S&P Capital IQ Real-Time Solutions

FeedOS™ Developer's Notice

TSE EQUITIES – Feed Update

Reference n°: 20150610 – 19921 – 26831 – 27231

Effective as of: 29 June 2015*

Action required from users: MANDATORY ACTION

S&P CAPITAL IQ
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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
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Reference 20150610 – 19921 – 26831 – 27231
June 15, 2015

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UPDATE OF THE TSE EQUITIES MARKET DATA STREAM

To reflect the changes caused by the introduction of the Leap Second on the TSE EQUITIES 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

Table 1 Current update summary

Notice Reference	20150610 – 19921 – 26831 – 27231
Exchanges	TSE EQUITIES
Concerned MICs	XFKA, XNGO, XSAP, XTKS
Internal Source ID	235, 236, 237, 238
Effective Date	**2015-06-29***
Impact	• Update of the Quotation Tags • Update of the Level1 Market Data Kinematics
Action required	**MANDATORY ACTION** - see sections: • 2.2. Update of the Level1 Market Data Kinematics – OPEN • 2.4. Leap Second on the Level1 Market Data.

2. FeedOS Technical Implementation

Effective Monday, **June 29*** **2015,** S&P Capital IQ Real-Time Solutions enhances the quotation data and updates the Level1 Market Data Kinematics to accommodate the information disseminated on the TSE EQUITIES market data stream, as described below:

- 2.1. Changes to the Quotation Data
- 2.2. Update of the Level1 Market Data Kinematics – OPEN
- 2.3. Microsecond Timestamp Precision on the Level1 Market Data
- 2.4. Leap Second on the Level1 Market Data.

2.1. Changes to the Quotation Data

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

Table 2 Quotation tags added on the TSE EQUITIES market data stream

Tag Name	Numeric ID	Type
`InternalDailyClosingPriceType`	9155	Char

2.1.1. InternalDailyClosingPriceType

The values of the quotation tag **InternalDailyClosingPriceType** conveyed on the TSE EQUITIES market data stream are disseminated via FeedOS 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.

FeedOS implementation of the tag `InternalDailyClosingPriceType` is described in the table below (the values disseminated as of 2015-06-29 are highlighted in `green`):

Table 3 InternalDailyClosingPriceType – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`InternalDailyClosingPriceType`	FeedOS tag name.
Numeric ID	`9155`	FeedOS 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.

* 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 3 InternalDailyClosingPriceType – technical implementation in QuantFEED® (Continued)

Component	Value	Description
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 showing the current implementation of the newly added (in `green`) quotation tags:

```
InstrumentStatusL1
-- 147/1002823
        BID: 2287.5     3100
        ASK: 2289       700
        LastPrice                       float64{2287.5}
        LastTradeQty                    float64{579100}
        DailyHighPrice                  float64{2308.5}
        DailyLowPrice                   float64{2270}
        DailyTotalVolumeTraded          float64{4738900}
        DailyTotalAssetTraded           float64{10858665050}
        LastTradePrice                  float64{2287.5}
        LastTradeTimestamp              Timestamp{2015-06-10 06:00:00}
        InternalDailyOpenTimestamp      Timestamp{2015-06-10 00:00:00:090}
        InternalDailyCloseTimestamp     Timestamp{2015-06-10 06:00:00:521}
        InternalDailyHighTimestamp      Timestamp{2015-06-10 03:39:25:108}
        InternalDailyLowTimestamp       Timestamp{2015-06-10 00:00:10:620}
        InternalPriceActivityTimestamp  Timestamp{2015-06-10 06:00:00:521}
        LowLimitPrice                   float64{1787.5}
        HighLimitPrice                  float64{2787.5}
        TradingStatus                   18=NotAvailableForTrading
        TradingSessionId                int8{2}
        RegSHOAction                    1=NoPriceTest
        PriorSessionsTotalAssetTraded   float64{3542735750}
        PriorSessionsTotalVolumeTraded  float64{1550800}
        SessionTotalVolumeTraded        float64{4738900}
        SessionOpeningPrice             float64{2293}
        SessionVWAPPrice                float64{2294.7616}
        SessionTotalAssetTraded         float64{10858665050}
        DailyOpeningPrice               float64{2275}
        DailyClosingPrice               float64{2287.5}
        PreviousDailyTotalVolumeTraded  float64{4184100}
        PreviousDailyTotalAssetTraded   float64{9603043450}
        PreviousDailyClosingPrice       float64{2283.5}
        PreviousBusinessDay             Timestamp{2015-06-09}
        CurrentBusinessDay              Timestamp{2015-06-10}
        InternalDailyClosingPriceType   char{a}
        InternalCrossIndicator          bool{False}
        PriceActivityMarketTimestamp    Timestamp{2015-06-10 06:00:00}
        InternalDailyBusinessDayTimestamp       Timestamp{2015-06-10 00:00:00:090}
```

2.2. Update of the Level1 Market Data Kinematics – OPEN

In the Level1 Market Data Kinematics **before 2015-06-29**, at 00:00 UTC Time, the exchange sent the OPEN signal and the Trading Status was set to `17=ReadyToTrade`, as shown in the example below:

```
"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   00:00:00:085.762   309284167   *    *    2231    194100    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
VU   00:00:00:085.762   309284167   MARKET_TSE_BidMarketOrderVolume=99300
TE   00:00:00:097.252   309284167   *    *    2231    194800    2231.5    194100
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
SI   00:00:00:103.731   309284167   OPEN    *
TE   00:00:00:103.731   309284167   *    *    *    *    *    *    O
VU   00:00:00:103.731   309284167   TradingSessionId=1    TradingStatus=17
TE   00:00:00:139.616   309284167   *    *    *    *    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
VU   00:00:00:139.616   309284167   MARKET_TSE_BidSpecialQuotePrice=?
MARKET_TSE_AskSpecialQuotePrice=?
TE   00:00:00:142.454   309284167   *    *    2231    195000    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
```

In the Level1 Market Data Kinematics **after 2015-06-29**, the first trade will trigger the OPEN signal and set the Trading Status to `17=ReadyToTrade`, as shown in the example below:

```
“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   00:00:00:085.762   309284167   *    *    2231    194100    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
VU   00:00:00:085.762   309284167   MARKET_TSE_BidMarketOrderVolume=99300
TE   00:00:00:097.252   309284167   *    *    2231    194800    2231.5    194100
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
TE   00:00:00:139.616   309284167   *    *    *    *    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
VU   00:00:00:139.616   309284167   MARKET_TSE_BidSpecialQuotePrice=?
MARKET_TSE_AskSpecialQuotePrice=?
TE   00:00:00:142.454   309284167   *    *    2231    195000    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
TE   00:00:00:148.938   309284167   *    *    2231    194800    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
TE   00:00:00:156.298   309284167   *    *    *    *    2231.5    194300
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
TE   00:00:00:159.193   309284167   *    *    2231    195000    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
VU   00:00:00:159.193   309284167   MARKET_TSE_BidMarketOrderVolume=99500
MARKET_TSE_AskMarketOrderVolume=145000
TE   00:00:00:163.046   309284167   *    *    2231    194300    2231    194300
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
TE   00:00:00:168.221   309284167   *    *    2231    195000    2231.5    194300
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
TE   00:00:00:238.518   309284167   *    *    2231    195300    *    *
MARKET_TSE_BidQuoteCondition=char{0},MARKET_TSE_AskQuoteCondition=char{0}
VU   00:00:00:238.518   309284167   MARKET_TSE_BidMarketOrderVolume=99800
SI   00:00:12:103.731   309284167   OPEN    *
TE   00:00:12:103.731   309284167   *    *    *    *    *    *    O
VU   00:00:12:103.731   309284167   TradingSessionId=1    TradingStatus=17
TE   00:00:12:103.731   309284167   2231    194300    *    *    *    *    HL
TradeCondition=E=opening_reopening_trade_detail
```

2.3. Microsecond Timestamp Precision on the Level1 Market Data

Effective **2015-06-29**, the server timestamps will display microsecond units on the Level1 Market Data, as shown in the example below (highlighted in `green`):

```
“TE (TradeEvent) : MARKET_TIME INSTRUMENT LAST_PRICE TRADE_QTY BID_PRICE BID_QTY ASK_PRICE
ASK_QTY *CONTENT_MASK* *FLAGS*"

TE   19:55:07:508.521   309284167    *       *       *       *       41.27   700@2
TE   20:00:48:238.168   309284167    *       *       *       *       47.22   100@1
TE   20:00:48:240.254   309284167    *       *       *       *       48.31   100@1
```

2.4. Leap Second on the Level1 Market Data

Effective **2015-06-29**, the Tokyo Stock Exchanges introduces a one-second adjustment to Coordinated Universal Time (UTC) in order to keep its time of day close to the mean solar time, or UT1.

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: https://support.quanthouse.com.