S&P Capital IQ Real-Time Solutions

QuantFEED® Feed Description

CBOE FUTURES

Reference n°: 20140117

S&P CAPITAL IQ
McGRAW HILL FINANCIAL

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QuantFEED® Feed Description
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QUANTFEED® CBOE FUTURES FEED DESCRIPTION

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

The topics this feed description covers include[*]:

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

1. Referential Data

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

- 1.1. Available Markets and Branches
- 1.2. Types of Instruments.

1.1. Available Markets and Branches

This section details the list of markets and branches available on the CBOE FUTURES market data stream:

- 1.1.1. Markets
- 1.1.2. Branches.

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

1.1.1. Markets

The CBOE FUTURES market data stream broadcasts informations about the following markets:

Table 1 List of markets available on the CBOE FUTURES market data stream

QuantFEED® Market ID	Market
XCBF	CBOE Futures Exchange
XOCH	OneChicago **NOTE:** OneChicago market data is not included in the CBOE Futures subscription, but sold separately. For more details about the subscription options, please contact S&P Capital IQ Real-Time Solutions.

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

```
MARKETS
market # 303    CC=US/UNITED STATES OF AMERICA/CHICAGO,DESCR=CBOE FUTURES EXCHANGE,
WEB=www.cboe.com/cfe/index.asp
    MIC = XCBF
    TimeZone = US/Chicago
    Country = US
    NbMaxInstruments = 2000000
market # 316    CC=US/UNITED STATES OF AMERICA/CHICAGO,DESCR=ONECHICAGO;
LLC.,WEB=www.onechicago.com
    MIC = XOCH
    TimeZone = US/Chicago
    Country = US
    NbMaxInstruments = 2000000
```

1.1.2. Branches

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

```
BRANCHES
    { XCBF FUT  FFIXXX } qty: 79
    { XOCH FUT  FFIXXX } qty: 14
    { XOCH FUT  FFSXXX } qty: 18049
    { XOCH MLEG MXXXXX } qty: 35841
```

1.2. Types of Instruments

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

- 1.2.1. Futures
- 1.2.2. Multilegs.

1.2.1. Futures

The sample below illustrates the details of a future:

```
instr # 303/1047 = 635438103
    Symbol                      string{VX_K4_CF}
    Description                 string{S&P 500 Volatility Index (VIX) Futures}
    SecurityType                string{FUT}
    StdMaturity                 string{201405}
    FOSMarketId                 XCBF
    ContractMultiplier          float64{1000}
    PriceType                   uint8{3}
    CFICode                     string{FFIXXX}
    InternalCreationDate        Timestamp{2013-08-23 21:45:46:699}
    InternalModificationDate    Timestamp{2013-08-23 21:45:46:699}
    InternalSourceId            uint16{228}
    LocalCodeStr                string{796197039}
    PriceIncrement_static       float64{0.05}
    UnderlyingLocalCodeStr      string{VIX}
    MaturityYear                uint16{2014}
    MaturityMonth               uint8{5}
    MaturityDay                 uint8{21}
    MBLLayersDesc               string{0}
```

1.2.2. Multilegs

The sample below illustrates the details of an multileg:

```
instr # 316/22004 = 662722036
    Symbol                      string{BTU_Time 20131018}
    Description                 string{+01BTU1D_V3_CF-01BTU1D_Z3_CF}
    SecurityType                string{MLEG}
    StdMaturity                 string{201310}
    FOSMarketId                 XOCH
    PriceType                   uint8{3}
    CFICode                     string{MXXXXX}
    NbLegs                      uint8{2}
    InternalCreationDate        Timestamp{2013-08-19 11:10:41:054}
    InternalModificationDate    Timestamp{2013-08-19 11:10:41:054}
    InternalSourceId            uint16{229}
    LocalCodeStr                string{790720641}
    UnderlyingLocalCodeStr      string{BTU}
    MaturityYear                uint16{2013}
    MaturityMonth               uint8{10}
    MaturityDay                 uint8{18}
    MBLLayersDesc               string{0}
    LegFOSInstrumentCode        uint32{662714526}
    LegFOSInstrumentCode_1      uint32{662701705}
    LegRatioQty                 float64{1}
    LegRatioQty_1               float64{1}
    LegFIXSide                  '1'=Buy
    LegFIXSide_1                '2'=Sell
```

2. Quotation Data

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

- 2.1. Quotation Values
- 2.2. Trading Status.

2.1. Quotation Values

The examples below shows the possible values of an instrument on the CBOE FUTURES market data stream:

```
InstrumentStatusL1
-- 303/1047
        BID: 16.95      21
        ASK: 17 40
        LastPrice                       float64{17.01}
        LastTradeQty                    float64{1}
        DailyHighPrice                  float64{17.01}
        DailyLowPrice                   float64{16.7}
        DailyTotalVolumeTraded          float64{7667}
        DailyTotalAssetTraded           float64{129295.55}
        LastTradePrice                  float64{17.01}
        LastTradeTimestamp              Timestamp{2014-01-02 21:50:14:014}
        InternalDailyOpenTimestamp      Timestamp{2014-01-02 12:00:32:152}
        InternalDailyCloseTimestamp     Timestamp{2014-01-02 21:15:00:007}
        InternalDailyHighTimestamp      Timestamp{2014-01-02 21:50:10:161}
        InternalDailyLowTimestamp       Timestamp{2014-01-02 13:02:36:027}
        InternalPriceActivityTimestamp  Timestamp{2014-01-02 22:21:52:502}
        TradingStatus                   2=TradingHalt
        DailyOpeningPrice               float64{16.75}
        DailyClosingPrice               float64{16.95}
        PreviousDailyTotalVolumeTraded  float64{4978}
        PreviousDailyTotalAssetTraded   float64{83749.31}
        PreviousDailyClosingPrice       float64{16.75}
        PreviousBusinessDay             Timestamp{2013-12-31}
        CurrentBusinessDay              Timestamp{2014-01-02}
```

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

2.2. Trading Status

Each time a modification of the trading status occurs, the values of the quotation tag **Trading Status** conveyed on the CBOE FUTURES market data stream are disseminated via QuantFEED® 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.

QuantFEED® implementation of the tag `TradingStatus` is described in the following table:

Table 2 TradingStatus – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`TradingStatus`	QuantFEED® tag name.
Numeric ID	9100	QuantFEED® unique ID disseminated on 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	2	Trading Halt
	17	Ready to Trade
	18	Not Available for Trading
	21	Pre-Open
	22	Opening Rotation
	23	Fast Market

3. Official Closing Price

For the CBOE FUTURES market, the Open, High, Low, Close and Settlement Price are provided by the market. Similarly, the volume of the open interest is provided by the exchange.

4. Special Behavior – Extended Trading Hours

The trading status of VIX and VXT futures on the CBOE FUTURES market data stream matches the values the exchange sends. Moreover, the trading hours for these futures during extended trading hours and regular trading hours represent a single trading session for a Business Day (not a multisession behavior), as described in the table below:

Table 3 Trading Hours of VIX and VXT Futures (express in CBOE Local Time)

Day	Trading Hours	Trading Sessions	Time	Signal	Trading Status Value
Monday	Morning Extended Trading Hours	**Monday** Opening of the Daily Session and changing the Current Business Day.	01:15 a.m.		21 – Pre-Open
			02:00 a.m.		22 – Opening Rotation
			02:00 a.m.	Open	17 – Ready to Trade
	Regular Trading Hours	**Monday**	08:30 a.m.		17 – Ready to Trade
End of Monday Session			03:15 p.m.	Close	18 – Not Available for Trading

Table 3 Trading Hours of VIX and VXT Futures (express in CBOE Local Time) (Continued)

Day	Trading Hours	Trading Sessions	Time	Signal	Trading Status Value
Monday to Thursday	Afternoon Extended Trading Hours	**Next Business Day†** †: Tuesday session opens on Monday, Wednesday opens on Tuesday, Thursday opens on Wednesday and Friday opens on Thursday. However, Friday afternoon does not opens on Monday.	03:30 p.m.		21 – Pre-Open‡
			03:30 p.m.		22 – Opening Rotation‡
			03:30 p.m.	Open	17 – Ready to Trade‡ ‡: Sometimes, this kinematics repeats several times until setting the final “Ready to Trade” status.
			04:15 p.m.		2 – Halt
Tuesday to Friday	Morning Extended Trading Hours	**Current Business Day**	01:15 a.m.		21 – Pre-Open
			02:00 a.m.		22 – Opening Rotation
			02:00 a.m.		17 – Ready to Trade

Trading in VIX and VXT futures is halted after the close of an extended trading hours period and prior to the start of the next extended trading hours period on the same Business Day. The exchange system will complete the processing of trades that are in the course of being processed by the market prior to the start of such a halt period.

The other instruments trade during the regular session, as described in the following table:

Table 4 Regular Trading Hours on CBOE (express in CBOE Local Time)

Trading Hours	Trading Sessions	Time	Signal	Trading Status Value
Regular Trading Hours	Current Business Day	07:00 a.m.		21 – Pre-Open
		08:30 a.m.		22 – Opening Rotation
		08:30 a.m.	Open	17 – Ready to Trade
		03:15 p.m.	Close	18 – Not Available for Trading

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.