S&P Capital IQ Real-Time Solutions

QuantFEED® Developer's Notice

EURONEXT UTP – Feed Update

Reference n°: 20140917 – 17098 – 20662

Effective as of: 27 October 2014*

Action required from users: MANDATORY ACTION

S&P CAPITAL IQ
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* This is the proposed day for the update of the standard version of the feed handler. For dedicated feed handlers, this date may differ. 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 (QuantHouse®) – QuantFEED®
QuantFEED® Developer's Notice
Reference 20140917 – 17098 – 20662
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UPDATE OF THE EURONEXT UTP MARKET DATA STREAM

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

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. QuantFEED® Technical Implementation
- 3. Finding the Latest Information.

1. Update Summary

Table 1 Current update summary

Notice Reference	20140917 – 17098 – 20662
Exchanges	EURONEXT UTP
Concerned MICs	XBRU, XPAR, XLIS, XAMS, XLUX
Internal Source ID	95
Effective Date	**2014-10-27**[*]
Impact	• Update of the Referential Tags • Update of the Quotation Tags • Close Kinematics Update on Level1 Market Data • Microsecond Timestamp Precision on Level1 Market Data
Action required	**MANDATORY ACTION**

2. QuantFEED® Technical Implementation

Effective Friday, **October 27**[*]**, 2014**, S&P Capital IQ Real-Time Solutions enhances the referential and quotation data, and changes the Level1 Market Data Kinematics to accommodate the new information disseminated on the EURONEXT UTP market data stream, as described below:

[*] This is the proposed day for the update of the standard version of the feed handler. For dedicated feed handlers, this date may differ. For the actual day when the changes to your custom feed handler take effect, please contact your QuantFEED® project manager.

- 2.1. Changes to the Referential Data
- 2.2. Changes to the Quotation Data
- 2.3. Changes to the Level1 Market Data Kinematics – Close
- 2.4. Microsecond Timestamp Precision on Level1 Market Data.

2.1. Changes to the Referential Data

S&P Capital IQ Real-Time Solutions **introduces** the referential tags below to accommodate the information disseminated on the EURONEXT UTP market data stream:

Table 2 Referential tags added on the EURONEXT UTP market data stream

Tag Name	Numeric ID	Type
MARKET_EURONEXT_TypeOfMarketAdmission	11056	Char

2.1.1. MARKET_EURONEXT_TypeOfMarketAdmission

The values of the referential tag **MARKET_EURONEXT_TypeOfMarketAdmission** conveyed on the EURONEXT UTP market data stream are disseminated via QuantFEED® data stream in *Referential* to indicate the type of market to which a security has been listed.

QuantFEED® implementation of the tag `MARKET_EURONEXT_TypeOfMarketAdmission` is described in the table below:

Table 3 MARKET_EURONEXT_TypeOfMarketAdmission – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	MARKET_EURONEXT_TypeOfMarketAdmission	QuantFEED® tag name.
Numeric ID	11056	QuantFEED® 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	Char data type.
Format	*[Exchange Specific Value]*	An ***exchange specific value***, indicating the type of market to which a security has been listed.
Possible Values	A	Instruments traded on the primary market
	B	Instruments traded on the secondary market
	C	Instruments traded on the New Market
	D	Non regulated market / instruments traded on the free market ('Marché Libre')
	E	Non regulated market / Alternext
	F	Non listed
	G	Regulated Market / Non equities
	H	Regulated Market / Equities / Segment A
	I	Regulated Market / Equities / Segment B
	J	Regulated Market / Equities / Segment C
	K	Regulated Market / All securities / Special Segment
	L	Regulated Market / Equities / Other instruments

Table 3 MARKET_EURONEXT_TypeOfMarketAdmission – technical implementation in QuantFEED® (Continued)

Component	Value	Description
Possible Values	S	OPCVM, SICOMI non listed (French Investment Funds)
	6	Off Market
	7	Gold, Currencies, and Indices of Euronext
	9	Foreign

Referential Data Sample

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

```
instr # 81/750353 = 170619665
    PriceCurrency                string{EUR}
    Symbol                       string{ACA}
    Description                  string{CREDIT AGRICOLE}
    SecurityType                 string{NONE}
    FOSMarketId                  XPAR
    PriceType                    uint8{2}
    CFICode                      string{ESXXXX}
    CountryOfIssue               string{FRA}
    RoundLot                     float64{1}
    SecuritySubType              string{41}
    InternalCreationDate         Timestamp{2013-04-22 04:13:53:283}
    InternalModificationDate     Timestamp{2014-10-28 04:25:00:626}
    InternalSourceId             uint16{95}
    InternalAggregationId        uint16{95}
    LocalCodeStr                 string{FR0000045072}
    ISIN                         string{FR0000045072}
    ICB_SubsectorCode            uint32{8355}
    PriceIncrement_dynamic_TableId       uint32{6226030}
    SecurityTradingId            string{FR0000045072}
    OperatingMIC                 string{XPAR}
    SegmentMIC                   string{XPAR}
    MARKET_EURONEXT_InstrumentGroupCode                         string{F1}
    MARKET_EURONEXT_TypeOfUnitOfExpressionForInstrumentPrice    string{1}
    MARKET_EURONEXT_NominalMarketValueOfTheSecurity             float64{3}
    MARKET_EURONEXT_QuantityNotation                            string{UNT}
    MARKET_EURONEXT_IndicatorOfUnderlyingSecurityOnLending      string{1}
    MARKET_EURONEXT_EligibleToPEA                               bool{True}
    MARKET_EURONEXT_TypeOfMarketAdmission                       char {A}
```

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 EURONEXT UTP market data stream:

Table 4 Quotation tags added on the EURONEXT UTP market data stream

Tag Name	Numeric ID	Type
`InternalDailyClosingPriceType`	9155	Char

2.2.1. InternalDailyClosingPriceType

The values of the quotation tag **InternalDailyClosingPriceType** conveyed on the EURONEXT UTP market data stream are disseminated via QuantFEED® data stream in *Other Values* to indicate the type of the internal daily closing 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.

QuantFEED® implementation of the tag `InternalDailyClosingPriceType` is described in the table below (the values disseminated as of 2014-10-27 are highlighted in `green`):

Table 5 InternalDailyClosingPriceType – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`InternalDailyClosingPriceType`	QuantFEED® tag name.
Numeric ID	`9155`	QuantFEED® unique ID disseminated on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Char`	Char data type.
Format	*`[Internal Specific Value]`*	An ***internal specific value***, detailing the type of daily closing price, as described below.
Possible Values	0	**Undefined**
	a	**Official Close** – Explicit closing price value calculated and distributed by an exchange for the main trading session of a given trading day.
	b	**Official Indicative** – Exchange has provided an indicative price and marked it as indicative, however no trading activity is observed.
	c	**Official Carry Over** – Explicit Closing price value from a previous trading day carried forward by the exchange to the given trading day.
	d	**Last Price** – Final price disseminated by the exchange for the main trading session or dissemination period of a given trading day (for indices).
	e	**Last Eligible Price** – Execution price of the final trade (subject to trade qualifiers) accepted by the exchange for the main trading session of a given trading day.
	z	**Manual** – Price disseminated manually (in case of production correction).

Quotation Data Sample

Below is an example of the current implementation of the newly added (in `green`) quotation tags:

```
InstrumentStatusL1
-- 81/750353
        BID: 12.155     3426    @6
        ASK: 12.16      3817    @5
        LastPrice                       float64{12.16}
        LastTradeQty                    float64{509}
        DailyHighPrice                  float64{12.2}
        DailyLowPrice                   float64{12.015}
        DailyTotalVolumeTraded          float64{3522540}
        DailyTotalAssetTraded           float64{42656040.9399999}
        LastTradePrice                  float64{12.16}
        LastTradeTimestamp              Timestamp{2014-10-28 10:01:43:416}
        InternalDailyOpenTimestamp      Timestamp{2014-10-28 07:00:01:782}
        InternalDailyCloseTimestamp     Timestamp{2014-10-27 15:30:00:059}
        InternalDailyHighTimestamp      Timestamp{2014-10-28 09:36:45:215}
        InternalDailyLowTimestamp       Timestamp{2014-10-28 07:01:40:673}
        InternalPriceActivityTimestamp  Timestamp{2014-10-28 10:01:49:347}
        LowLimitPrice                   float64{11.8}
        HighLimitPrice                  float64{12.52}
        TradingStatus                   17=ReadyToTrade
        LastOffBookTradePrice           float64{12.143}
        LastOffBookTradeQty             float64{324}
        LastOffBookTradeTimestamp       Timestamp{2014-10-28 09:07:12}
        DailyOpeningPrice               float64{12.05}
        PreviousDailyTotalVolumeTraded  float64{6345232}
        PreviousDailyTotalAssetTraded   float64{75863986.28}
        PreviousDailyClosingPrice       float64{11.975}
        PreviousBusinessDay             Timestamp{2014-10-27}
        CurrentBusinessDay              Timestamp{2014-10-28}
        PreviousDailySettlementPrice    float64{11.975}
        LastAuctionPrice                float64{12.05}
        LastAuctionVolume               float64{166168}
        DailyTotalOffBookVolumeTraded   float64{13361}
        DailyTotalOffBookAssetTraded    float64{161451.547}
        InternalDailyClosingPriceType   char{d}
        InternalLastAuctionTimestamp    Timestamp{2014-10-28 06:59:59:960}
        PriceActivityMarketTimestamp    Timestamp{2014-10-28 10:01:49:346}
        MARKET_EURONEXT_ClassState      string{COCO}
```

2.3. Changes to the Level1 Market Data Kinematics – Close

In the Level1 Market Data Kinematics before 2014-10-27, the CLOSE signal and the Closing Price are being sent at the end of the Continuous Trading Phase, at 17:30 Paris Time, while the `DailyClosingPrice` is being updated at 17:35 Paris Time, as shown below (times expressed as UTC):

```
"TE (TradeEvent) : MARKET_TIME INSTRUMENT LAST_PRICE TRADE_QTY BID_PRICE BID_QTY ASK_PRICE
ASK_QTY *CONTENT_MASK* *FLAGS*"
"VU (ValuesUpdate) : SERVER_TIME INSTRUMENT VALUES..."
"SI (TradeEvent) *SIGNAL* : SERVER_TIME INSTRUMENT SIGNAL LAST_PRICE"

TE  15:29:59:065  170619665   *  *  11.975  8915@5  *  *
TE  15:29:59:072  170619665   *  *  *  *  11.98  4529@7
SI  15:30:00:012  170619665   CLOSE  11.975
TE  15:30:00:012  170619665   11.975  *  *  *  *  *  C
VU  15:30:00:012  170619665   MARKET_EURONEXT_ClassState=CLCA  TradingStatus=15
VU  15:30:00:018  170619665   HighLimitPrice=12.69  LowLimitPrice=11.26
TE  15:30:00:018  170619665   *  *  AT_BEST  22142@1  *  *
TE  15:30:00:018  170619665   *  *  AT_BEST  78142@2  *  *
...
TE  15:35:00:141  170619665   11.97  516  *  *  *  *
TE  15:35:00:141  170619665   11.97  649  *  *  *  *
VU  15:35:00:142  170619665   DailyOpeningPrice=11.895
VU  15:35:00:142  170619665   DailyClosingPrice=11.97  MARKET_EURONEXT_ClassState=TAL
TradingStatus=17
VU  15:35:00:145  170619665   HighLimitPrice=12.33  LowLimitPrice=11.62
TE  15:37:00:691  170619665   *  *  *  *  11.98  80596@13
TE  15:39:05:380  170619665   *  *  11.975  5165@2  *  *
VU  15:40:00:000  170619665   MARKET_EURONEXT_ClassState=LAMO  TradingStatus=18
VU  15:40:00:001  170619665   HighLimitPrice=12.69  LowLimitPrice=11.26
```

In the Level1 Market Data Kinematics after 2014-10-27, the CLOSE signal and the Closing Price are being sent after the Auction Phase, at 17:35 Paris Time. The `DailyClosingPrice` is no longer updated and equals the Closing Price, as shown in the example below (times expressed as UTC):

```
"TE (TradeEvent) : MARKET_TIME INSTRUMENT LAST_PRICE TRADE_QTY BID_PRICE BID_QTY ASK_PRICE
ASK_QTY *CONTENT_MASK* *FLAGS*"
"VU (ValuesUpdate) : SERVER_TIME INSTRUMENT VALUES..."
"SI (TradeEvent) *SIGNAL* : SERVER_TIME INSTRUMENT SIGNAL LAST_PRICE"

TE  15:29:59:036.840  170619665  *  *  *  *  11.94  2900@7
TE  15:30:00:018.541  170619665  *  *  *  *  AT_BEST 325@1
TE  15:30:00:018.541  170619665  *  *  *  *  AT_BEST 18522@2
VU  15:30:00:013.127  170619665  MARKET_EURONEXT_ClassState=CLCA TradingStatus=15
VU  15:30:00:018.384  170619665  HighLimitPrice=12.65  LowLimitPrice=11.22
VU  15:30:00:036.060  170619665  LastAuctionPrice=11.91  LastAuctionVolume=30611
VU  15:30:00:130.998  170619665  LastAuctionVolume=25309
TE  15:30:01:005.902  170619665  *  *  12.53   3401@1  *  *
TE  15:30:02:008.489  170619665  *  *  AT_BEST 15900@1 *  *
TE  15:30:02:009.031  170619665  *  *  AT_BEST 15941@2 *  *
...
VU  15:35:00:138.835  170619665   HighLimitPrice=12.655   LowLimitPrice=11.225
SI  15:35:00:140.002  170619665   CLOSE   11.94
TE  15:35:00:140.002  170619665   11.94  *  *  *  *  *  C
VU  15:35:00:140.002  170619665   InternalDailyClosingPriceType=d
MARKET_EURONEXT_ClassState=TAL  TradingStatus=17
VU  15:35:00:142.943  170619665   HighLimitPrice=12.295   LowLimitPrice=11.585
...
TE  15:39:57:017.634  170619665   *  *  *  *  11.94   19052@2
TE  15:39:57:040.728  170619665   *  *  *  *  11.94   13565@1
VU  15:40:00:003.360  170619665   MARKET_EURONEXT_ClassState=LAMO TradingStatus=18
VU  15:40:00:003.383  170619665   HighLimitPrice=12.655   LowLimitPrice=11.225
```

2.4. Microsecond Timestamp Precision on Level1 Market Data

In the Level1 Market Data disseminated after 2014-10-27, the server timestamp displays microsecond units, as shown in the example below (highlighted in `green`):

```
TE      11:00:22:091.520     556597898      *       *       *       *       -121.42  1@1
TE      11:00:22:091.612     556597898      *       *       121.75    26@5    *       *
TE      11:00:22:091.612     556597898      *       *       *       *       6       942@39
TE      11:00:22:091.868     556597898      *       *       123.25    23@4    *       *
```

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.