S&P Capital IQ Real-Time Solutions

QuantFEED® Developer's Notice

ICE – Feed Upgrade

Reference n°: 20140210

Effective as of: 10 March 2014

Action required from users: Mandatory Action

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S&P Capital IQ Real-Time Solutions (QuantHouse®) – QuantFEED®
QuantFEED® Developer's Notice
Reference 20140210
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UPGRADE OF THE ICE MARKET DATA STREAM

To improve the quality of the ICE market data stream, S&P Capital IQ Real-Time Solutions has decided to enhance the content of QuantFEED®.

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. Upgrade Summary

Table 1 Current upgrade summary

Notice Reference	20140210
Exchanges	ICE
Concerned MICs	ICEU, IFCA, ICUS
Internal Source ID	66, 88, 188
Effective Date	**2014-03-10**
Impact	• Update of the Referential Tags • Update of the Quotation Tags • New L1 Kinematics • Microsecond Timestamp Precision on L1 • QuantFEED® API Upgrade
Action required	**Mandatory Action** (see section 4. Upgrading QuantFEED® API on page 6).

2. Functional Description

Effective Monday, **March 10, 2014**, S&P Capital IQ Real-Time Solutions updates the values of the referential tags `SecurityType` (**NumericID**: `167`, **Type**: `String`), `CFICode` (**NumericID**: `461`, **Type**: `String`) and `LocalCodeStr` (**NumericID**: `9500`, **Type**: `String`) to accommodate the information disseminated on the ICE market data stream.

S&P Capital IQ Real-Time Solutions also introduces implied order management in MBO and MBL data. Implied orders are now aggregated in the order book.

The new ICE feed handler allows the management of Options and User-Defined Strategies (UDS) on ICE. However, Options and UDSs are not included by default in the ICE market data stream. For more details about your subscription options, please contact S&P Capital IQ Real-Time Solutions.

Furthermore, S&P Capital IQ Real-Time Solutions improves the L1 kinematics by adding Daily Opening/Closing Signals and Settlement Prices, based on the `MarketStateChange` message from the market. Also, all system priced leg trades are now considered "off-book" trades.

Moreover, the `ServerUTCTime` also displays microsecond units on Level 1 data.

3. QuantFEED® Technical Implementation

The following sections describe the technical implementation of the new or updated tags:

- 3.1. Security Type
- 3.2. CFI Code
- 3.3. Local Code String
- 3.4. ICE L1 Kinematics Update
- 3.5. Microsecond Timestamp Precision on L1.

3.1. Security Type

The values of the referential tag **Security Type** conveyed on the ICE market data stream are disseminated via QuantFEED® data stream in *Referential* to specify the type of security.

QuantFEED® implementation of the values currently available for the tag `SecurityType` is described in the table below (newly added values are in `green`):

Table 2 SecurityType – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`SecurityType`	QuantFEED® tag name.
Numeric ID	`167`	QuantFEED® unique ID disseminated on 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 type of security.

Table 2 SecurityType – technical implementation in QuantFEED® (Continued)

Component	Value	Description
Possible Values	NONE	Unknown Security Type
	FUT	Future
	FORWARD	Forward
	INDEX	Index
	MLEG	Multileg
	OPT	Option

3.2. CFI Code

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

QuantFEED® implementation of the values currently available for the tag `CFICode` is described in the table below (newly added values are in `green`):

Table 3 CFICode – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	CFICode	QuantFEED® tag name.
Numeric ID	461	QuantFEED® unique ID disseminated on 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	FCXXXX	Futures - Commodities Futures
	FFWXXX	Futures - Financial Futures - Swaps
	MMFXXX	Other Assets - Forwards
	MRIXXX	Other - Referential Instruments - Indices
	MRXXXX	Other - Referential Instruments
	MXXXXX	Other
	OXXXXX	Options

The following table summarizes the instrument types available on ICE market data stream:

Table 4 Instruments available on ICE market data stream

Instrument Type	CFI Code	Security Type
Future	FCXXXX	FUT
OTC Swap - Flow	FFWXXX	FUT
OTC Swap - Lots	FFWXXX	FUT
OTC Physical Forwards	MMFXXX	FORWARD
Spreads	MRXXXX	MLEG
Spreads/Combo	MRXXXX	MLEG
Option	OXXXXX	OPT
Index	MRIXXX	INDEX

Table 4 Instruments available on ICE market data stream (Continued)

Instrument Type	CFI Code	Security Type
Minute Marker Block	MXXXXX	FUT
Trade at Auction	MXXXXX	FUT
Host	MXXXXX	FUT
Trade at Settlement **Note:** These instruments may have negative prices.	MXXXXX	FUT
Trade at Index Close	MXXXXX	FUT

3.3. Local Code String

The values of the referential tag **Local Code String** conveyed on the ICE market data stream are disseminated via QuantFEED® data stream in *Referential* to specify the security local code. The current format

QuantFEED® implementation of the values currently available for the tag `LocalCodeStr` is described in the table below:

Table 5 LocalCodeStr – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`LocalCodeStr`	QuantFEED® tag name.
Numeric ID	`9500`	QuantFEED® unique ID disseminated on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`String`	String data type.
Format / Possible Values	*`[Exchange Specific Value]`*	An ***exchange specific value***, detailing the security local code, based on the MarketID of the messages from the ICE market data stream.

Below is an example of the current implementation of the updated referential tags (in blue):

```
instr # 432/831242 = 906800906
    Description                 string{+01BRN   20150112C00103000 +01BRN   20150112P00103000}
    SecurityType                string{MLEG}
    StdMaturity                 string{20151}
    FOSMarketId                 ICEU
    CFICode                     string{MRXXXX}
    ProductComplex              string{+01BRN   20150112C00103000 +01BRN   20150112P00103000}
    InternalCreationDate        Timestamp{2014-04-02 18:38:06:006}
    InternalModificationDate    Timestamp{2014-04-09 01:04:36:484}
    InternalSourceId            uint16{66}
    LocalCodeStr                string{91457424}
    PriceIncrement_static       float64{0.01}
    UnderlyingFOSMarketId       ICEU
    UnderlyingLocalCodeStr      string{220264}
    UnderlyingFOSInstrumentCode uint32{906721343}
    MaturityYear                uint16{2015}
    MaturityMonth               uint8{1}
    MaturityDay                 uint8{12}
    LegFOSInstrumentCode        uint32{906747168}
    LegFOSInstrumentCode_1      uint32{906747169}
    LegRatioQty                 float64{1}
    LegRatioQty_1               float64{1}
    LegFIXSide                  '1'=Buy
    LegFIXSide_1                '1'=Buy
    MARKET_ICE_ContractSymbol   string{}
```

3.4. ICE L1 Kinematics Update

The following sections describe the kinematics of ICE market data stream before and after 2014-03-10:

- 3.4.1. ICE L1 Kinematics before 2014-03-10
- 3.4.2. ICE L1 Kinematics after 2014-03-10.

3.4.1. ICE L1 Kinematics before 2014-03-10

In the L1 kinematics before 2014-03-10, the daily open signals are not sent. S&P Capital IQ Real-Time Solutions simulates and sends the Daily Closing Signals of all instruments at 19:00 Eastern Time, as shown in the example below:

Sample ICE L1 kinematics before 2014-03-10

```
VU      14:00:00:067 1064024089      TradingStatus=17
TE      14:00:00:073 null     1064024089      *       *       20.75    2       *       *
TE      14:00:00:073 null     1064024089      *       *       *        *       21.1    10
SI      14:05:36:451 1064024089      OPEN    20.75
....
(NO DAILY CLOSE OR TRADING STATUS CHANGE)
VU      19:21:48:000 1064024089      DailySettlementPrice=20.68
```

3.4.2. ICE L1 Kinematics after 2014-03-10

In the L1 kinematics after 2014-03-10, S&P Capital IQ Real-Time Solutions sends the Daily Opening/Closing Signals of all instruments based on the `MarketStateChange` messages the market sends, which makes the signals more accurate, as shown in the example below:

Sample ICE L1 kinematics after 2014-03-10

```
SI      14:00:00:067.353 1064019764      OPEN    *
TE      14:00:00:067.353 1064019764      *       *       *       *       *       *       O
VU      14:00:00:067.353 1064019764      TradingStatus=17
TE      13:45:01:011.353 1064019764      *       *       20.75   2@1     *       *
...
SI      19:00:00:054.273 1064019764      CLOSE   20.75
TE      19:00:00:054.273 1064019764      20.75   *       *       *       *       *       C
VU      19:00:00:054.273 1064019764      TradingStatus=18
VU      19:21:48:000.499 1064019764      DailySettlementPrice=20.68
VU      19:21:53:385.499 1064019764      DailyOpeningPrice=20.75
```

Moreover, all system priced leg trades are now considered “off-book” trades. This behavior does not affect the `DailyOffBookTotalVolumeTraded`.

The new kinematics ensures that the content of the tags is consistent with the data disseminated by the exchange.

3.5. Microsecond Timestamp Precision on L1

After **March 10, 2014**, the server timestamp will display microsecond units on L1, as shown in the example below (highlighted in `green`):

```
TE      11:00:22:091.520     906753116       *       *       *       *       -12.42  1@1
TE      11:00:22:091.612     906724891       *       *       11.75   26@5    *       *
TE      11:00:22:091.612     906725112       *       *       *       *       6       942@39
TE      11:00:22:091.868     906724923       *       *       13.25   23@4    *       *
```

4. Upgrading QuantFEED® API

To properly consume the ICE market data stream after **March 10, 2014**, we strongly recommend you upgrade the QuantFEED® API to the minimum required version, as described in the table below:

Table 6 Required version to consume the ICE Data Feed after the upgrade

Language	QuantFEED® API – minimum required version
C++	3.7.6.3
C#	2.5.5.3
Java	3.9.5.2

For more details about the upgrade procedure, see QuantFEED® API documentation.

5. 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.