retransmission End

The Trade Retransmission End message indicates the end of a trade retransmission sequence sent in case of failure.

This message must be interpreted alongside the Trade Retransmission Start message. A trade's status is overwritten by such a retransmission sequence, and each message provides a start and end time. The rules whereby this message should be interpreted are as follows:

1. Trades broadcast with an associated Event Time *lower than* the Trade Retransmission Start Time should be considered persisted and therefore valid
2. Trades broadcast in the real-time feed before the retransmission start, and with an associated Event Time within the time window defined by the Retransmission Start and End messages should be considered invalid, and therefore ignored. As such, they should be replaced by the retransmitted data.
3. Trades broadcast with an associated Event Time *higher than* the Trade Retransmission End Time should be considered as officially persisted and therefore valid.

Main sending rule: End message of a trade retransmission sequence following a failure

Corresponding XDP features: None

4.4 REFERENTIAL MESSAGES

4.4.1 Standing Data

The Standing Data Message feeds the market with all reference data needed for Cash Instruments

All the referential data are also available in the dedicated referential xml file provided each day. The message will nevertheless disseminate those data on the feed. The message is dedicated to Euronext Cash Markets.

Main sending rule: in the morning before the opening.

Corresponding XDP messages: XDP-C 533 Reference Data, XDP-C 550 Start Reference Data, XDP-C 551 End Reference Data

4.4.2 Contract Standing Data

The Contract Standing Data Message feeds the market with all reference data needed for Derivatives Contracts.

All the referential data are also available in the dedicated xml referential file provided each day. The message will nevertheless disseminate those data on the feed. The message is dedicated to Euronext Derivatives Markets. The contract level data is to be applied to all subsidiary outright instruments.

Main sending rule: in the morning before the opening.

Corresponding XDP messages: XDP-D Outright Standing Data

4.4.3 Outright Standing Data

The Outright Standing Data Message feeds the market with all reference data needed for Derivatives Outrights Instruments.

All the referential data are also available in the dedicated referential xml file provided each day. The message will nevertheless disseminate those data on the feed. The message is dedicated to Euronext Derivatives Markets. The data provided within the Outright Standing Data are those that are specific to the instrument.

Main sending rule: in the morning before the opening, but also intraday in case of intraday creation of strikes.

Corresponding XDP messages: XDP-D Outright Standing Data

4.4.4 Strategy Standing Data

The Strategy Standing Data Message feeds the derivatives markets with all reference data needed for strategies instruments trading.

All the referential data are available in the Strategy Standing Data dedicated xml file provided each day. The shortened message will nevertheless disseminate the needed data for trading purpose.

Main sending rule: in the morning before the opening for Derivatives markets, but also intraday case of an intraday creation of strategies.

Corresponding XDP messages: XDP-D 732 Strategy Standing Data.

4.4.5 Timetable

The Timetable message provides the predefined scheduled pattern for each instrument. It is available on cash markets only and is sent at the start of each trading day.

In addition to the Timetable message, the actual status changes of each instrument are notified to the market through Market Status Change messages. This applies to scheduled changes or manual actions by market operations. If the trading pattern of an instrument is altered intraday, then the new pattern is republished via an updated Timetable Message.

Note: During the transition phase:

- The Timetable message sent in the morning phase will provide the full patterns
- The Timetable message sent intraday in case of market operations intervention will not provide the full pattern, following current rules driving the XDP-C 539 message

Main sending rule: The Schedule patterns are sent once in the morning at start of day, and intraday in case of full schedule alteration.

Corresponding XDP messages: XDP-C: 539 Session Timetable.

4.5 APPLICATION MESSAGES

4.5.1 Market Update

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

This message is sent for all markets each time the best limit is impacted, and for cash markets in case of a change of dynamic collars. For both Cash and derivatives, the Market Update message reports trades, including such information as the trade type, price and quantity. This message also notifies the market of Requests For Quotes for both cash and derivatives.

On quote driven markets, a Market Update is also sent each time a limit is newly inserted, or if an existing limit is updated.

Main sending rule: Each impact on a limit following an order entry is disseminated to the market through a Market Update message (quote driven markets), as well as for best limits (all markets). Each Trade is notified to the market with a short summary based on this message. On Cash Markets, each change of dynamic collars is notified through a Market Update.

Corresponding XDP messages: XDP-C 140 Quotes, XDP-C Retail Matching Facilities (RMF) Quotes, XDP-C 221 Trade Cancel, XDP-C 524 Request for size, XDP-D 702 Market Update.

The Market Update message brings a totally new way of delivering this type of information, and therefore impacts the message kinematics, which are outlined in the Kinematics documentation. Nevertheless, the global kinematic rule is that the BBO is always published if impacted, and on Warrants, a Market Update is published each time a limit is impacted:

1. For each new or updated limit, a message is sent on that limit (only on Warrants)
2. If the best limit is impacted, a second message is sent. (All cash markets)
3. Each Quote Request triggers a Market Update message.

The Quote Number field that was previously published in the XDP-C 140 message was an irrelevant data that will not exist in the Market Update message. Indeed, note that the latest XDP-C specification states the following:

Euronext advises customers to always use the value in level 1 of the 'Quotes' message (Msg Type=140, QuoteNumber=1) as the best bid and offer.

Customers should not use the Indicative Matching Price or Market Summary Quote messages as the basis to publish the best bid and offer."

As for derivatives, only the Market Update message is sent regarding the books construction, no Order Update message. Global kinematics would be the following:

1. For each new or updated limit, a message is sent on that limit.
2. If the best limit is impacted, a second message is sent.
3. For a trade recorded on a single book (explicit trade on a strategy level, explicit trade on an outright) impacting the best limit, a message is sent on each instrument to notify of the trade.

4. Implied limits are disseminated to the market through a market update.
5. For each trade involving an implied limit, (explicit vs implied, implied vs implied) the global scheme is the same: for each strategy, a Market Update is sent to notify the market on a strategy level (conventional trade), then on each leg of the strategy (strategy leg trade). If an outright is involved in a trade in regard to a leg, we then publish at end of sequence the trades on outright level (conventional trade).
6. Each Quote Request triggers the sending of a Market Update message.

4.5.2 Order Update

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

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.

This message is available for:

- Equities
- ETF
- Fixed Income

This message is sent:

- 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 (triggered by Market Operations). This is a failsafe in case of order book resynchronization.

Orders should be sorted 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

Main sending rule: Throughout the trading day depending on trading activity, to provide information needed to build order books.

Corresponding XDP messages: XDP-C 230 Order Update / Market Sheet.

4.5.3 Price Update

The Price Update Message feeds the market with several price types:

Settlement prices on both cash and derivatives markets, Indicative Matching Prices (computed every 50ms during a call phase, and broadcast in case it changes) or the Uncrossing Price (effective opening price following a call phase).

On cash Markets, it also provides reference prices such as the Last Adjusted Closing Price, or the Last traded Price. Note that they can be provided directly by Market Operations.

Main sending rule: whenever a price needs to be delivered to the market, and during all Call/Uncrossing phases for IMP & UP.

Corresponding XDP messages: XDP-C 241 Price Update, XDP-C 530 Indicative Matching Price, XDP-C 537 Collars, XDP-D 702 Market Update, XDP-D 712 Settlement Prices

On XDP-D, the former Indicative Opening Price (IOP) was disseminated via the 702 Market Update message. It will now be managed by the Price Update message.

On the cash markets: the IMP published within the XDP-C 530 message follows the same rules within Optiq.

4.5.4 Full Trade Information

The Full Trade Information Message feeds the Market with a Mifid II compliant trade summary.

This message follows the short summary, which is disseminated through a Market Update on a dedicated channel.

All of the MiFID II related fields and flags are present in this message, and respect the standardization formatting rules defined by the regulators.

Main sending rule: This message is a full trade summary, and is fully Mifid II compliant.

Corresponding XDP messages: XDP-C 243 Trade Publication, XDP-C 242 TCS Trade Notice, XDP-C 240 Trade Full Information, XDP-D 702 Market Update.

4.5.5 Market Status Change

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

A main new features of this message is that it always provides the full state of the impacted instrument or derivatives contract. This is done using the fields listed below. The updated values will appear within the updated fields, with unchanged values from the previous stat being persisted. Thanks to this new methodology, no interpretation by members is necessary, with all relevant Market Status information is now provided each time the message is sent.

The Market Status Change message is functionally driven by the following fields:

- **Book State:** Market State of the Contract
- **Status Reason:** Book State origin
- **Trading Mode:** Specifics during a trading phase that do not impact the Book State
- **Scheduled Event:** Market Event notification
- **Scheduled Event Time:** Scheduled Event associated time if required
- **Quote Spread Multiplier:** *(Specific field for Derivatives Markets)* Multiplier rules applied on quote spreads
- **Price Limits:** *(Specific field for Derivatives Markets)* Price limits rules applied. If enabled, normal, wide and widest mode specified
- **Trading Period:** Defines the different periods during a trading day
- **Order Entry Qualifier:** Describes whether order entry is allowed for the instrument, and depends on Book State, Trading Mode and global availability
- **Trading Side:** *(Specific field for Cash Warrants Markets)* Identifies one –sided trading periods

- **Market Data Change Type:** Indicates if the message is sent to mention a change of market Status or in order to send a notification via Scheduled Event, or both

Main sending rule: This message is sent for each status change, manual or automatic, scheduled or not. The full kinematics are described in the relevant documents.

Corresponding XDP messages: XDP-C 505 Stock State Change, XDP-C 516 Class State Change, XDP-D 752 Market State, XDP-D 741 Product Availability

4.5.5.1 XDP-C Schedule messaging vs Cash Optiq Schedule messaging

On XDP-C, the state of an instrument is described by the combination of two messages, one at class level, and a second one at instrument level: the XDP-C 516 and 505 messages. On Optiq, this is covered by a single message: the 1005 Market Status Change message. In addition to the removal of the class state change message in Optiq MDG, the full state is now provided by the Market Status change message each time it is sent. This is not the case in XDP-C, and demonstrates a key simplification in the processing of this type of information going forward.

For more details, please refer to the dedicated section of [Euronext Cash Market – UTP to MDG Transition kinematics specifications](#) document

Note that all fields are always populated, except the Change Time and Scheduled Event Time, as they are notifications.

The following tables gives an overview of the new schedule mechanism. For the full description, client may refer to cash kinematics documents.

UTP Trading Phase	Optiq™ Book State	Optiq™ Trading Period	Optiq™ Trading Mode	Optiq™ Order Entry Qualifier
Closed (CLSD)	Inaccessible	--	--	Order Entry/Cancel/Modify disabled
Early Monitoring (EAMO)	Closed	--	--	Order Entry/Cancel/Modify disabled
Core Call (COCA)	Call	Standard Core	[Call BBO Only]	Order Entry/Cancel/Modify enabled
Core Auction (COAU)	Uncrossing	Standard Core	[Randomized]	Order Entry/Cancel/Modify enabled
Core Continuous (COCO)	Continuous	Standard Core	--	Order Entry/Cancel/Modify enabled
Core Monitoring (COMO)	Closed	Standard Core	--	Order Entry/Cancel/Modify disabled
Closing Call (CLCA)	Call	Standard Closing	[Call BBO Only]	Order Entry/Cancel/Modify enabled
Closing Auction (CLAU)	Uncrossing	Standard Closing	[Randomized]	Order Entry/Cancel/Modify enabled
Late Monitoring (LAMO)	Closed	Standard Closing	--	Order Entry/Cancel/Modify disabled
Trading At Last (TAL)	Continuous	Standard Closing	Trading At Last	Order Entry/Cancel/Modify enabled

4.5.5.2 XDP-D Schedule messaging vs Derivatives Optiq Schedule messaging

On XDP-D, the state of an instrument is provided in the Market Data via the 752 Market State message. Since the Market Mode field is repeated, all data is listed independently (state of the instrument, price limits, quote spreads, etc.). On XDP-D, each time the message is sent, new information is published regardless of the current state of the instrument. On Optiq the whole status is always published each time it is impacted.

Note that all fields are always populated, except the Scheduled Event and Scheduled Event Time, as they are notifications.

For more details, please refer to the dedicated section of [Euronext Derivatives – UTP to MDG Transition kinematics specifications](#) document

The following tables gives an overview of the new schedule mechanism. For the full description, client may refer to the derivatives kinematics documents.

The changes are disseminated at contract level. Changes disseminated at instrument level are set in italics. Note that “inherited” value means that the value is the same as the previous market state of the contract.

UTP Market Mode	Optiq™ Book State	Optiq™ Trading Period	Optiq™ Trading Mode	Optiq™ Quote Spread Multiplier	Optiq™ Price Limits	Optiq™ Scheduled Event + Scheduled Event Time	Optiq™ Order Entry Qualifier
Closed	Closed	Depends on the timeline	inherited	inherited	inherited	--	Order Entry disabled -Cancel/Modify enabled if Status Reason is : Scheduled
Pre Open	Call	inherited	inherited	inherited	inherited	--	Order Entry/Cancel/Modify enabled
Open	Continuous	Standard Core	inherited	inherited	inherited	--	Order Entry/Cancel/Modify enabled
Pre Closed	Continuous	Standard Closing	inherited	inherited	inherited	Event sent when entering pre closing, event time set at closing time	Order Entry/Cancel/Modify enabled
Terminate	inherited	inherited	<i>Suspended</i>	inherited	inherited	--	Order Entry/Cancel/Modify enabled
Pre Expiry	Continuous	inherited	inherited	inherited	inherited	Event sent when entering pre expiry, event time set at expiry time	Order Entry/Cancel/Modify enabled
Expire	inherited	inherited	<i>Expired</i>	inherited	inherited	Event sent when expiry time is reached – with no event time	Order Entry/Cancel/Modify disabled

Expit Extend Open	inherited	inherited	inherited	inherited	inherited	Event sent when entering pre open/pre close with end of extended session as event time	inherited
Expit LiS trade extend Open	inherited	inherited	Wholesales allowed	inherited	inherited	Event sent when entering pre open/pre close with end of extended session as event time	inherited
Expit Against Actual extend Open	inherited	inherited	Wholesales allowed	inherited	inherited	Event sent when entering pre open/pre close with end of extended session as event time	inherited
ExPit Basis trades Open	inherited	inherited	Wholesales allowed	inherited	inherited	Event sent when entering pre open/pre close with end of extended session as event time	inherited
Expit LiS Package trades Open	inherited	inherited	Wholesales allowed	inherited	inherited	Event sent when entering pre open/pre close with end of extended session as event time	inherited
Expit Exchange For Swap trades Open	inherited	inherited	Wholesales allowed	inherited	inherited	Event sent when entering pre open/pre close with end of extended session as event time	inherited
Quote Width Exemption 1/2/3	inherited	inherited	inherited	QSM 1 or 2 or 3	inherited	--	inherited
Price Limit enabled	inherited	inherited	inherited	inherited	Price Limit enabled – Normal or Wide or Widest	--	inherited
Price Limit disabled	inherited	inherited	inherited	inherited	Price limits disabled	--	inherited

4.5.6 Real-Time Index Update

The Real-Time Index Update is sent at a regular frequency, and provides statistics related to the relevant index.

This message is very similar to the XDP-C 542 message. It is sent on a regular based frequency that depends on the index.

Main sending rule: On a regular based frequency during the trading day.

Corresponding XDP messages: XDP-C 542 Real Time Index

4.5.7 Statistics

The Statistics Message provides the Market with the historical data computed by Euronext, for both Cash & Derivatives markets.

The message is sent each time one of the statistics values are impacted.

Main sending rule: Each change of value of an historical statistic triggers the publication of a Statistics message.

Corresponding XDP messages: XDP-C 245 Auction Summary, XDP-C 534 Authorized Out of Session Limits, XDP-C 240 Trade Full Information, XDP-C 241 Price Update, XDP-C 242 TCS Trade, XDP-D 772 Value Added Parameters

4.5.8 Index Summary

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.

The second publication follows the first by ten minutes in order to include additional information, and the same as the XDP-C 543 message.

Corresponding XDP messages: XDP-C 543 Index Summary

4.5.9 Exchange Announcement

The Exchange Announcement Message provides the market with any Euronext announcements which must be published via market data.

Main sending rule: The message is sent on command manually triggered by Market Operations.

Corresponding XDP messages: XDP-C 523 Mail, XDP-D 761 Exchange Mail

4.6 SNAPSHOT MESSAGES

4.6.1 Start of Snapshot

The Start of Snapshot message indicates the beginning of a snapshot sequence.

It provides the Market Data Sequence Number of the last real-time message processed for this snapshot. As such, queued messages received from the real time feed that have a lower Market Data Sequence Number can be dropped/ignored.

Main sending rule: First message of a Snapshot sequence

Corresponding XDP features: None

4.6.2 End Of Snapshot

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 indicates that processing queued messages from the real-time feed with a higher Market Data Sequence member is now possible.

Main sending rule: Last message of a Snapshot sequence

Corresponding XDP features: None

4.7 REMOVED MESSAGE

XDP-D 782 “Open Interest” and XDP-C 244 “Settlement Price” will not be sent in the Optiq MDG feed. They will be provided as part of the referential data file and messages instead.

The XDP-C 544 message “Index Composition” will be removed completely from Market Data public messages. It has already been decommissioned for Euronext Indices but is still broadcasted on Bourse du Luxembourg (BDL) dedicated XDP channels.

Once phase 1 of Optiq is live, the message will be decommissioned for BDL and removed from the messaging scope completely.

5. MISCELLANEOUS

The MDG client specification provides a full description of static message structure that will be disseminated to the market. Some fields will be removed, and some will have a change in behaviour due to the phased migration process.

The Kinematics documents provide for each market the dynamic rules that drive message publication. As such, the documents provided for phase 1 of the migration should be considered as temporary, since these rules depend primarily on the matching engine.

5.1 MESSAGE SEQUENCING

■ On Euronext Cash Regulated Markets:

For phase 1, the messages sequencing will follow the rules driven by the Euronext UTP-C matching engine.

Market Update messages generated by limit updates and impacts on the BBO will always follow the Order Update that has triggered them.

However, since the Market Update also provides the short trade notification, when a trade takes places, the Market Update message notifies the trade before the Order Update message is sent. That is, as long as the Euronext UTP-C trading engine is in place, trades will always notified before Order Updates.

Given the phased approach of the Optiq migration, it is important to note that the message sequencing indicated by this document is not necessarily the target sequencing that will be delivered with the Full Optiq platform in phase 2. As such, the new feed should be developed to be flexible and fully able to adapt to different message sequencing.

■ On Euronext Derivatives Markets:

For phases 1 & 2, the message sequencing will follow the rules driven by the Euronext UTP-D matching engine.

A dedicated section of the Kinematics document describes trading scenarios. For the described scenarios, the provided sequence is guaranteed.

Given the complexity of transactions and market events on derivatives markets, it is not technically possible to guarantee message sequencing.

5.2 ORDER IDENTIFICATION – PRIVATE AND PUBLIC MESSAGE RECONCILIATION

Currently on XDP-C, the OrderId assigned to each order entered is disseminated and allows for reconciliation between private and public data messages. Once the Optiq migration is complete, a new methodology will be provided for reconciliation purposes. That is, once the full Optiq platform is live, the **Order Reference Number** field will be a unique value in nanoseconds given at the order entry level to identify an order with guaranteed uniqueness. This new functionality will be provided with the delivery of the Optiq Order Entry and Optiq Matching Engine in phase 2.

During the transition phase, however, this will not change, and this field will be populated with the Order ID currently in use in XDP-C

5.3 ALTERED FIELDS DURING PHASE 1 MIGRATION PHASE

In the following tables, the field by field changes are identified, and the possible changes are as follows:

- Harmonized for both cash and derivatives market
- New field
- Altered during the transition phase (to be removed or if a change in behaviour is expected)
- If it can be mapped to a current existing field (no change except naming)

All non-impacted fields are not mentioned.

Field	Format	Len	Used for	Functional Change	Change details	Message
Euronext Code	Alphanumeric ID	15	Cash and Derivatives	Cash&Deriv Merge	Merge of AMR and TradingCode	Standing Data, Outright Standing Data
Instrument Category	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge		Standing Data, Contract Standing Data, Strategy Standing Data
Instrument Name	Name	18	Cash and Derivatives	Cash&Deriv Merge	Name on deriv: "desc" in standing data file	Standing Data, Contract Standing Data, Outright Standing Data
ISIN Code	Alphanumeric ID	12	Cash and Derivatives	Cash&Deriv Merge	ID Source/ID pair in XDP-D Standing Data File	Standing Data, Outright Standing Data
Last Adjusted Closing Price	Price	4	Cash and Derivatives	Cash&Deriv Merge		Standing Data, Outright Standing Data
Last Trading Date	Date	2	Cash and Derivatives	Cash&Deriv Merge		Outright Standing Data
Lot Size	Quantity	8	Cash and Derivatives	Cash&Deriv Merge		Standing Data, Contract Standing Data
Market Data Price Type	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge	was "typeOfPrice" on XDP-C and part of "Update Type" in "Market Update" Message on XDP-D (details in sending rule mapping)	Price Update
Market Data Update Type	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge	Derivatives logic adopted for cash (details in sending rule mapping)	Market Update
Maturity Date	Date	4	Cash and Derivatives	Cash&Deriv Merge		Standing Data, Outright Standing Data
Nominal Market Price	Numerical ID	8	Cash and Derivatives	Cash&Deriv Merge		Standing Data

Field	Format	Len	Used for	Functional Change	Change details	Message
Number Of Messages	Quantity	1	Cash and Derivatives	Cash&Deriv Merge	Exchange Announcement built following XDP-C "Mail" Message and used for both	Exchange Annoucement
Order Entry Qualifier	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge	Harmonised from "OrderEntryRejection" and ...	Market Status Change
Percentage Var from Prev Close	Quantity	4	Cash and Derivatives	Cash&Deriv Merge	Used for Indices and Snapshot. Old XDP-C "Variationlastprice" and XDP-D "Percentage Change" in update type of stats message	Statistics
Product Code	Alphanumerical ID	3	Cash and Derivatives	Cash&Deriv Merge		Contract Standing Data, Strategy Standing Data
Instrument Unit Expression	Enumerated	1	Cash and Derivatives	Cash Merge		Standing Data
Session	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge	Will be used on Cash if needed in the future	Market Status Change
Settlement Period	Numerical ID	1	Cash and Derivatives	Cash&Deriv Merge		Standing Data
Trade Reference	Alphanumerical ID	30	Cash and Derivatives	Cash&Deriv Merge		Full Trade Information

Field	Format	Len	Used for	Functional Change	Change details	Message
Trade Type	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge	Merge of trade related "update type" in XDP-D Market Update and used to differentiate SI/RMF/TCS... on cash where information was previously in different fields or different messages	Full Trade Information
Trading Currency Indicator	Enumerated	1	Cash and Derivatives	Cash&Deriv Merge		Standing Data
Underlying ISIN Code	Alphanumeric ID	12	Cash and Derivatives	Cash&Deriv Merge		Contract Standing Data
Underlying MIC Code	Alphanumeric ID	4	Cash and Derivatives	Cash&Deriv Merge		Contract Standing Data
Venue	Alphanumeric ID	11	Cash and Derivatives	Cash&Deriv Merge		Full Trade Information
High Time	Timestamp	8	Cash	No change		Index Summary
Imbalance Quantity	Quantity	8	Cash	No change		Price Update
Market Data Sequence Number	Sequence	8	Cash and Derivatives	Modified		All
Order Reference Number	Numerical ID	8	Cash	Altered During Transition	gives the "OrderID" for transition phase	Order Update
Publication Date Time	Timestamp	27	Cash and Derivatives	Modified	used for all trades (was tcs only before) to be mifid compliant (uses mifid format)	Full Trade Information
Quantity	Quantity	8	Cash and Derivatives	Modified	decimalized	All

Field	Format	Len	Used for	Functional Change	Change details	Message
Symbol Index	Numerical ID	4	Cash and Derivatives	Modified	Will be used on derivatives (was present but not always populated before)	All
Trade Qualifier	Bitmap	1	Cash and Derivatives	Modified		Full Trade Information
Change Time	Timestamp	8	Cash and Derivatives	new	new Timetable / Market Status logic	Market Status Change
Clearing Flag	Alphanumeric ID	5	Cash and Derivatives	new	MIFID	Full Trade Information
EMM	Enumerated	1	Cash and Derivatives	New		All
Event Time	Timestamp	8	Cash and Derivatives	New		All
Market Data Change Type	Bitmap	1	Cash and Derivatives	new		Market Status Change
MiFID Currency	Alphanumeric ID	3	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Execution ID	Alphanumeric ID	52	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Instrument ID	Alphanumeric ID	12	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Instrument ID Type	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID MIC	Alphanumeric ID	3	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Price	Price	20	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Price Notation	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Quantity	Quantity	20	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information

Field	Format	Len	Used for	Functional Change	Change details	Message
MiFID Quantity Measurement Unit	Quantity	20	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MiFID Quantity Notation	Alphanumeric ID	25	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Agency Cross Trade Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Algorithmic Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Benchmark Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Contribution to Price	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Duplicative Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Market Mechanism	Enumerated	1	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Modification Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Negotiation Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Off Book Automated Indicator	Enumerated	1	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Post Trade Deferral	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information

Field	Format	Len	Used for	Functional Change	Change details	Message
MMT Publication Mode	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Special Dividend Indicator	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Trading Mode	Enumerated	1	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
MMT Transaction Category	Alphanumeric ID	4	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
Pattern ID	Numerical ID	2	Cash and Derivatives	new	new Timetable / Market Status logic	TimeTable
Phase Time	Timestamp	8	Cash and Derivatives	new	new Timetable / Market Status logic	TimeTable
Phase Id	Enumerated	1	Cash and Derivatives	new	new Timetable / Market Status logic	TimeTable
Scheduled Event	Enumerated	1	Cash and Derivatives	new	new Timetable / Market Status logic	Market Status Change
Scheduled Event Time	Timestamp	8	Cash and Derivatives	new	new Timetable / Market Status logic	Market Status Change
Snapshot Indicator	Boolean	1	Cash and Derivatives	new	new snapshot functionalities	All
Stats Update Type	Enumerated	1	Cash and Derivatives	new		Statistics
Stats Update Value	Quantity	8	Cash and Derivatives	new		Statistics
Status Reason	Enumerated	1	Cash and Derivatives	new	new Timetable / Market Status logic	Market Status Change
Trade Retransmission End Time	Timestamp	8	Cash and Derivatives	new		Trade Retransmission Start

Field	Format	Len	Used for	Functional Change	Change details	Message
Trade Retransmission Start Time	Timestamp	8	Cash and Derivatives	new		Trade Retransmission End
Trading Day	Date	4	Cash and Derivatives	new	In new Start and End of day messages	Full Trade Information
Trading Mode	Bitmap	1	Cash and Derivatives	new	new Timetable / Market Status logic	Market Status Change
Notional Amount	Amount	20	Cash and Derivatives	new	For MIFID Requirements	Full Trade Information
Notional Currency	Alphanumerical ID	3	Cash and Derivatives	new	For MIFID Requirements (even if it is the same format as we are using)	Full Trade Information
Market Data Action Type	Enumerated	1	Cash	No change		Order Update
Transparency Indicator	Enumerated	1	Cash	No change	Is new for Dark, but also in UTP	Full Trade Information
Block Trade Code	Enumerated	1	Cash	No change		Full Trade Information
CFI	Text	6	Cash and Derivatives	No change		Standing Data, Instrument Standing Data
Closing Reference Level	Price	8	Cash and Derivatives	No change		Index Summary
Closing Reference Time	Timestamp	8	Cash and Derivatives	No change		Index Summary
Confirmed Reference Level	Price	8	Cash and Derivatives	No change		Index Summary
Confirmed Reference Time	Timestamp	8	Cash and Derivatives	No change		Index Summary

Field	Format	Len	Used for	Functional Change	Change details	Message
Currency	Alphanumeric ID	3	Cash and Derivatives	No change		Full Trade Information
Currency Coefficient	Numerical ID	4	Cash and Derivatives	No change		Standing Data
Currency Coefficient	Numerical ID	4	Cash and Derivatives	No change		Full Trade Information
Dark Eligibility	Boolean	1	Cash	No change	Is new for Dark, but also in UTP	Standing Data
Dark LIS Threshold	Amount	8	Cash	No change	Is new for Dark, but also in UTP	Standing Data
Dark Minimum Quantity	Quantity	4	Cash	No change	Is new for Dark, but also in UTP	Standing Data
Effective Date Indicator	Enumerated	1	Cash and Derivatives	No change		Full Trade Information
Email Message Number	Numerical ID	2	Cash and Derivatives	No change		Exchange Announcement
Number Instrument Circulating	Quantity	8	Cash	Merged with Issued Securities Number		Standing Data
Event Date	Date	4	Cash and Derivatives	No change		Standing Data, Outright Standing Data
Exchange Code	Alphanumeric ID	1	Derivatives	No change		Contract Standing Data, Strategy Standing Data
First Settlement Date	Date	4	Cash and Derivatives	No change		Standing Data, Outright Standing Data
Fix Price Tick	Price	4	Cash and Derivatives	Altered During Transition		Standing Data
Guarantee Indicator	Enumerated	1	Cash	No change		Standing Data
High Level	Price	8	Cash	No change		Index Summary
Imbalance Quantity Side	Enumerated	1	Cash	No change		Index Summary

Field	Format	Len	Used for	Functional Change	Change details	Message
Index Level	Price	8	Cash	No change		Real Time Index
Index Level Type	Enumerated	1	Cash	No change		Real Time Index
Index Price Code	Enumerated	1	Cash	No change		Real Time Index
Instrument Group Code	Alphanumeric ID	3	Cash	Altered During Transition		Standing Data
Instrument Unit Expression	Enumerated	1	Cash	No change		Standing Data
Leg Buy or Sell	Enumerated	1	Derivatives	No change		Strategy Standing Data
Leg Price	Price	8	Derivatives	No change		Strategy Standing Data
Leg Ratio	Quantity	4	Derivatives	No change		Strategy Standing Data
Leg Symbol Index	Numerical ID	4	Derivatives	No change		Strategy Standing Data
Liquidation Level	Price	8	Cash	No change		Index Summary
Liquidation Time	Timestamp	8	Cash	No change		Index Summary
Low Level	Price	8	Cash	No change		Index Summary
Low Time	Timestamp	8	Cash	No change		Index Summary
Market of Reference	Boolean	1	Cash	No change		Standing Data
MIC	Alphanumeric ID	4	Cash	No change		Standing Data, Outright Standing
Mnemonic	Alphanumeric ID	5	Cash	No change		Standing Data
Number Of Traded Instruments in Index	Quantity	2	Cash	No change		Real Time Index

Field	Format	Len	Used for	Functional Change	Change details	Message
Opening Level	Price	8	Cash	No change		Index Summary
Opening Time	Timestamp	8	Cash	No change		Index Summary
Order Price	Price	8	Cash	No change		Order Update
Order Priority	Numerical ID	8	Cash	No change		Order Update
Order Side	Enumerated	1	Cash	No change		Order Update
Order Type	Enumerated	1	Cash	No change		Order Update
Original Report Timestamp	Timestamp	8	Cash and Derivatives	No change		Full Trade Information
Percentage of Capitalization	Quantity	2	Cash	No change		Real Time Index and Index Summary
Price	Price	8	Cash and Derivatives	No change		All
Repo Indicator	Enumerated	1	Cash	No change		Standing Data
Strategy Type	Enumerated	1	Derivatives	No change		Strategy Standing Data
Strike Currency	Alphanumeric ID	3	Derivatives	No change		Standing Data, Contract Standing Data
Strike Price	Price	20	Derivatives	No change		Outright Standing Data
Text	Alphanumeric ID	900	Cash and Derivatives	No change		Exchange Announcement
Tick Size Index ID	Numerical ID	2	Cash	No change		Standing Data
Title	Alphanumeric ID	90	Cash and Derivatives	No change		Exchange Announcement
Trading Date Time	Timestamp	27	Cash and Derivatives	No change		Full Trade Information
Transaction Type	Enumerated	1	Cash	no change		Full Trade Information
Trading Mode	Bitmap	1	Cash and Derivatives	new	new Timetable / Market Status logic	Market Status Change
Book State	Enumerated	1	Cash and Derivatives	New	new Timetable / Market Status logic	Market Status Change

Field	Format	Len	Used for	Functional Change	Change details	Message
Scheduled Event Time	Timestamp	4	Cash and Derivatives	New	new Timetable / Market Status logic	Market Status Change
Quote Spread Multiplier	Enumerated	1	Derivatives	New	new Timetable / Market Status logic	Market Status Change
Price Limits	Enumerated	1	Derivatives	New	new Timetable / Market Status logic	Market Status Change
Trading Side	Enumerated	1	Cash	New	Market Status logic	Market Status Change
Trading Period	Enumerated	1	Cash and Derivatives	New	new Timetable / Market Status logic	Market Status Change
Market Data Change Type	Enumerated	1	Cash and Derivatives	New	new Timetable / Market Status logic	Market Status Change

APPENDIX A: DOCUMENT HISTORY, SIGN-OFF, CONTACT

DOCUMENT HISTORY

REVISION NO./ VERSION NO.	DATE	CHANGE DESCRIPTION
1.0.0	12/07/2016	First Official Release
1.1.0	28/09/2016	Modification of : <ul style="list-style-type: none">- Introduction of section 3.5- Section 3.5.5 Mappings enrichment
1.2.0	12/12/2016	Addition of new section 3 (previous one becomes section 4). Minor updates : <ul style="list-style-type: none">- Removal of the note concerning the assessment ongoing of LZ4 compression method in line with information provided in section 3- Addition of the XDP-C 242 as a covered message by the 1004 Optiq MDG message- Mention of the newly introduced LB dedicated file in the mapping instead of SD 1007 message Field name update from Original Order Priority to Order Reference Number in section 5.2