S&P Capital IQ Real-Time Solutions

FeedOS™ Developer's Notice

LIFFE XDP – Feed Update

Reference n°: 20150219 – 14403 – 25443 (UPDATE 01 TO 20150114 – 14403 – 16439)

Effective as of: 09 March 2015*

Action required from users: Attention Required

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* For the actual day when the changes to your custom feed handler take effect, please contact your QuantFEED® project manager.

S&P Capital IQ Real-Time Solutions
FeedOS™ Developer's Notice: LIFFE XDP – Feed Update
Reference 20150219 – 14403 – 25443
February 19, 2015

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UPDATE OF THE LIFFE XDP MARKET DATA STREAM

To reflect the changes caused by the dissemination of new values on the LIFFE XDP market data stream, S&P Capital IQ Real-Time Solutions has decided to enhance the content of FeedOS.

This developer's notice contains late-breaking information about the implementation of this modification in your applications, which may not be included otherwise in the published documentation. The topics this notice covers include:

- 1. Update Summary
- 2. FeedOS Technical Implementation
- 3. Finding the Latest Information.

1. Update Summary

Table 1 Current update summary

Notice Reference	20150219 – 14403 – 25443[i] (UPDATE 01 TO 20150114 – 14403 – 16439)
Exchanges	LIFFE XDP
Concerned MICs	XMAT, XMON, XEUI, XEUC, XEUE, XLIF, XBRD, MFOX
Internal Source ID	162, 163, 172, 174, 175, 177, 178
Effective Date	**2015-03-09***
Impact	• Update of the Referential Tags • Update of the Quotation Tags • Update of the Quotation Context Tags
Action required	**Attention Required**

i. The red bars in the left margin highlight content that has been added or changed since the previous release of this document.

2. FeedOS Technical Implementation

Effective Monday, **March 09*** **2015,** S&P Capital IQ Real-Time Solutions enhances the referential, quotation and quotation context data to accommodate the new information disseminated on the LIFFE XDP market data stream, as described below:

- 2.1. Changes to the Referential Data
- 2.2. Changes to the Quotation Data
- 2.3. Changes to the Quotation Context Data.

2.1. Changes to the Referential Data

S&P Capital IQ Real-Time Solutions **introduces** the referential tag below to accommodate the information disseminated on the LIFFE XDP market data stream:

Table 2 Referential tags added on the LIFFE XDP market data stream

Tag Name	Numeric ID	Type
`OperatingMIC`	9533	String
`SegmentMIC`	9534	String

Moreover, S&P Capital IQ Real-Time Solutions **updates** the referential tags below:

Table 3 Referential tags disseminating updated values on the LIFFE XDP market data stream

Tag Name	Numeric ID	Type
`InternalModificationDate`	9401	Timestamp

2.1.1. OperatingMIC

The values of the referential tag **OperatingMIC** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Referential* to specify the parent MIC.

FeedOS implementation of the tag `OperatingMIC` is described in the table below:

Table 4 OperatingMIC – technical implementation in FeedOS

Component	Value	Description
Tag Name	`OperatingMIC`	FeedOS tag name.
Numeric ID	`9533`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`String`	String data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, specifying the parent MIC.

* This is the proposed day for the update of the standard version of the feed handler. For dedicated feed handlers, the date and Source IDs may differ. For the actual day when the changes to your custom feed handler will take effect, please contact your FeedOS™ project manager.

Table 4 OperatingMIC – technical implementation in FeedOS (Continued)

Component	Value	Description
Possible Values	`XAMS`	NYSE Euronext Amsterdam
	`XBRU`	NYSE Euronext Brussels
	`XLDN`	NYSE Euronext London
	`XLIS`	NYSE Euronext Lisbon
	`XPAR`	NYSE Euronext Paris

2.1.2. SegmentMIC

The values of the referential tag **SegmentMIC** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Referential* to specify the child MIC.

FeedOS implementation of the tag `SegmentMIC` is described in the table below:

Table 5 SegmentMIC – technical implementation in FeedOS

Component	Value	Description
Tag Name	`SegmentMIC`	FeedOS tag name.
Numeric ID	`9534`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`String`	String data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, specifying the child MIC.
Possible Values	`MFOX`	NYSE Euronext - Mercado de Futuros e Opções
	`XBRD`	NYSE Euronext - Euronext Brussels - Derivatives
	`XEUE`	Euronext EQF, Equities and Indices Derivatives
	`XEUI`	Euronext IRF, Interest Rate Future and Options
	`XLIF`	NYSE Euronext LIFFE
	`XMAT`	Euronext Paris MATIF
	`XMON`	Euronext Paris MONEP

2.1.3. InternalModificationDate

The values of the referential tag **InternalModificationDate** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Referential* to specify the date when the referential data of an instrument has changed internally.

FeedOS implementation of the values available for the tag `InternalModificationDate` is described below:

Table 6 InternalModificationDate – technical implementation in FeedOS

Component	Value	Description
Tag Name	`InternalModificationDate`	FeedOS tag name.
Numeric ID	`9401`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Timestamp`	Timestamp data type.
Format / Possible Values	*`[Internal Specific Value]`*	An ***internal specific value***, detailing the date when the referential data of an instrument has changed internally. **NOTE:** After 2015-03-09, the update mechanism of the tag `InternalModificationDate` changes. Thus, the timestamp will no longer be updated on a daily basis, unless there is a significant change in the referential data of the instrument.

Referential Data Sample

Below is an example showing the current implementation of the newly added (in `green`) and updated (in `blue`) referential tags:

```
instr # 449/154958 = 941776206
    PriceCurrency                string{EUR}
    Symbol                       string{BXF}
    Description                  string{Future 2015-06 on BEL 20 INDEX FUTURE}
    SecurityType                 string{FUT}
    StdMaturity                  string{201506}
    FOSMarketId                  XBRD
    Factor                       float64{5}
    ContractMultiplier           float64{10}
    CFICode                      string{FFXPSX}
    DatedDate                    Timestamp{2014-12-22}
    InternalCreationDate         Timestamp{2014-12-22 02:45:24:165}
    InternalModificationDate     Timestamp{2015-03-09 03:16:54:152}
    InternalSourceId             uint16{178}
    InternalAggregationId        uint16{177}
    InternalEntitlementId        int32{1072}
    LocalCodeStr                 string{FFBXF150600000F}
    PriceIncrement_static        float64{0.5}
    UnderlyingFOSMarketId        XBRU
    UnderlyingLocalCodeStr       string{BE0389555039}
    MaturityYear                 uint16{2015}
    MaturityMonth                uint8{6}
    MaturityDay                  uint8{19}
    OperatingMIC                 string{XBRU}
    SegmentMIC                   string{XBRD}
    MARKET_LIFFE_XDP_InstrumentDenominator      uint32{100}
```

2.2. Changes to the Quotation Data

S&P Capital IQ Real-Time Solutions **introduces** the quotation tags below to accommodate the information disseminated on the LIFFE XDP market data stream:

Table 7 Quotation tags added on the LIFFE XDP market data stream

Tag Name	Numeric ID	Type
`OpenInterest`	9150	Float64
`SettlementPriceDate`	9380	Timestamp
`OpenInterestDate`	9382	Timestamp
`SettlementPriceType`	9383	Char
`MARKET_LIFFE_MarketStatuses`	14651	UInt32

S&P Capital IQ Real-Time Solutions also **removes** the quotation tags below:

Table 8 Quotation tags no longer disseminated on the LIFFE XDP market data stream

Tag Name	Numeric ID	Type
`MARKET_LIFFE_MarketMode`	14650	String

2.2.1. OpenInterest

The values of the quotation tag **OpenInterest** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Other Values* to indicate the amount of derivative contracts that have not been settled in the immediately previous time period for a specific underlying security:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `OpenInterest` is described in the table below:

Table 9 OpenInterest – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`OpenInterest`	FeedOS tag name.
Numeric ID	`9150`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Float64`	Float64 data type.
Format / Possible Values	*`[Exchange Specific Value]`*	An ***exchange specific value***, detailing the amount of derivative contracts that have not been settled in the immediately previous time period for a specific underlying security.

2.2.2. SettlementPriceDate

The values of the quotation tag **SettlementPriceDate** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Other Values* to indicate the date of the settlement price:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++

- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `SettlementPriceDate` is described in the table below:

Table 10 SettlementPriceDate – technical implementation in FeedOS

Component	Value	Description
Tag Name	`SettlementPriceDate`	FeedOS tag name.
Numeric ID	`9380`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Timestamp`	Timestamp data type.
Format / Possible Values	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating the date of the settlement price.

2.2.3. OpenInterestDate

The values of the quotation tag **OpenInterestDate** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Other Values* to indicate the date of the derivative contracts that have not been settled in the immediately previous time period for a specific underlying security:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of tag `OpenInterestDate` is described below:

Table 11 OpenInterestDate – technical implementation in FeedOS

Component	Value	Description
Tag Name	`OpenInterestDate`	FeedOS tag name.
Numeric ID	`9382`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Timestamp`	Timestamp data type.
Format / Possible Values	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating the date of the derivative contracts that have not been settled in the immediately previous time period for a specific underlying security.

2.2.4. SettlementPriceType

The values of the quotation tag **SettlementPriceType** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Other Values* to indicate the type of settlement price:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `SettlementPriceType` is described in the following table (the values disseminated as of 2015-03-09 are highlighted in `green`):

Table 12 SettlementPriceType – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`SettlementPriceType`	FeedOS tag name.
Numeric ID	`9383`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Char`	Timestamp data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating the type of settlement price.
Possible Values	a	**Official** – Explicit Official Daily Settlement Price, as distributed by the exchange.
	b	**Preliminary** – Settlement Price subject to change until the Official Daily Settlement Price is published.
	z	**Manual** – Settlement Price disseminated manually (in case of a correction).
	0	**Undefined**

2.2.5. MARKET_LIFFE_MarketStatuses

The values of the quotation tag **MARKET_LIFFE_MarketStatuses** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Other Values* to indicate :

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

`MARKET_LIFFE_MarketStatuses` simultaneously accepts multiple values, as shown in the example below:

```
        MARKET_LIFFE_MarketStatuses     uint32{8918088}

where the value 8918088 translates as:

• 881448 in Hex and
• 100010000001010001001000 in Bin

=> 3 - Open, 6 - Price Limits Enabled, 10 - Session 2, 12 - Quote Width Exemption 1, 19 - Un-
Terminate, 23 - Unhold
```

FeedOS implementation of the tag `MARKET_LIFFE_MarketStatuses` is described in the table below:

Table 13 MARKET_LIFFE_MarketStatuses – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MARKET_LIFFE_MarketStatuses`	FeedOS tag name.
Numeric ID	`14651`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`UInt32`	UInt32 data type.
Format	*`[Exchange Specific Value]`*	An ***internal specific value***, detailing the status of the exchange. It simultaneously accepts multiple-bit values.
Possible Values	0	Closed
	1	ExPit Extend Open
	2	Halted
	3	Open
	4	Pre Closed
	5	Pre Open
	6	Price Limits Enabled
	7	Price Limits Disabled
	8	Restricted Open
	9	Session 1
	10	Session 2
	11	Session 3
	12	Quote Width Exemption 1
	13	Quote Width Exemption 2
	14	Quote Width Exemption 3
	15	Dark Series
	16	Light Series
	17	Trading Unhalt
	18	Terminate
	19	Un-Terminate
	20	Expire
	21	Pre-Expiry
	22	Hold
	23	Unhold

Quotation Data Sample

Below is an example showing the current implementation of the newly added (in `green`), updated (in `blue`) and removed (in ~~`crossed out red`~~) quotation tags:

```
InstrumentStatusL1
-- 80/459662
        BID: 4112       110
        ASK: 4126.5     20
        LastPrice                         float64{4116.5}
        LastTradeQty                      float64{1}
        DailyHighPrice                    float64{4273.5}
        DailyLowPrice                     float64{4110}
        DailyTotalVolumeTraded            float64{51}
        DailyTotalAssetTraded             float64{213286.5}
        LastTradePrice                    float64{4116.5}
        LastTradeTimestamp                Timestamp{2015-01-05 16:41:45:434}
        InternalDailyOpenTimestamp        Timestamp{2015-01-05 07:00:00:004}
        InternalDailyCloseTimestamp       Timestamp{2015-01-02 21:00:00:004}
        InternalDailyHighTimestamp        Timestamp{2015-01-05 08:48:39:497}
        InternalDailyLowTimestamp         Timestamp{2015-01-05 16:28:56:453}
        InternalPriceActivityTimestamp    Timestamp{2015-01-05 17:05:12:297}
        TradingStatus                     17=ReadyToTrade
        DailyOpeningPrice                 float64{4220.5}
        DailySettlementPrice              float64{4111.5}
        PreviousDailyTotalVolumeTraded    float64{5}
        PreviousDailyTotalAssetTraded     float64{21281.5}
        PreviousDailyClosingPrice         float64{4255}
        PreviousBusinessDay               Timestamp{2015-01-02}
        CurrentBusinessDay                Timestamp{2015-01-05}
        PreviousDailySettlementPrice      float64{4251.5}
        OpenInterest                      float64{19}
        PriceActivityMarketTimestamp      Timestamp{2015-01-05 17:05:12:294}
        SettlementPriceDate               Timestamp{2015-01-05 16:52:34:876}
        PreviousSettlementPriceDate       Timestamp{2015-01-01}
        OpenInterestDate                  Timestamp{1970-08-22}
        MARKET_LIFFE_MarketMode           string{32 10 7 23 42 14}
        SettlementPriceType               char{b}
        PreviousSettlementPriceType       char{a}
        MARKET_LIFFE_MarketStatuses       uint32{8918088}
```

2.3. Changes to the Quotation Context Data

S&P Capital IQ Real-Time Solutions **updates** the quotation context tags below to accommodate the information disseminated on the LIFFE XDP market data stream:

Table 14 Quotation context tags disseminating updated values on the LIFFE XDP market data stream

Tag Name	Numeric ID	Type
`MARKET_LIFFE_XDP_TradeTypeIndicator`	15201	String

2.3.1. MARKET_LIFFE_XDP_TradeTypeIndicator

Each time a trade occurs, the values of the quotation context tag **MARKET_LIFFE_XDP_TradeTypeIndicator** conveyed on the LIFFE XDP market data stream are disseminated via FeedOS data stream in *Context* to describes the type of trade:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `MARKET_LIFFE_XDP_TradeTypeIndicator` is described in the table below (existing values are in `black`, removed values are in ~~`crossed out red`~~):

Table 15 MARKET_LIFFE_XDP_TradeTypeIndicator – technical implementation in FeedOS

Component	Value	Description
Tag Name	`MARKET_LIFFE_XDP_TradeTypeIndicator`	FeedOS tag name.
Numeric ID	`15201`	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`String`	String data type.
Format	*`[Exchange Specific Value]`*	An ***internal specific value***, detailing the status of the exchange. It simultaneously accepts multiple-bit values.
Possible Values	1	Best Bid
	2	Best Offer
	3	Bid
	4	Offer
	5	Total Traded Volume
	6	Conventional Trade (default value, not sent)
	7	Block Trade
	8	Basis Trade
	9	Prof Trade
	10	Guaranteed Cross Trade
	11	Against Actual Trade
	12	Asset Allocation Trade
	13	External Match Trade
	14	Exchange For Swap Trade
	15	Exchange For Physical Trade
	29	Strategy Leg Conventional Trade
	30	Strategy Leg Block Trade
	31	Strategy Leg Basis Trade
	33	Strategy Leg Guaranteed Cross Trade
	34	Strategy Leg Against Actual Trade
	35	Strategy Leg Asset Allocation Trade
	36	Strategy Leg External Match Trade
	37	Strategy Leg Exchange For Swap Trade
	38	Strategy Leg Exchange For Physical Trade
	~~40~~	Request for Quote

Quotation Context Data Sample

Below is an example showing the current implementation of the updated (in `blue`) quotation tags:

```
BEFORE 2015-03-09
TE    08:00:32:151 941695889   *      *      *       *       0.6     5
SI    08:01:00:004 941695889   OPEN   *
TE    08:01:00:004 941695889   *      *      *       *       *       *       O
VU    08:01:00:004 941695889   MARKET_LIFFE_MarketStatuses=8918090    TradingStatus=17
TE    08:03:02:442 941695889   *      *      *       *       0.2     10
TE    11:11:45:684 941695889   0      *      *       *       *       *
MARKET_LIFFE_XDP_TradeTypeIndicator=40
TE    11:11:50:696 941695889   *      *      0.02    15      0.16    15
TE    11:11:50:737 941695889   *      *      0.02    25      0.15    10
TE    11:11:50:962 941695889   *      *      *       *       0.14    15
TE    11:12:07:716 941695889   *      *      0.04    10      *       *
TE    11:12:07:716 941695889   *      *      0.05    15      *       *
TE    11:12:07:749 941695889   *      *      *       *       0.14    25


AFTER 2015-03-09
TE    08:00:32:151 941695889   *      *      *       *       0.6     5
SI    08:01:00:004 941695889   OPEN   *
TE    08:01:00:004 941695889   *      *      *       *       *       *       O
VU    08:01:00:004 941695889   MARKET_LIFFE_MarketStatuses=8918090    TradingStatus=17
TE    08:03:02:442 941695889   *      *      *       *       0.2     10
TE    11:11:50:696 941695889   *      *      0.02    15      0.16    15
TE    11:11:50:737 941695889   *      *      0.02    25      0.15    10
TE    11:11:50:962 941695889   *      *      *       *       0.14    15
TE    11:12:07:716 941695889   *      *      0.04    10      *       *
TE    11:12:07:716 941695889   *      *      0.05    15      *       *
TE    11:12:07:749 941695889   *      *      *       *       0.14    25
```

3. Finding the Latest Information

For the latest documentation and product updates, additional support and training, please contact our support services:

- E-mail: rts-support@spcapitaliq.com
- Web: http://support.quanthouse.com.