

FeedOS™ Developer's Notice

CME – Feed Migration from MDPFF to MDP3 Protocol

Reference n°: 20141223 – 17560 – 24427 (UPDATE 01 TO 20141124 – 17560 – 23232)

Effective as of: Q1 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: CME – Feed Migration from MDPFF to MDP3 Protocol
Reference 20141223 – 17560 – 24427
December 30, 2014

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MIGRATION OF THE CME MARKET DATA STREAM FROM MDPFF TO MDP3 PROTOCOL

To reflect the changes caused by the migration of the CME market data stream from MDPFF to MDP3 protocol, 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	20141223 – 17560 – 24427 ⁱ (UPDATE 01 TO 20141124 – 17560 – 23232)
Exchanges	CME (including MALAYSIA DERIVATIVES)
Concerned MICs	XCME, XCBT, XMGE, XCEC, XKLS, XNYM
Internal Source ID	15, 16, 17, 35*
Effective Date	Q1 2015*
Impact	<ul style="list-style-type: none">• Update of the Referential Tags• Update of the Quotation Tags• Update of the Quotation Context Tags• Removal of the Spread Trades' Legs• Addition of the Trade Aggregation• Microsecond Timestamp Precision on the Level1 Market Data• Removal of the Market News Detailing the Security Trading Status
Action required	MANDATORY ACTION - see sections: <ul style="list-style-type: none">• 2.2.1. TradingStatus• 2.5. Addition of the Trade Aggregation.

i. The red bars in the left margin highlight content that has been added or changed since the previous release of this document.

2. FeedOS Technical Implementation

Effective **Q1 2015**^{*}, S&P Capital IQ Real-Time Solutions enhances the referential, quotation and quotation context data, and introduces trade aggregation to accommodate the new information disseminated on the CME market data stream, as described below:

- [2.1. Changes to the Referential Data](#)
- [2.2. Changes to the Quotation Data](#)
- [2.3. Changes to the Quotation Context Data](#)
- [2.4. Removal of the Spread Trades' Legs](#)
- [2.5. Addition of the Trade Aggregation](#)
- [2.6. Microsecond Timestamp Precision on Level1 Market Data](#)
- [2.7. Removal of the Market News Detailing the Security Trading Status.](#)

2.1. Changes to the Referential Data

S&P Capital IQ Real-Time Solutions **introduces** the referential tag below to accommodate the information disseminated on the CME market data stream:

Table 2 Referential tags added on the CME market data stream

Tag Name	Numeric ID	Type
UnitOfMeasure	996	String
MaxTradeVol	1140	Float64
OperatingMIC	9533	String

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

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

Tag Name	Numeric ID	Type
Description	107	String

2.1.1. UnitOfMeasure

The values of the referential tag **UnitOfMeasure** conveyed on the CME market data stream are disseminated via FeedOS data stream in *Referential* to specify the unit of measure of the underlying commodity upon which the contract is based.

^{*} 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 `UnitOfMeasure` is described in the table below:

Table 4 UnitOfMeasure – technical implementation in FeedOS

Component	Value	Description
Tag Name	UnitOfMeasure	FeedOS tag name.
Numeric ID	996	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 Value	<i>[Exchange Specific Value]</i>	An exchange specific value , specifying the unit of measure of the underlying commodity upon which the contract is based.

2.1.2. MaxTradeVol

The values of the referential tag **MaxTradeVol** conveyed on the CME market data stream are disseminated via FeedOS data stream in *Referential* to specify the maximum order quantity that can be submitted for a security.

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

Table 5 MaxTradeVol – technical implementation in FeedOS

Component	Value	Description
Tag Name	MaxTradeVol	FeedOS tag name.
Numeric ID	1140	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	Float64	Float64 data type.
Format / Possible Value	<i>[Exchange Specific Value]</i>	An exchange specific value , specifying the maximum order quantity that can be submitted for a security.

2.1.3. OperatingMIC

The values of the referential tag **OperatingMIC** conveyed on the CME market data stream are disseminated via FeedOS data stream in *Referential* to specify the parent MIC.

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

Table 6 OperatingMIC – technical implementation in FeedOS

Component	Value	Description
Tag Name	OperatingMIC	FeedOS tag name.
Numeric ID	9533	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 parent MIC.

Table 6 OperatingMIC – technical implementation in FeedOS (Continued)

Component	Value	Description
Possible Values	XCBT	Chicago Board of Trade
	XCME	Chicago Mercantile Exchange
	XKLS	Bursa Malaysia
	XMGE	Minneapolis Grain Exchange
	XNYM	New York Mercantile Exchange

2.1.4. Description

The values of the referential tag **Description** conveyed on the CME market data stream are disseminated via FeedOS data stream in *Referential* to characterize an instrument.

FeedOS implementation of the tag Description is detailed in the table below:

Table 7 Description – technical implementation in FeedOS

Component	Value	Description
Tag Name	Description	FeedOS tag name.
Numeric ID	107	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	<i>[Exchange specific value]</i>	<p>An exchange specific value characterizing the instrument.</p> <p>CAUTION: The values of this tag are retrieved from the XML files available on the CME Web site. Since these files may be inaccurate, S&P Capital IQ Real-Time Solutions cannot guarantee the accuracy of the information this tag disseminates.</p>

Referential Data Sample

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

```
instr # 305/801332 = 640432692
  PriceCurrency          string{USD}
  Symbol                 string{ZD}
  Description             string{$10DOW JONES FUTURES}
  SecurityType           string{FUT}
  StdMaturity            string{201503}
  FOSMarketId            XCBT
  Factor                 float64{10}
  CFICode                string{FFIXSX}
  MinTradeVol            float64{1}
  UnitOfMeasure          string{IPNT}
  MaxTradeVol            float64{1500}
  MatchAlgorithm         string{F}
  MarketSegmentID       string{5}
  MarketSegmentDesc     string{Equity}
  InternalCreationDate   Timestamp{2014-10-24 15:22:24:940}
  InternalModificationDate Timestamp{2015-01-13 23:13:36:350}
  InternalSourceId       uint16{16}
  InternalEntitlementId   int32{1022}
  LocalCodeStr           string{ZDH5}
  PriceIncrement_static  float64{1}
  MaturityYear           uint16{2015}
  MaturityMonth          uint8{3}
  MaturityDay            uint8{20}
  OperatingMIC           string{XCBT}
  PriceDisplayPrecision  int16{0}
  MARKET_CME_DisplayPricePrimaryDenominator uint16{32}
  MARKET_CME_DisplayPriceSecondaryDenominator uint16{2}
  MARKET_CME_DisplayPriceNbOfDecimal uint16{3}
```

2.2. Changes to the Quotation Data

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

Table 8 Quotation tags disseminating updated values on the CME market data stream

Tag Name	Numeric ID	Type
TradingStatus	9100	Enum
LastAuctionPrice	9146	Float64

S&P Capital IQ Real-Time Solutions also **removes** the quotation tags below:

Table 9 Quotation tags no longer disseminated on the CME market data stream

Tag Name	Numeric ID	Type
SettlPriceType	731	UInt8

2.2.1. TradingStatus

Each time a modification of the trading status occurs, the values of the quotation tag **TradingStatus** conveyed on the CME 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 (newly added values are in **green**):

Table 10 Trading Status of the CME market data stream – technical implementation in FeedOS

Component	Value	Description
Tag Name	TradingStatus	FeedOS tag name.
Numeric ID	9100	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	Enumeration data type.
Format	<i>[Exchange Specific Value]</i>	An exchange specific value , as described below, concerning the characteristics of the trading status.
Possible Values	2	Trading Halt
	5	Price Indication
	15	New Price Indication
	17	Ready to Trade
	18	Not Available for Trading
	21	Pre-Open

2.2.2. LastAuctionPrice

The values of the quotation tag **LastAuctionPrice** conveyed on the CME market data stream are disseminated via FeedOS data stream in *Other Values* to detail the last 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 `LastAuctionPrice` is described in the following table:

Table 11 LastAuctionPrice – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	LastAuctionPrice	FeedOS tag name.
Numeric ID	9146	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	Float64	Float64 data type.
Format / Possible Values	<i>[Exchange specific value]</i>	<p>An exchange specific value, detailing the last auction price.</p> <p>Note: The values of this FeedOS tag are retrieved from the exchange tag <code>Indicative Opening Price</code>. The exchange defines the Indicative Opening Price as a probable price at which the market will open or re-open, given the current book and order activity. The trading engine calculates the Indicative Opening Price during the Pre-Open and Reserve states, based on the orders in the book.</p>

Quotation Data Sample

Below are several examples of the quotation tags implementation (updated tags are in **blue**, removed tags are in **crossed out-red**):

```

"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..."

VU 21:45:00:009.156 639632361 TradingStatus=21
SI 22:00:00:004.761 639632361 OPEN *
TE 22:00:00:004.761 639632361 * * * * * * O
VU 22:00:00:004.761 639632361 CurrentBusinessDay=2015-01-22 TradingStatus=15
VU 22:00:00:005.062 639632361 TradingStatus=17
VU 20:15:00:002.046 639632361 TradingStatus=21
VU 20:30:00:001.994 639632361 TradingStatus=15
VU 20:30:00:002.424 639632361 TradingStatus=17
SI 21:15:00:026.691 639632361 CLOSE *
TE 21:15:00:026.691 639632361 * * * * * * C
[...]
VU 21:42:22:264.141 639632361 SettlPriceType=100
VU 21:42:22:264.162 639632361 HighLimitPrice=17361 LowLimitPrice=15701
[...]
TE 13:56:17:476.292 639632361 * * -0.275 10@1 * *
TE 13:57:40:922.101 639632361 * * -0.2 1@1 * *
VU 13:57:40:922.101 639632361 LastAuctionPrice=-0.2
TE 13:57:41:645.658 639632361 * * -0.275 10@1 * *
TE 13:59:22:909.821 639632361 * * * * -0.275 10@1
VU 13:59:22:909.821 639632361 LastAuctionPrice=-0.275
TE 13:59:27:752.476 639632361 * * * * -0.2 1@1
TE 13:59:36:675.633 639632361 * * -0.25 10@1 * *
SI 14:00:00:018.666 639632361 OPEN *

```

2.3. Changes to the Quotation Context Data

S&P Capital IQ Real-Time Solutions also **removes** the quotation tags below::

Table 12 Quotation context tags no longer disseminated on the CME market data stream

Tag Name	Numeric ID	Type
TradeCondition	277	String

Quotation Context Data Sample

Below is an example showing the removed (in ~~crossed-out-red~~) quotation context tags:

```
"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..."

VU  22:00:00:046.158    640477224    TradingStatus=17
TE  22:00:00:050.216    640477224    16923    1    *    *    *    *
TradeCondition=E=opening_reopening_trade_detail
VU  22:00:00:050.323    640477224    DailyOpeningPrice=16923
```

2.4. Removal of the Spread Trades' Legs

Effective Q1 2015, the spread legs for equity products on the CME market data stream are no longer disseminated (shown in ~~crossed-out red~~ in the example below). However, the exchange will send an Electronic Volume Update (shown in green):

```
"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..."
```

BEFORE Q1 2015

```
TE 14:43:15:983 648338141 * * * * 99.58 2893@9
TE 14:43:15:983 648338141 * * 99.575 17544@32 * *
TE 14:43:15:992 648338141 * * 99.575 17564@32 * *
TE 14:43:16:877 648338141 99.55 143 * * * *
TradeCondition=1=implied_trade,AggressorSide='2'=Sell
TE 14:43:16:877 648338141 99.55 10 * * * *
TradeCondition=1=implied_trade,AggressorSide='2'=Sell
TE 14:43:16:877 648338141 99.55 5 * * * *
TradeCondition=1=implied_trade,AggressorSide='2'=Sell
TE 14:43:16:878 648338141 * * 99.575 17515@31 * *
TE 14:43:16:882 648338141 99.55 1 * * * *
TradeCondition=1=implied_trade,AggressorSide='1'=Buy
TE 14:43:16:886 648338141 * * 99.575 17495@31 * *
```

AFTER Q1 2015

```
TE 14:43:15:983.397 648338141 * * * * 99.58 2893@9
TE 14:43:15:983.482 648338141 * * 99.575 17544@32 * *
TE 14:43:15:992.485 648338141 * * 99.575 17564@32 * *
VU 14:43:16:877.698 648338141 DailyTotalVolumeTraded=111478
TE 14:43:16:878.292 648338141 * * 99.575 17515@31 * *
VU 14:43:16:882.720 648338141 DailyTotalVolumeTraded=111479
TE 14:43:16:886.882 648338141 * * 99.575 17495@31 * *
```

2.5. Addition of the Trade Aggregation

Effective Q1 2015, the consecutive trades of an instrument on the CME market data stream are aggregated, 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..."
```

BEFORE Q1 2015

```
TE 14:08:36:014 703098276 * * * * 0.004 72@2
TE 14:08:39:193 703098276 * * 0.002 219@5 * *
TE 14:09:40:374 703098276 0.004 1 * * * *
AggressorSide='1'=Buy
TE 14:09:40:374 703098276 0.004 11 * * * *
AggressorSide='1'=Buy
TE 14:09:40:375 703098276 * * * * 0.004 60@1
```

AFTER Q1 2015

```
TE 14:08:36:014.434 703098276 * * * * 0.004 72@2
TE 14:08:39:193.082 703098276 * * 0.002 219@5 * *
TE 14:09:40:374.501 703098276 0.004 12 * * * *
AggressorSide='1'=Buy
TE 14:09:40:374.516 703098276 * * * * 0.004 60@1
```

2.6. Microsecond Timestamp Precision on Level1 Market Data

In the Level1 Market Data disseminated after Q1 2015, the timestamps display microsecond units, 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 2014-12-02 00:13:26:865.465 2014-12-02 00:13:26:865.360 648835815 *
* 2e-05 40@2 3e-05 40@2
TE 2014-12-02 00:31:24:812.044 2014-12-02 00:31:24:811.947 648835815 *
* 2.2e-05 30@1 * *
TE 2014-12-02 00:32:22:446.680 2014-12-02 00:32:22:446.586 648835815 *
* 2.2e-05 35@2 * *
```

2.7. Removal of the Market News Detailing the Security Trading Status

In the Market Data before Q1 2015, the exchange published Market News about the security trading status, 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..."
"MN : MARKE NEWS"

SI      2014-12-01 23:00:00:045.420      2014-12-01 23:00:00:044 648835815      OPEN      *
TE      2014-12-01 23:00:00:045.420      2014-12-01 23:00:00:044 648835815      *          *
*      *          *          *          O
VU      2014-12-01 23:00:00:045.420      2014-12-01 23:00:00:044 648835815
TradingStatus=17
MN      null      null      XCME      Normal product XS = ReadyToTrade trade_date=2014-12-02
related_instruments:
MN      null      null      XCME      Normal product XS = ReadyToTrade trade_date=2014-12-02
related_instruments:
MN      null      null      XCME      Normal product D9 = ReadyToTrade trade_date=2014-12-02
related_instruments:
MN      null      null      XCME      Normal product D9 = ReadyToTrade trade_date=2014-12-02
related_instruments:
MN      null      null      XCME      Normal product YB = ReadyToTrade trade_date=2014-12-02
related_instruments:
```

In the Market Data after Q1 2015, the exchange no longer publishes Market News about the security trading status, 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      2014-12-01 23:00:00:048.010      2014-12-01 23:00:00:047.934      648835815      OPEN
*
TE      2014-12-01 23:00:00:048.010      2014-12-01 23:00:00:047.934      648835815      *
*      *          *          *          O
VU      2014-12-01 23:00:00:048.010      2014-12-01 23:00:00:047.934      648835815
CurrentBusinessDay=2014-12-02 TradingStatus=15
VU      2014-12-01 23:00:00:051.673      2014-12-01 23:00:00:051.546      648835815
TradingStatus=17
TE      2014-12-01 23:14:13:621.975      2014-12-01 23:14:13:621.876      648835815      *
*      2e-05 10@1      3e-05 10@1
TE      2014-12-01 23:14:20:491.657      2014-12-01 23:14:20:491.552      648835815      *
*      1.9e-05 10@1      3.1e-05 10@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>.