S&P Capital IQ Real-Time Solutions

FeedOS™ Developer's Notice

RAPID ADH – Feed Update

Reference n°: 20150605 – 26364 – 26382 – 27162

Effective as of: 22 June 2015*

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: RAPID ADH – Feed Update
Reference 20150605 – 26364 – 26382 – 27162
June 08, 2015

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UPDATE OF THE RAPID ADH MARKET DATA STREAM

To reflect the changes caused by the refinement of the referential data on the RAPID ADH 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	20150605 – 26364 – 26382 – 27162
Exchanges	RAPID ADH
Concerned MICs	XWBO
Internal Source ID	240, 242
Effective Date	**2015-06-22***
Impact	• Update of the Referential Tags • Update of the Level1 Market Data Kinematics
Action required	**MANDATORY ACTION** - see sections: • 2.1.1. SecurityType • 2.1.2. CFICode.

2. FeedOS Technical Implementation

Effective Monday, **June 22*** **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 RAPID ADH market data stream, as described below:

2.1. Changes to the Referential Data

S&P Capital IQ Real-Time Solutions **updates** the referential tags below to accommodate the information disseminated on the RAPID ADH market data stream:

Table 2 Referential tags disseminating updated values on the RAPID ADH market data stream

Tag Name	Numeric ID	Type
`SecurityType`	167	String
`CFICode`	461	String
`SecurityGroup`	1151	String

2.1.1. SecurityType

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

FeedOS implementation of the tag `SecurityType` is described in the table below (existing values are in `black`, newly added values are in `green`):

Table 3 SecurityType – technical implementation in FeedOS

Component	Value	Description
Tag Name	`SecurityType`	FeedOS tag name.
Numeric ID	167	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 type of security.

* 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 3 SecurityType – technical implementation in FeedOS (Continued)

Component	Value	Description
Possible Values	CORP	Corporate Bonds
	CS	Common Stocks
	ETF	Exchange-Traded Funds
	GO	General Obligations
	MBS	Mortgage-Backed Securities
	MF	Mutual Funds
	TB	Treasury Bills
	TINT	Interest Strip from Any Bond or Note
	WAR	Warrants

2.1.2. CFICode

The values of the referential tag **CFI Code** conveyed on the RAPID ADH 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 (existing values are in `black`, newly added values are in `green`):

Table 4 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	DBFSXX	Debts - Bonds - Fixed Rate - Secured
	DBFTFX	Debts - Bonds - Fixed Rate - Treasury Guarantee - Fixed Maturity
	DBFTXX	Debts - Bonds - Fixed Rate - Treasury Guarantee
	DBFXXX	Debts - Bonds - Fixed Rate
	DBVSXX	Debts - Bonds - Variable - Secured
	DBVTXX	Debts - Bonds - Variable - Secured - Treasury Guarantee
	DBVXXX	Debts - Bonds - Variable
	DBXTXX	Debts - Bonds - Treasury Guarantee
	DBXXXX	Debts - Bonds
	DBZXXX	Debts - Bonds - Zero Rate
	ESXXXX	Equities - Shares
	EUCXXX	Equities - Units - Closed-End
	EUOXXX	Equities - Units - Open-End
	EUXXXE	Equities - Units - Exchange-Traded Funds
	EUXXXX	Equities - Units
	EXXXXX	Equities

Table 4 CFICode – technical implementation in FeedOS (Continued)

Component	Value	Description
Possible Values	RWXCCX	Rights - Warrants - Covered Warrants - Call
	RWXCPX	Rights - Warrants - Covered Warrants - Put
	RWXXCX	Rights - Warrants - Covered Warrants
	RWXXXX	Rights - Warrants

The example 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 2015-06-22                    AFTER 2015-06-22
{ XWBO CORP DBVXXX }                 { XWBO CORP DBVXXX }
{ XWBO CORP DBXXXX }                 { XWBO CORP DBXXXX }
{ XWBO CORP DBZXXX }                 { XWBO CORP DBZXXX }
{ XWBO CS   EXXXXX }                 { XWBO CS   EXXXXX }
{ XBUD CORP DBFXXX }                 { XWBO ETF  EUXXXE }
{ XBUD CORP DBVXXX }                 { XWBO ETF  EUXXXX }
{ XBUD CS   ESXXXX }                 { XWBO GO   DBVTXX }
{ XBUD GO   DBFTXX }                 { XWBO GO   DBVXXX }
{ XBUD GO   DBVTXX }                 { XWBO GO   DBXTXX }
{ XBUD MBS  DBFSXX }                 { XWBO GO   DBXXXX }
{ XBUD MBS  DBVSXX }                 { XWBO GO   DBZXXX }
{ XBUD MF   EUCXXX }                 { XWBO TINT DBXTXX }
{ XBUD MF   EUOXXX }                 { XWBO WAR  RWXCCX }
{ XBUD TB   DBFTFX }                 { XWBO WAR  RWXCPX }
{ XBUD WAR  RWXXXX }                 { XWBO WAR  RWXXCX }
                                     { XWBO WAR  RWXXXX }
                                     { XBUD CORP DBFXXX }
                                     { XBUD CORP DBVXXX }
                                     { XBUD CS   ESXXXX }
                                     { XBUD GO   DBFTXX }
                                     { XBUD GO   DBVTXX }
                                     { XBUD MBS  DBFSXX }
                                     { XBUD MBS  DBVSXX }
                                     { XBUD MF   EUCXXX }
                                     { XBUD MF   EUOXXX }
                                     { XBUD TB   DBFTFX }
                                     { XBUD WAR  RWXXXX }
```

2.1.3. SecurityGroup

The values of the referential tag **Security Group** conveyed on the RAPID ADH market data stream are disseminated via FeedOS data stream in *Referential* to indicate an exchange specific name assigned to a group of related securities which may be concurrently affected by market events and actions.

FeedOS implementation of the tag `SecurityGroup` is described in the following table:

Table 5 SecurityGroup – technical implementation in FeedOS

Component	Value	Description
Tag Name	`SecurityGroup`	FeedOS tag name.
Numeric ID	`1151`	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 / Possible Values	*`[Exchange Specific Value]`*	An ***exchange specific percentile value***, indicating an exchange specific name assigned to a group of related securities which may be concurrently affected by market events and actions.

The table below shows the possible combinations of Security Types and CFI Codes, based on the instrument Security Group, before and after the migration day:

Table 6 Possible Security Type and CFI Code combinations within Security Groups

Security Group	Values before 2015-06-22	Values after 2015-06-22
AOD	CS EXXXXX	CS EXXXXX
ATX	CORP DBXXXX CORP DBZXXX CS EXXXXX	CS EXXXXX ETF EUXXXX GO DBXXXX GO DBZXXX WAR RWXCCX WAR RWXCPX WAR RWXXXX
B01A	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B01S	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B03A	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B03S	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B04A	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B05A	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B05S	CORP DBVXXX CORP DBXXXX	GO DBVXXX GO DBXXXX
B07A	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX
B07S	CORP DBVXXX CORP DBXXXX CORP DBZXXX	GO DBVXXX GO DBXXXX GO DBZXXX

Table 6 Possible Security Type and CFI Code combinations within Security Groups (Continued)

Security Group	Values before 2015-06-22		Values after 2015-06-22	
B09A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B09S	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B11A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B11S	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
B12A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B13A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B13S	CORP	DBVXXX	GO	DBVXXX
B15A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B15S	CORP	DBXXXX	GO	DBXXXX
B17A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B17S	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B19A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
B21A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
B23A	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
BAC1	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
BNCA	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
BNCS	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX
	CORP	DBZXXX	GO	DBZXXX
BOST			WAR	RWXXXX
BSC1	CORP	DBVXXX	GO	DBVXXX
	CORP	DBXXXX	GO	DBXXXX

Table 6 Possible Security Type and CFI Code combinations within Security Groups (Continued)

Security Group	Values before 2015-06-22	Values after 2015-06-22
CBA	CORP DBVXXX CORP DBXXXX CORP DBZXXX	CORP DBVXXX CORP DBXXXX CORP DBZXXX GO DBVXXX GO DBXXXX GO DBZXXX
CBNS		WAR RWXXXX
CBON		WAR RWXXXX
CBS	CORP DBVXXX CORP DBXXXX CORP DBZXXX	CORP DBVXXX CORP DBXXXX CORP DBZXXX WAR RWXXXX
CCE1		WAR RWXXXX
CCE2		WAR RWXXXX
CDIS		WAR RWXXXX
CDIZ		WAR RWXXXX
CEA0		WAR RWXXCX WAR RWXXXX
CEAP	CORP DBVXXX CORP DBXXXX	GO DBVXXX GO DBXXXX
CEB1		WAR RWXCCX WAR RWXCPX WAR RWXXXX
CEB2		WAR RWXXXX
CEB3		WAR RWXXXX
CEB4		WAR RWXXXX
CEB5		WAR RWXXXX
CINV		WAR RWXXXX
CNU1		WAR RWXXXX
COL	CORP DBVXXX CS EXXXXX	CS EXXXXX GO DBVXXX WAR RWXXXX
COTH		WAR RWXXXX
CPC2	CORP DBXXXX	GO DBXXXX
CPCT	CORP DBVXXX CORP DBXXXX	GO DBVXXX GO DBXXXX
CTD	CS EXXXXX	CS EXXXXX WAR RWXXXX
CTP	CS EXXXXX	CS EXXXXX WAR RWXXXX
ETF		ETF EUXXXE ETF EUXXXX
FOAO		ETF EUXXXX
GOVB	CORP DBVXXX CORP DBXXXX	GO DBVTXX GO DBXTXX
GSTR	CORP DBXXXX	TINT DBXTXX
GTB	CORP DBZXXX	GO DBZXXX

Table 6 Possible Security Type and CFI Code combinations within Security Groups (Continued)

Security Group	Values before 2015-06-22	Values after 2015-06-22
MIDA	CS EXXXXX	CS EXXXXX
MIDC	CS EXXXXX	CS EXXXXX WAR RWXXXX
OLD	CORP DBVXXX CORP DBXXXX CORP DBZXXX CS EXXXXX	CORP DBVXXX CORP DBXXXX CORP DBZXXX CS EXXXXX ETF EUXXXX GO DBVXXX GO DBXXXX WAR RWXCCX WAR RWXCPX WAR RWXXXX
OLF	CS EXXXXX	CS EXXXXX
SNCS		WAR RWXCCX
WA01		WAR RWXCCX WAR RWXCPX
WA03		GO DBXXXX
WA03		WAR RWXCCX WAR RWXCPX
WA04		GO DBXXXX
WA04		WAR RWXCCX WAR RWXCPX
WA05		GO DBXXXX
WA05		WAR RWXCCX WAR RWXCPX
WA08		GO DBXXXX
WA08		WAR RWXCCX
WA11		GO DBVXXX GO DBXXXX
WA11		WAR RWXCCX WAR RWXCPX
WA12		GO DBXXXX
WA12		WAR RWXCCX WAR RWXCPX

Referential Data Sample

Below are several examples showing the current implementation of the updated (in blue) referential tags:

```
BEFORE 2015-06-22
instr # 25/1066 = 52429866
    PriceCurrency               string{ATS}
    Symbol                      string{CA NR GM-FL. 96-21/1}
    Issuer                      string{CA}
    Description                 string{CA NR GM-FL. 96-21/1}
    SecurityType                string{CORP}
    StdMaturity                 string{202102}
    FOSMarketId                 XWBO
    CouponRate                  float64{0.324}
    CouponPaymentDate           uint32{20150824}
    CFICode                     string{DBVXXX}
    RoundLot                    float64{10000}
    MinTradeVol                 float64{10000}
    SecuritySubType             string{BON}
    SecurityGroup               string{B01A}
    MarketSegmentID             string{VIB}
    InternalCreationDate        Timestamp{2014-06-16 04:02:00:067}
    InternalModificationDate    Timestamp{2015-06-04 04:02:10:082}
    InternalSourceId            uint16{240}
    InternalEntitlementId       int32{1121}
    LocalCodeStr                string{AT0000246814}
    ISIN                        string{AT0000246814}
    PriceIncrement_static       float64{0.01}
    MaturityYear                uint16{2021}
    MaturityMonth               uint8{2}
    MaturityDay                 uint8{26}
    WertpapierKennNummer        string{24681}
    OperatingMIC                string{XWBO}
    SegmentMIC                  string{XVIE}
    MARKET_XETRA_ISIX           uint32{738}
    MARKET_XETRA_OptimalGatewayLocation string{0000}
```

```
AFTER 2015-06-22
instr # 25/1066 = 52429866
    PriceCurrency               string{ATS}
    Symbol                      string{CA NR GM-FL. 96-21/1}
    Issuer                      string{CA}
    Description                 string{CA NR GM-FL. 96-21/1}
    SecurityType                string{GO}
    StdMaturity                 string{202102}
    FOSMarketId                 XWBO
    CouponRate                  float64{0.324}
    CouponPaymentDate           uint32{20150824}
    CFICode                     string{DBVXXX}
    RoundLot                    float64{10000}
    MinTradeVol                 float64{10000}
    SecuritySubType             string{BON}
    SecurityGroup               string{BO1A}
    MarketSegmentID             string{VIB}
    InternalCreationDate        Timestamp{2014-06-16 04:02:00:067}
    InternalModificationDate    Timestamp{2015-06-04 04:02:10:082}
    InternalSourceId            uint16{240}
    InternalEntitlementId       int32{1121}
    LocalCodeStr                string{AT0000246814}
    ISIN                        string{AT0000246814}
    PriceIncrement_static       float64{0.01}
    MaturityYear                uint16{2021}
    MaturityMonth               uint8{2}
    MaturityDay                 uint8{26}
    WertpapierKennNummer        string{24681}
    OperatingMIC                string{XWBO}
    SegmentMIC                  string{XVIE}
    MARKET_XETRA_ISIX           uint32{738}
    MARKET_XETRA_OptimalGatewayLocation string{0000}
```

2.2. Microsecond Timestamp Precision on the Level1 Market Data

Effective **2015-06-22**, 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   52429866    *       *       *       *       1.27    700@2
TE   20:00:48:238.168   52429866    *       *       *       *       1.22    100@1
TE   20:00:48:240.254   52429866    *       *       *       *       1.31    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: https://support.quanthouse.com.