

FeedOS™ Developer's Notice

BATS US – Feed Update

Reference n°: 20150216 – 24473 – 25354

Effective as of: 04 May 2015*

Action required from users: MANDATORY ACTION



* 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 US – Feed Update
Reference 20150216 – 24473 – 25354
April 21, 2015

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UPDATE OF THE BATS US MARKET DATA STREAM

To improve the quality of the market data disseminated on the BATS US 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	20150216 – 24473 – 25354
Exchanges	BATS US
Concerned MICs	BATS
Internal Source ID	113
Effective Date	2015-05-04*
Impact	<ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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 US market data stream, as described below:

- [2.1. Changes to the Referential Data](#)
- [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.](#)

2.1. 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 US market data stream:

Table 2 Referential tags added on the BATS US 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 US 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 US 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 4 PriceCurrency – technical implementation in FeedOS

Component	Value	Description
Tag Name	PriceCurrency	FeedOS tag name.

* 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 4 PriceCurrency – technical implementation in FeedOS (Continued)

Component	Value	Description
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	<i>[Exchange specific value]</i>	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 US 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	<i>[Exchange specific value]</i>	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 US 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	<i>[Exchange specific value]</i>	An exchange specific value , detailing the standardized identification code of an instrument.

Table 6 CFICode – technical implementation in FeedOS (Continued)

Component	Value	Description
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
{ BATS CS ESXXXX }	{ BATS CS ESXXXX }
{ BATS NONE EUXXXX }	{ BATS NONE EUXXXX }
{ BATS PS EPXXXX }	{ BATS NONE EXXXXX }
{ BATS WAR RWXXXX }	{ BATS NONE RXXXXX }
	{ BATS PS EPXXXX }
	{ BATS WAR RWXXXX }

Referential Data Sample

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

instr # 444/762457 = 931897945	
PriceCurrency	string{USD}
Symbol	string{JMG}
SecurityType	string{CS}
FOSMarketId	BATS
CFICode	string{ESXXXX}
SecurityGroup	string{15}
InternalCreationDate	Timestamp{2015-04-01 11:57:34:433}
InternalModificationDate	Timestamp{2015-04-03 08:09:42:095}
InternalSourceId	uint16{113}
InternalEntitlementId	int32{1009}
LocalCodeStr	string{JMG}
ForeignFOSMarketId	XNYS
PriceIncrement_dynamic_TableId	uint32{2031716}
UMTF	string{JMG}
OperatingMIC	string{BATS}

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 931897945 RegSHOAction=1 TradingStatus=2
SI 12:00:00:227 931897945 OPEN *
TE 12:00:00:227 931897945 * * * * * 0
VU 12:00:00:227 931897945 TradingStatus=17
VU 14:50:16:914 931897945 RegSHOAction=1 TradingStatus=5
VU 14:50:16:914 931897945 TradingStatus=17
TE 14:50:16:915 931897945 * * 11.6 100@1 * *
TE 14:50:16:916 931897945 * * * * 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 931897945 RegSHOAction=1 TradingStatus=2
VU 14:50:16:914.328 931897945 TradingStatus=5
SI 14:50:16:914.328 931897945 OPEN *
TE 14:50:16:914.328 931897945 * * * * * 0
VU 14:50:16:914.328 931897945 RegSHOAction=1 TradingStatus=17
TE 14:50:16:915.451 931897945 * * 11.6 100@1 * *
TE 14:50:16:915.564 931897945 * * * * 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"

TE 11:16:00:747 931897945 * * ! 0 ! 0
VU 11:20:52:052 931897945 RegSHOAction=1
VU 12:00:00:001 931897945 TradingStatus=17
SI 12:00:00:227 931897945 OPEN *
TE 12:00:00:227 931897945 * * * * * 0
VU 12:00:00:227 931897945 TradingStatus=5
TE 12:47:45:471 931897945 * * 20.55 100@1 * *
TE 12:47:45:472 931897945 * * * * 61.65 100@1
--
TE 13:29:56:966 931897945 * * * * 41.44 300@1
TE 13:29:56:966 931897945 * * * * 41.39 300@1
VU 13:30:00:018 931897945 LastAuctionPrice=41.25
VU 13:30:00:018 931897945 LastAuctionPrice=41.1 LastAuctionVolume=0
DailyOpeningPrice=41.1 TradingStatus=17
TE 13:30:00:021 931897945 * * 41.06 200@1 * *
TE 13:30:00:021 931897945 * * 41.04 200@1 * *
--
TE 19:54:58:403 931897945 * * * * 41.27 1700@3
TE 19:54:59:197 931897945 * * 41.22 1500@1 * *
TE 19:54:59:412 931897945 * * * * 41.27 700@2
VU 19:55:00:001 931897945 LastAuctionPrice=41.245 MARKET_BATS_AuctionType=C
TradingStatus=5
TE 19:55:01:018 931897945 * * 41.22 2100@2 * *
TE 19:55:07:162 931897945 * * * * 41.27 100@1
TE 19:55:07:164 931897945 * * * * 41.27 700@2

```


In the Level1 Market Data Kinematics **after 2015-05-04**, the Trading Status of all auction eligible instruments will be set to 5=PriceIndication, two minutes before 09:30 New York Time (EDST) or upon receiving the Auction information, as shown below (the Trading Status will change back to 17=ReadyToTrade only when a trade occurs or upon receiving the Auction summary message – reset of the auction information):

```

"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 11:16:00:747.828 931897945 * * ! 0 ! 0
VU 11:20:52:039.635 931897945 RegSHOAction=1
SI 12:00:00:001.123 931897945 OPEN *
TE 12:00:00:001.123 931897945 * * * * * * 0
VU 12:00:00:001.123 931897945 RegSHOAction=1 TradingStatus=17
TE 12:47:45:471.421 931897945 * * 20.55 100@1 * *
TE 12:47:45:471.421 931897945 * * * * 61.65 100@1
--
TE 13:27:31:663.335 931897945 * * 40.02 400@1 * *
TE 13:27:45:998.721 931897945 * * 40.01 400@1 * *
TE 13:27:45:998.721 931897945 * * * * 42.17 400@1
VU 13:28:00:007.195 931897945 LastAuctionPrice=41.09 MARKET_BATS_AuctionType=0
TradingStatus=5
TE 13:28:00:036.387 931897945 * * 40.01 500@2 * *
TE 13:28:00:036.387 931897945 * * * * 42.17 500@2
TE 13:28:00:329.564 931897945 * * 40.02 400@1 * *
TE 13:28:00:332.648 931897945 * * 40.02 500@2 * *
VU 13:28:05:049.874 931897945 LastAuctionPrice=41.095
--
TE 13:29:56:965.329 931897945 * * * * 41.44 300@1
TE 13:29:56:965.330 931897945 * * * * 41.39 300@1
VU 13:30:00:365.235 931897945 LastAuctionPrice=41.25
VU 13:30:00:365.311 931897945 LastAuctionPrice=41.1 LastAuctionVolume=0
TradingStatus=17
TE 13:30:00:365.707 931897945 * * 41.06 200@1 * *
TE 13:30:00:365.707 931897945 * * 41.04 200@1 * *
TE 13:30:00:365.707 931897945 * * * * 41.41 300@1
--
TE 19:54:58:436.083 931897945 * * * * 41.27 1700@3
TE 19:54:59:197.085 931897945 * * 41.22 1500@1 * *
TE 19:54:59:412.086 931897945 * * * * 41.27 700@2
VU 19:55:00:137.577 931897945 LastAuctionPrice=41.245 MARKET_BATS_AuctionType=C
TradingStatus=5
TE 19:55:01:815.128 931897945 * * 41.22 2100@2 * *
TE 19:55:07:508.328 931897945 * * * * 41.27 100@1
TE 19:55:07:508.521 931897945 * * * * 41.27 700@2
--
TE 20:00:48:238.168 931897945 * * * * 47.22 100@1
TE 20:00:48:240.254 931897945 * * * * 48.31 100@1
TE 20:02:02:333.687 931897945 * * * * ! 0
TE 21:00:00:001.495 931897945 * * ! 0 * *
VU 21:00:00:565.348 931897945 TradingStatus=18
TE 23:30:00:920.684 931897945 * * ! 0 ! 0

```

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	931897945	*	*	*	*	41.27	700@2
TE	20:00:48:238.168	931897945	*	*	*	*	47.22	100@1
TE	20:00:48:240.254	931897945	*	*	*	*	48.31	100@1

3. Finding the Latest Information

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- Web: <https://support.quanthouse.com>.