S&P Capital IQ Real-Time Solutions

FeedOS™ Feed Description

BATS Y Feed

Reference n°: 20140423 – 24474 – 25353 – 26387

S&P CAPITAL IQ
McGRAW HILL FINANCIAL

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FEEDOS™ BATS Y FEED DESCRIPTION

As part of S&P Capital IQ Real-Time Solutions FeedOS™ documentation, this feed description provides you with details about the types of data broadcast on the BATS Y market data stream, their possible values and current FeedOS technical implementation.

The topics this feed description covers include:

- 1. Referential Data
- 2. Quotation Data
- 3. Official Closing Price
- 4. Special Behavior
- 5. Finding the Latest Information.

1. Referential Data

The following sections describe the characteristics of the referential data on the BATS Y market data stream, in terms of:

- 1.1. Available Markets and Branches
- 1.2. Types of Instruments
- 1.3. Specific Referential Tags.

1.1. Available Markets and Branches

This section details the list of markets and branches available on the BATS Y market data stream:

- 1.1.1. Markets
- 1.1.2. Branches.

1.1.1. Markets

The BATS Y market data stream broadcasts informations about the following markets:

Table 1 List of markets available on the BATS Y market data stream

FeedOS Market ID	Market
BATY	BATS Y

The following example shows the list of markets available on the BATS Y market data stream and their IDs, returned by the command `dumps`:

```
MARKETS
market # 158    CC=US/UNITED STATES OF AMERICA/, DESCR=BATS Y-Exchange,
WEB=www.batstrading.com
    MIC = BATY
    TimeZone = America/New_York
    Country = US
    NbMaxInstruments = 2000000
```

1.1.2. Branches

The example below shows the list of branches available on the BATS Y market data stream, returned by the command `dumps`. Each branch displays the following details: `FOSMarketID`, `SecurityType`, `CFICode` and `Quantity` (of instruments):

```
BRANCHES
    { BATY CS   ESXXXX } qty: 8902
    { BATY NONE EUXXXX } qty: 1
    { BATY NONE EXXXXX } qty: 1
    { BATY NONE RXXXXX } qty: 2
    { BATY PS   EPXXXX } qty: 616
    { BATY WAR  RWXXXX } qty: 67
```

1.2. Types of Instruments

The following sections describe the instruments available on the BATS Y market data stream, according to their type:

- 1.2.1. Equities
- 1.2.2. Warrants
- 1.2.3. Rights.

1.2.1. Equities

The sample below illustrates the details of an equity:

```
instr # 158/10585 = 331360601
    PriceCurrency               string{USD}
    Symbol                      string{WINVV}
    SecurityType                string{CS}
    FOSMarketId                 BATY
    CFICode                     string{ESXXXX}
    SecurityGroup               string{30}
    InternalCreationDate        Timestamp{2015-04-20 11:45:01:563}
    InternalModificationDate    Timestamp{2015-04-22 16:25:36:667}
    InternalSourceId            uint16{48}
    InternalEntitlementId       int32{1008}
    LocalCodeStr                string{WINVV}
    PriceIncrement_dynamic_TableId      uint32{3145828}
    UMTF                        string{WINVV}
    OperatingMIC                string{BATS}
    SegmentMIC                  string{BATY}
```

1.2.2. Warrants

The sample below illustrates the details of a warrant:

```
instr # 158/10331 = 331360347
    PriceCurrency               string{USD}
    Symbol                      string{ASB+}
    SecurityType                string{WAR}
    FOSMarketId                 BATY
    CFICode                     string{RWXXXX}
    SecurityGroup               string{3}
    InternalCreationDate        Timestamp{2014-12-23 12:55:26:169}
    InternalModificationDate    Timestamp{2015-04-22 16:25:36:165}
    InternalSourceId            uint16{48}
    InternalEntitlementId       int32{1008}
    LocalCodeStr                string{ASB+}
    PriceIncrement_dynamic_TableId      uint32{3145828}
    UMTF                        string{ASB+}
    OperatingMIC                string{BATS}
    SegmentMIC                  string{BATY}
```

1.2.3. Rights

The sample below illustrates the details of a right:

```
instr # 158/10563 = 331360579
    PriceCurrency                string{USD}
    Symbol                       string{TTM^}
    SecurityType                 string{NONE}
    FOSMarketId                  BATY
    CFICode                      string{RXXXXX}
    SecurityGroup                string{27}
    InternalCreationDate         Timestamp{2015-04-13 12:20:25:357}
    InternalModificationDate     Timestamp{2015-04-22 16:25:36:602}
    InternalSourceId             uint16{48}
    InternalEntitlementId        int32{1008}
    LocalCodeStr                 string{TTM^}
    PriceIncrement_dynamic_TableId      uint32{3145828}
    UMTF                         string{TTM^}
    OperatingMIC                 string{BATS}
    SegmentMIC                   string{BATY}
```

1.3. Specific Referential Tags

The following sections detail the specific referential tags available on the BATS Y market data stream:

- 1.3.1. PriceCurrency
- 1.3.2. ForeignFOSMarketId.

1.3.1. 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.

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

Table 2 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

1.3.2. 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 3 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. Quotation Data

The following sections describe the characteristics of the quotation data on the BATS Y market data stream, in terms of:

- 2.1. Quotation Values
- 2.2. TradingStatus
- 2.3. Specific Quotation Tags.

2.1. Quotation Values

The examples below shows the possible values of an instrument on the BATS Y market data stream:

```
InstrumentStatusL1
-- 158/9781
        BID: 12.87      0       *NO ORDER*
        ASK: 16.43      0       *NO ORDER*
        LastPrice                       float64{14.25}
        LastTradeQty                    float64{100}
        DailyTotalVolumeTraded          float64{0}
        DailyTotalAssetTraded           float64{0}
        LastTradePrice                  float64{14}
        LastTradeTimestamp              Timestamp{2015-01-02 17:32:08:543}
        InternalDailyOpenTimestamp      Timestamp{2015-02-19 13:00:00:759}
        InternalDailyCloseTimestamp     Timestamp{2015-02-19 22:01:00:567}
        InternalDailyHighTimestamp      Timestamp{2015-01-02 17:32:08:543}
        InternalDailyLowTimestamp       Timestamp{2015-01-02 17:32:08:543}
        InternalPriceActivityTimestamp  Timestamp{2015-02-20 00:30:00:052}
        TradingStatus                   18=NotAvailableForTrading
        LastOffBookTradePrice           float64{14.25}
        LastOffBookTradeQty             float64{65}
        LastOffBookTradeTimestamp       Timestamp{2015-02-18 19:25:32:041}
        RegSHOAction                    2=PriceTestInEffect
        PreviousDailyTotalVolumeTraded  float64{100}
        PreviousDailyTotalAssetTraded   float64{1400}
        PreviousDailyClosingPrice       float64{14}
        PreviousBusinessDay             Timestamp{2015-01-02}
        CurrentBusinessDay              Timestamp{2015-02-19}
        DailyTotalOffBookVolumeTraded   float64{0}
        DailyTotalOffBookAssetTraded    float64{0}
        InternalDailyClosingPriceType   char{d}
```

For more details about the fields and tags available in quotation data type, and their possible values, see *FeedOS Quotation Tags Guide*.

2.2. TradingStatus

Each time a modification of the trading status occurs, the values of the quotation tag **TradingStatus** conveyed on the BATS Y market data stream are disseminated via FeedOS data stream in *Other Values*:

- 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 `TradingStatus` is described in the following table:

Table 4 TradingStatus – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`TradingStatus`	FeedOS tag name.
Numeric ID	9100	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	`Enum`	Enum data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, detailing the characteristics of the trading status.
Possible Values	17	Ready to Trade
	18	Not Available for Trading
	20	Unknown or Invalid

2.3. Specific Quotation Tags

The following sections describe additional, specific quotation tags available on the BATS Y market data stream:

- 2.3.1. Other Values.

2.3.1. Other Values

The following subsections describe the trade conditions on the BATS Y market data stream:

- 2.3.1.1. RegSHOAction
- 2.3.1.2. InternalDailyClosingPriceType.

2.3.1.1. RegSHOAction

Each time a short sale price restriction occurs, the values of the quotation tag **RegSHOAction** conveyed on the BATS Y market data stream are disseminated via FeedOS data stream in *Other Values*:

- 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 `RegSHOAction` is described in the table below:

Table 5 RegSHOAction – technical implementation in FeedOS

Component	Value	Description
Tag Name	`RegSHOAction`	FeedOS tag name.
Numeric ID	9113	FeedOS unique ID broadcast on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Enum`	Enum data type.

Table 5 RegSHOAction – technical implementation in FeedOS (Continued)

Component	Value	Description
Format	*[Exchange Specific Value]*	An ***exchange specific value***, detailing the short sale price restriction status.
Possible Values	1	No short sale price restriction.
	2	Short sale price restriction in progress.
	3	Short sale price restriction remains in effect for a second business day.

2.3.1.2. InternalDailyClosingPriceType

The values of the quotation tag **InternalDailyClosingPriceType** conveyed on the BATS Y 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 currently disseminated are highlighted in `green`):

Table 6 InternalDailyClosingPriceType – technical implementation in QuantFEED®

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

2.4. MBL and MBO Data*

The MBL and MBO books are full depth.

3. Official Closing Price

The closing price is the last trade price upon close. If the instrument has an auction phase, the market sends the last auction price which becomes the closing price.There is no correction or settlement price.

4. Special Behavior

The following sections detail the special behavior of the BATS Y market data stream:

- 4.1. Update of the Level1 Market Data Kinematics – Halted Instruments Behavior
- 4.2. Update of the Level1 Market Data Kinematics – Opening Auctions
- 4.3. Microsecond Timestamp Precision on the Level1 Market Data.

4.1. 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
```

* The MBL and MBO data may not be included by default in your Level1 data subscription, but sold separately. Depending on your contract, additional terms, conditions and fees may apply. For more details about the subscription options, please contact S&P Capital IQ Real-Time Solutions.

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
```

4.2. 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 is 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
```

4.3. Microsecond Timestamp Precision on the Level1 Market Data

Effective **2015-05-04**, the server timestamps 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
```

5. Finding the Latest Information

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

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