S&P Capital IQ Real-Time Solutions

FeedOS™ Developer's Notice

OMX NORDIC CASH – Feed Update

Reference n°: 20141023 – 21884 – 22745

Effective as of: 01 December 2014*

Action required from users: MANDATORY ACTION

S&P CAPITAL IQ
McGRAW HILL FINANCIAL

* 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: OMX NORDIC CASH – Feed Update
Reference 20141023 – 21884 – 22745
November 06, 2014

France Offices
52 Rue de la Victoire
75009 Paris
France
Tel: +33 (0) 1 73 02 32 11

US Offices
55 Water Street, 44th floor
New York, NY 10041
United States of America
Tel: +1-(212)-438-4346

130 East Randolph
One Prudential Plaza, Suite 2900
Chicago, IL 60601
United States of America
Tel: +1-(312)-233-7129

UK Office
20 Canada Square
Canary Wharf
London E14 5LH
United Kingdom
Tel: +44 (0) 203 107 1676

Singapore Office
12 Marina Boulevard
#23-01 Marina Bay
Financial Centre Tower 3
Singapore 018982
Tel: +65 6530 6546

www.capitaliq.com

UPDATE OF THE OMX NORDIC CASH MARKET DATA STREAM

To reflect the changes caused by the dissemination of new values on the OMX NORDIC CASH 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	20141023 – 21884 – 22745
Exchanges	OMX NORDIC CASH
Concerned MICs	XCSE, XHEL, XICE, ISEC, XSTO, XFND, XSAT, FNSE, FNFI
Internal Source ID	67
Effective Date	**2014-12-01***
Impact	• Update of the Quotation Tags • Trading Status Kinematics Update on Level1 Market Data
Action required	**MANDATORY ACTION** – see section 2.2. Changes to the Level1 Market Data Kinematics – Trading Status.

2. FeedOS Technical Implementation

Effective Monday, **December 01* 2014,** S&P Capital IQ Real-Time Solutions enhances the quotation data, and changes the Level1 Market Data Kinematics to accommodate the new information disseminated on the OMX NORDIC CASH market data stream, as described below:

- 2.1. Changes to the Quotation Data

* 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.

- Changes to the Level1 Market Data Kinematics – Trading Status.

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 OMX NORDIC CASH market data stream:

Table 2 Quotation tags added on the OMX NORDIC CASH market data stream

Tag Name	Numeric ID	Type
`InternalDailyClosingPriceType`	9155	Char
`Footnotes`	9227	String

2.1.1. InternalDailyClosingPriceType

The values of the quotation tag **InternalDailyClosingPriceType** conveyed on the OMX NORDIC CASH 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 2014-12-01 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.

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).

2.1.2. Footnotes

The values of the quotation tag **Footnotes** conveyed on the OMX NORDIC CASH market data stream are disseminated via FeedOS data stream in *Other Values* to indicate Note Codes:

- 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 `Footnotes` is described in the table below:

Table 4 Footnotes – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`Footnotes`	FeedOS tag name.
Numeric ID	`9227`	FeedOS unique ID disseminated on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`String`	Char data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, detailing Note Codes. **NOTE:** This field is a decimal encoded bit field where multiple Note Codes can be set concurrently by being binary OR:ed together. A value of zero means No Note Code Set. *Example 1:* `Footnotes=3` means that both NM and XR Note Codes are active. *Example 2:* `Footnotes=31` means that NM, XR, SP, PO and UD are set.

Table 4 Footnotes – technical implementation in QuantFEED® (Continued)

Component	Value	Description
Possible Values	0	No Note Codes available for the Orderbook.
	1	NM, New Market Company
	2	XR, Excluding participating in right/s
	4	SP, Excluding participating in split
	8	PO, Company subject to public offer
	16	UD, Under drawing
	32	SR, Excluding comb. Split and issue right/s
	64	UL, UnListed
	128	WI, When Issued
	256	BR, Company Bankruptcy
	512	SU, Suspension
	1024	RL, Removal from listing in process
	2048	SL, Other surveillance list reason
	4096	TO, A significant reverse takeover pending
	8192	CS, Cent shares
	16384	RS, Reversed Split
	32768	BS, Excluding comb. Bonus & Split
	65536	SS, Excluding comb. Split & Redemption share
	131072	FN, First North Company
	262144	OB, On the surveillance list
	524288	XD, Excluding dividend
	1048576	FE, Foreign non-EU/EEA Entity, excluding the Faroe Islands and Greenland
	2097152	SO, Sold-Out Buy-Back

Quotation Data Sample

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

```
InstrumentStatusL1
-- 67/1033
        BID: 0  0       *NO ORDER*
        ASK: 0  0       *NO ORDER*
        LastPrice                       float64{3.6}
        LastTradeQty                    float64{1300}
        DailyTotalVolumeTraded          float64{0}
        DailyTotalAssetTraded           float64{0}
        LastTradePrice                  float64{3.6}
        LastTradeTimestamp              Timestamp{2013-06-07 14:11:24:861}
        InternalDailyOpenTimestamp      Timestamp{2014-10-21 07:00:00:118}
        InternalDailyCloseTimestamp     Timestamp{2014-10-20 18:59:35:455}
        InternalDailyHighTimestamp      Timestamp{2013-06-07 08:04:47:753}
        InternalDailyLowTimestamp       Timestamp{2013-06-07 11:48:49:777}
        InternalPriceActivityTimestamp  Timestamp{2014-10-23 05:00:00:464}
        TradingStatus                   17=ReadyToTrade
        LastOffBookTradePrice           float64{3.51}
        LastOffBookTradeQty             float64{1742}
        LastOffBookTradeTimestamp       Timestamp{null}
        PreviousDailyTotalVolumeTraded  float64{22552}
        PreviousDailyTotalAssetTraded   float64{77970.7}
        PreviousDailyClosingPrice       float64{3.6}
        PreviousBusinessDay             Timestamp{2013-06-07}
        CurrentBusinessDay              Timestamp{2014-10-21}
        DailyTotalOffBookVolumeTraded   float64{0}
        DailyTotalOffBookAssetTraded    float64{0}
        InternalDailyClosingPriceType   char{e}
        LastAuctionImbalanceSide        char{O}
        Footnotes                       string{262144}
        InternalLastAuctionTimestamp    Timestamp{2013-05-27 14:56:50:001}
        PriceActivityMarketTimestamp    Timestamp{2014-10-13 18:59:53:308}
        MARKET_OMX_NORDIC_MarketSegmentState    string{T}
        MARKET_OMX_NORDIC_OrderBookTradingState string{T}
        MARKET_OMX_NORDIC_OrderBookHaltReason   string{}
```

2.2. Changes to the Level1 Market Data Kinematics – Trading Status

In the Level1 Market Data Kinematics before 2014-12-01, when the tag `MARKET_OMX_NORDIC_MarketSegmentState` disseminates the value `S=PostTrade`, the Trading Status is set to `18=Not Available for Trading`. Moreover, the exchange sends the CLOSE signal simultaneously with the value `C=Closed` of the tag `MARKET_OMX_NORDIC_MarketSegmentState`, while the Trading Status remains the same, as shown 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  15:24:14:122  159388634   *       *       9.45    49140@1 *       *
VU  15:25:00:000  159388634   MARKET_OMX_NORDIC_MarketSegmentState=S   TradingStatus=18
TE  15:25:02:673  159388634   *       *       *       *       !       0
TE  15:25:02:673  159388634   *       *       !       0       *       *
SI  16:00:00:000  159388634   CLOSE   9.5
TE  16:00:00:000  159388634   9.5     *       *       *       *       *       C
VU  16:00:00:000  159388634   MARKET_OMX_NORDIC_MarketSegmentState=C
```

In the Level1 Market Data Kinematics after 2014-12-01, when the tag `MARKET_OMX_NORDIC_MarketSegmentState` disseminates the value `S=PostTrade`, the Trading Status is set to `15=New Price Indication`. Moreover, the exchange sends the CLOSE signal before disseminating the value `C=Closed` on the tag `MARKET_OMX_NORDIC_MarketSegmentState`, while the Trading Status is set to `18=Not Available for Trading`, as shown 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  15:24:14:122  159388634   *       *       9.45    49140@1 *       *
VU  15:25:00:000  159388634   MARKET_OMX_NORDIC_MarketSegmentState=S   TradingStatus=15
SI  15:25:00:000  159388634   CLOSE   9.5
TE  15:25:00:000  159388634   9.5     *       *       *       *       *       C
TE  15:25:02:673  159388634   *       *       *       *       !       0
TE  15:25:02:673  159388634   *       *       !       0       *       *
VU  16:00:00:000  159388634   MARKET_OMX_NORDIC_MarketSegmentState=C   TradingStatus=18
```

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.