S&P Capital IQ Real-Time Solutions

FeedOS™ Developer's Notice

BATS Y – Feed Update

Reference n°: 20150216 – 24474 – 25353

Effective as of: 04 May 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
FeedOS™ Developer's Notice: BATS Y – Feed Update
Reference 20150216 – 24474 – 25353
April 22, 2015

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UPDATE OF THE BATS Y MARKET DATA STREAM

To improve the quality of the market data disseminated on the BATS Y 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	20150216 – 24474 – 25353
Exchanges	BATS Y
Concerned MICs	BATY
Internal Source ID	48
Effective Date	**2015-05-04***
Impact	• Update of the Referential Tags • Update of the Level1 Market Data Kinematics – Halted Instruments Behavior • Update of the Level1 Market Data Kinematics – Opening Auctions • Microsecond Timestamp Precision on the Level1 Market Data
Action required	**MANDATORY ACTION** - see sections: • 2.2. Update of the Level1 Market Data Kinematics – Halted Instruments Behavior • 2.3. Update of the Level1 Market Data Kinematics – Opening Auctions • 2.4. Microsecond Timestamp Precision on the Level1 Market Data.

2. FeedOS Technical Implementation

Effective Monday, **May 04*** **2015,** S&P Capital IQ Real-Time Solutions enhances the referential data and updates the Level1 Market Data Kinematics to accommodate the information disseminated on the BATS Y market data stream, as described below:

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 BATS Y market data stream:

Table 2 Referential tags added on the BATS Y market data stream

Tag Name	Numeric ID	Type
PriceCurrency	15	String
ForeignFOSMarketId	9501	UInt16

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

Table 3 Referential tags disseminating updated values on the BATS Y market data stream

Tag Name	Numeric ID	Type
CFICode	461	String

2.1.1. PriceCurrency

The values of the referential tag **PriceCurrency** conveyed on the BATS Y market data stream are disseminated via FeedOS data stream in *Referential* to specify the currency of the price.

* 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.

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

Table 4 PriceCurrency – technical implementation in FeedOS

Component	Value	Description
Tag Name	`PriceCurrency`	FeedOS tag name.
Numeric ID	`15`	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 currency of the price.
Possible Values	`USD`	United States Dollar

2.1.2. ForeignFOSMarketId

The values of the referential tag **ForeignFOSMarketId** conveyed on the BATS Y market data stream are disseminated via FeedOS data stream in *Referential* to internally specify the foreign market of a security.

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

Table 5 ForeignFOSMarketId – technical implementation in FeedOS

Component	Value	Description
Tag Name	`ForeignFOSMarketId`	FeedOS tag name.
Numeric ID	`9501`	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	`UInt16`	UInt16 data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, internally specifying the foreign market of a security.
Possible Values	`ARCX`	NYSE Arca
	`XASE`	NYSE Market LLC
	`XNAS`	NASDAQ - All Markets
	`XNYS`	New York Stock Exchange

2.1.3. CFICode

The values of the referential tag **CFI Code** conveyed on the BATS Y market data stream are disseminated via FeedOS data stream in *Referential* to specify the standardized identification code of an instrument.

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

Table 6 CFICode – technical implementation in FeedOS

Component	Value	Description
Tag Name	`CFICode`	FeedOS tag name.
Numeric ID	`461`	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***, detailing the standardized identification code of an instrument.
Possible Values	`EPXXXX`	Equities - Preferred Shares
	`ESXXXX`	Equities - Shares
	`EUXXXX`	Equities - Units
	`EXXXXX`	Equities
	`RWXXXX`	Rights - Warrants
	`RXXXXX`	Rights

The list below shows the possible combinations of `SecurityTypes` and `CFICodes`, before and after the migration day (please note that additional combinations may be available, as the exchange could introduce new instruments):

```
BEFORE 2015-05-04                AFTER 2015-05-04
{ BATY CS   ESXXXX }             { BATY CS   ESXXXX }
{ BATY NONE EUXXXX }             { BATY NONE EUXXXX }
{ BATY PS   EPXXXX }             { BATY NONE EXXXXX }
{ BATY WAR  RWXXXX }             { BATY NONE RXXXXX }
                                 { BATY PS   EPXXXX }
                                 { BATY WAR  RWXXXX }
```

Referential Data Sample

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

```
instr # 158/10557 = 331360573
    PriceCurrency               string{USD}
    Symbol                      string{JHDG}
    SecurityType                string{CS}
    FOSMarketId                 BATY
    CFICode                     string{ESXXXX}
    SecurityGroup               string{15}
    InternalCreationDate        Timestamp{2015-04-10 11:45:01:269}
    InternalModificationDate    Timestamp{2015-04-10 11:45:01:269}
    InternalSourceId            uint16{48}
    InternalEntitlementId       int32{1008}
    LocalCodeStr                string{JHDG}
    ForeignFOSMarketId          ARCX
    PriceIncrement_dynamic_TableId      uint32{3342436}
    UMTF                        string{JHDG}
    OperatingMIC                string{BATS}
    SegmentMIC                  string{BATY}
```

2.2. Update of the Level1 Market Data Kinematics – Halted Instruments Behavior

In the Level1 Market Data Kinematics **before 2015-05-04**, the exchange sent the OPEN signal for all instruments, including those on halt, 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"

VU   11:20:52:052   331360573   RegSHOAction=1  TradingStatus=2
SI   12:00:00:227   331360573   OPEN    *
TE   12:00:00:227   331360573   *       *       *       *       *       *       O
VU   12:00:00:227   331360573   TradingStatus=17
VU   14:50:16:914   331360573   RegSHOAction=1  TradingStatus=5
VU   14:50:16:914   331360573   TradingStatus=17
TE   14:50:16:915   331360573   *       *       11.6    100@1   *       *
TE   14:50:16:916   331360573   *       *       *       *       21.04   100@1
```

In the Level1 Market Data Kinematics **after 2015-05-04**, the exchange sends the OPEN signal only for non-halted instruments, 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"

VU   11:20:52:039.625   331360573   RegSHOAction=1  TradingStatus=2
VU   14:50:16:914.328   331360573   TradingStatus=5
SI   14:50:16:914.328   331360573   OPEN    *
TE   14:50:16:914.328   331360573   *       *       *       *       *       *       O
VU   14:50:16:914.328   331360573   RegSHOAction=1  TradingStatus=17
TE   14:50:16:915.451   331360573   *       *       11.6    100@1   *       *
TE   14:50:16:915.564   331360573   *       *       *       *       21.04   100@1
```

2.3. Update of the Level1 Market Data Kinematics – Opening Auctions

In the Level1 Market Data Kinematics **before 2015-05-04**, the Trading Status of all auction eligible instruments was set to `5=PriceIndication` at 08:00 New York Time (EDST):

```
"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"

VU   12:00:00:008   331360573    RegSHOAction=1  TradingStatus=17
SI   12:00:00:349   331360573    OPEN    *
TE   12:00:00:349   331360573    *       *       *       *       *       *       O
VU   12:00:00:349   331360573    TradingStatus=5
TE   13:29:13:011   331360573    *       *       35.7    200@1   *       *
TE   13:29:13:011   331360573    *       *       *       *       38.47   200@1
TE   13:30:00:006   331360573    *       *       34.32   100@1   *       *
TE   13:30:00:006   331360573    *       *       *       *       40.01   100@1
```

In the Level1 Market Data Kinematics **after 2015-05-04**, the Trading Status of all auction eligible instruments will be set to `17=ReadyToTrade`, at 08:00 New York Time (EDST), 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"

SI   12:00:00:033.156   331360573    OPEN    *
TE   12:00:00:033.156   331360573    *       *       *       *       *       *       O
VU   12:00:00:033.156   331360573    RegSHOAction=1  TradingStatus=17
TE   13:29:13:012.135   331360573    *       *       35.7    200@1   *       *
TE   13:29:13:012.136   331360573    *       *       *       *       38.47   200@1
TE   13:30:00:233.272   331360573    *       *       34.32   100@1   *       *
TE   13:30:00:233.391   331360573    *       *       *       *       40.01   100@1
```

2.4. Microsecond Timestamp Precision on the Level1 Market Data

Effective 2015-05-04, 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   331360573    *       *       *       *       41.27   700@2
TE   20:00:48:238.168   331360573    *       *       *       *       47.22   100@1
TE   20:00:48:240.254   331360573    *       *       *       *       48.31   100@1
```

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.