S&P Capital IQ's Real-Time Solutions

QuantFEED® Feed Description

TURQUOISE Feed

Reference n°: 20131210

S&P CAPITAL IQ
McGRAW HILL FINANCIAL

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QUANTFEED® TURQUOISE FEED DESCRIPTION

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

The topics this feed description covers include*:

1. Referential Data

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

1.1. Available Markets and Branches

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

* 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 TURQUOISE market data stream broadcasts informations about the following markets:

Table 1 List of markets available on TURQUOISE market data stream

QuantFEED® Market ID	Market
TRQX	Turquoise

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

```
MARKETS
market # 428    CC=GB/UNITED KINGDOM/LONDON,DESCR=TURQUOISE,WEB=www.tradeturquoise.com/
    MIC = TRQX
    TimeZone =
    Country =
    NbMaxInstruments = 1000000
```

1.1.2. Branches

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

```
BRANCHES
    { TRQX CS   ESXXXX } qty: 2171
```

1.2. Types of Instruments

The following sections illustrate the instruments' characteristics on TURQUOISE market data stream, according to their type:

- 1.2.1. Equities.

1.2.1. Equities

The sample below illustrates the details of an equity:

```
instr # 428/4352 = 897585408
    PriceCurrency               string{EUR}
    Symbol                      string{DLG}
    Description                 string{DE' LONGHI}
    MaxFloor                    float64{250000}
    SecurityType                string{CS}
    FOSMarketId                 TRQX
    CFICode                     string{ESXXXX}
    SecuritySubType             string{EQ}
    MarketSegmentID             string{IT}
    InternalCreationDate        Timestamp{2011-08-18 20:15:49:898}
    InternalModificationDate    Timestamp{2013-12-02 02:10:00:768}
    InternalSourceId            uint16{19}
    LocalCodeStr                string{DLGm}
    ForeignFOSMarketId          MTAA
    ForeignMarketId             string{MTAA}
    ISIN                        string{IT0003115950}
    PriceIncrement_dynamic_TableId      uint32{1245302}
    UMTF                        string{DLGm}
    OperatingMIC                string{TRQX}
    MARKET_TURQUOISE_Ticker     string{DLGm}
```

1.3. Specific Referential Tags

The following sections describe additional, specific referential tags available on TURQUOISE market data stream:

- 1.3.1. Market Segment ID
- 1.3.2. Operating MIC
- 1.3.3. Ticker.

1.3.1. Market Segment ID

The values of the referential tag **Market Segment ID** conveyed on the TURQUOISE market data stream are disseminated via QuantFEED®'s data stream in *Referential* to specify the ID of the market segment.

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

Table 2 MarketSegmentID – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MarketSegmentID`	QuantFEED® tag name.
Numeric ID	1300	QuantFEED® unique ID disseminated on S&P Capital IQ's Real-Time Solutions's 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 ID of the market segment.

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

Component	Value	Description
Possible Values	**Values Before 2013-12-02**	**Values After 2013-12-02**
	WBAH	AT
	XBRU	BE
	XSWX	CH
	XVTX	CH
	XPRA	CZ
	XETR	DE
	XCSE	DK
	XLON	EB
	XLUX	EB
	XMCE	ES
	XHEL	FI
	XAMS	FR
	XPAR	FR
	XLON	GB
	XBUD	HU
	XDUB	IE
	MTAA	IT
	XAMS	NL
	XOSL	NO
	XLIS	PT
	XSTO	SE
	ARCX	US
	XNGS	US
	XNMS	US
	XNYS	US

1.3.2. Operating MIC

The values of the referential tag **Operating MIC** conveyed on the TURQUOISE market data stream are disseminated via QuantFEED®'s data stream in *Referential* to specify the parent MIC.

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

Table 3 OperatingMIC – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`OperatingMIC`	QuantFEED® tag name.

Table 3 OperatingMIC – technical implementation in QuantFEED® (Continued)

Component	Value	Description
Numeric ID	`9533`	QuantFEED® unique ID disseminated on S&P Capital IQ's Real-Time Solutions's data stream. This is the numeric equivalent of the tag name.
Type	`String`	String data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, specifying the parent MIC.
Possible Values	`TRQX`	Parent MIC for all TURQUOISE MIT's branches.

1.3.3. Ticker

The referential tag **Ticker** is disseminated via S&P Capital IQ's Real-Time Solutions's market data stream in *Referential* to uniquely identify the companies that are publicly traded on the market.

QuantFEED®'s implementation of the tag `MARKET_TURQUOISE_Ticker` is described in the following table:

Table 4 MARKET_TURQUOISE_Ticker – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MARKET_TURQUOISE_Ticker`	QuantFEED® tag name.
Numeric ID	`11300`	QuantFEED® unique ID disseminated on S&P Capital IQ's Real-Time Solutions's 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***, uniquely identifying the companies that are publicly traded on the market.

2. Quotation Data

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

2.1. Quotation Values

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

```
InstrumentStatusL1
-- 428/4352
        BID: 12.43      170     @1
        ASK: 12.46      134     @1
        LastPrice                       float64{12.47}
        LastTradeQty                    float64{170}
        DailyHighPrice                  float64{12.58}
        DailyLowPrice                   float64{12.47}
        DailyTotalVolumeTraded          float64{1122}
        DailyTotalAssetTraded           float64{14027.72}
        LastTradePrice                  float64{12.47}
        LastTradeTimestamp              Timestamp{2013-12-10 13:00:54:425}
        InternalDailyOpenTimestamp      Timestamp{2013-12-10 07:59:59:014}
        InternalDailyCloseTimestamp     Timestamp{2013-12-09 16:30:16:029}
        InternalDailyHighTimestamp      Timestamp{2013-12-10 10:31:51:978}
        InternalDailyLowTimestamp       Timestamp{2013-12-10 12:17:27:156}
        InternalPriceActivityTimestamp  Timestamp{2013-12-10 13:40:04:172}
        TradingStatus                   17=ReadyToTrade
        LastOffBookTradePrice           float64{12.4}
        LastOffBookTradeQty             float64{123}
        LastOffBookTradeTimestamp       Timestamp{2013-12-09 16:07:09:152}
        DailyOpeningPrice               float64{12.58}
        PreviousDailyTotalVolumeTraded  float64{17701}
        PreviousDailyTotalAssetTraded   float64{219298.7}
        PreviousDailyClosingPrice       float64{12.42}
        PreviousBusinessDay             Timestamp{2013-12-09}
        CurrentBusinessDay              Timestamp{2013-12-10}
        DailyTotalOffBookVolumeTraded   float64{0}
        DailyTotalOffBookAssetTraded    float64{0}
        MARKET_TURQUOISE_DarkBookTradingStatus  Enum{17}
        MARKET_TURQUOISE_OffBookReportingTradingStatus  Enum{17}
```

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 TURQUOISE market data stream are disseminated via QuantFEED®'s 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®'s implementation of the tag `TradingStatus` is described in the following table:

Table 5 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's Real-Time Solutions's 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
	5	Price Indication
	17	Ready to Trade
	18	Not Available for Trading

2.3. Specific Quotation Tags

The following sections describe additional, specific quotation tags available on TURQUOISE market data stream:

- 2.3.1. Trade Conditions
- 2.3.2. Other Values.

2.3.1. Trade Conditions

The following subsections describe the trade conditions on TURQUOISE market data stream:

- 2.3.1.1. Aggressor Side
- 2.3.1.2. Trade Type Indicator.

2.3.1.1. Aggressor Side

Each time a trade occurs, the values of the quotation context tag **Aggressor Side** conveyed on the TURQUOISE market data stream are disseminated via QuantFEED®'s data stream in *Context*, to indicate whether the aggressor is a buyer or a seller:

- 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®'s implementation of the values currently available for the tag `AggressorSide` is described in the following table:

Table 6 AggressorSide – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`AggressorSide`	QuantFEED® tag name.
Numeric ID	`9356`	QuantFEED® unique ID disseminated on S&P Capital IQ's Real-Time Solutions's data stream. This is the numeric equivalent of the tag name.
Type	`Char`	Char data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating whether the aggressor is a buyer or a seller.
Possible Values	`Space`	No aggressor
	`1`	Buy Side
	`2`	Seller Side

2.3.1.2. Trade Type Indicator

Each time a trade occurs, the values of the quotation tag **Trade Type Indicator** conveyed on the TURQUOISE market data stream are disseminated via S&P Capital IQ's Real-Time Solutions's data stream in *Context* to identify the type of trade:

- 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 `MARKET_TURQUOISE_TradeTypeIndicator` is described in the table below:

Table 7 MARKET_TURQUOISE_TradeTypeIndicator – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MARKET_TURQUOISE_TradeTypeIndicator`	QuantFEED® tag name.
Numeric ID	`15300`	QuantFEED® unique ID broadcast on S&P Capital IQ's Real-Time Solutions's data stream. This is the numeric equivalent of the tag name.
Type	`String`	String data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating the type of trade.
Possible Values	`Space or Empty`	Normal Trade
	`M`	Dark Midpoint Book

2.3.2. Other Values

The following subsections describe the trade conditions on TURQUOISE market data stream:

2.3.2.1. Halt Reason

Each time an instrument is halted from trading, the values of the quotation tag **Halt Reason** conveyed on the TURQUOISE market data stream are disseminated via S&P Capital IQ's Real-Time Solutions's 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 `MARKET_TURQUOISE_HaltReason` is described in the table below:

Table 8 MARKET_TURQUOISE_HaltReason – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MARKET_TURQUOISE_HaltReason`	QuantFEED® tag name.
Numeric ID	`14720`	QuantFEED® unique ID broadcast on S&P Capital IQ's Real-Time Solutions's 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 reason of halting for an instrument.
Possible Values	`9998`	Matching partition suspended
	`9999`	System suspended
	`space`	Reason not available
	`1`	System problem
	`2`	Fast market
	`3`	News pending

When an instrument is no longer halted, the tag `MARKET_TURQUOISE_HaltReason` is reset. To reset the tag, send a value with the syntax `UNKNOWN`.

For more details about the procedure, see the C++ code sample below:

```
FeedOS::Types::ListOfQuotationVariable const & values = inData.getValues();
for (FeedOS::Types::ListOfQuotationVariable::const_iterator it = values.begin(); it !=
values.end(); ++it) {
     unsigned int tag_num = it->getNum();
     switch(tag_num) {
          case FeedOS::TAG_MARKET_TURQUOISE_HaltReason:
          {
               Any halt_reason_value = it->getValue();
               if (halt_reason_value.get_syntax() == Syntax_UNKNOWN) {
                    // reset HaltReason
               } else {
                    // get reason
                    std::string reason_code = halt_reason_value.get_String();
               }
          }
          break;
     }
}
```

2.3.2.2. Dark Book Trading Status

The values of the quotation tag **Dark Book Trading Status** conveyed on the TURQUOISE market data stream are disseminated via QuantFEED®'s data stream in *Other Values* to indicate the trading status:

- 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 `MARKET_TURQUOISE_DarkBookTradingStatus` is described in the table below:

Table 9 MARKET_TURQUOISE_DarkBookTradingStatus – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MARKET_TURQUOISE_DarkBookTradingStatus`	QuantFEED® tag name.
Numeric ID	`14721`	QuantFEED® unique ID broadcast on S&P Capital IQ's Real-Time Solutions's data stream. This is the numeric equivalent of the tag name.
Type	`Enum`	Enum data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating the trading status of the Dark Book.
Possible Values	`2`	Trading Halt
	`5`	Price Indication
	`17`	Ready to Trade
	`18`	Not Available for Trading

2.3.2.3. Off Book Reporting Trading Status

Each time a trade occurs, the values of the quotation tag **Off Book Reporting Trading Status** conveyed on the TURQUOISE market data stream are disseminated via QuantFEED®'s data stream in *Other Values* to indicate the off book trading status:

- 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 `MARKET_TURQUOISE_OffBookReportingTradingStatus` is described in the table below:

Table 10 MARKET_TURQUOISE_OffBookReportingTradingStatus – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	`MARKET_TURQUOISE_OffBookReporting TradingStatus`	QuantFEED® tag name.
Numeric ID	`14722`	QuantFEED® unique ID broadcast on S&P Capital IQ's Real-Time Solutions's data stream. This is the numeric equivalent of the tag name.
Type	`Enum`	Enum data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, indicating the off book trading status.

Table 10 MARKET_TURQUOISE_OffBookReportingTradingStatus – technical implementation in QuantFEED®

Component	Value	Description
Possible Values	2	Trading Halt
	5	Price Indication
	17	Ready to Trade
	18	Not Available for Trading

3. Special Behavior

A flag is set among the content mask to distinguish the Off Book Trades. For more details about this type of trades, see *QuantFEED® Quotation Tags Guide*.

Moreover, the Dark Book Trades are flagged as Off Book Trades and they have a specific trade type and trade condition.

4. Official Closing Price

On the market Turquoise, the last trade price provided by the market is the closing price. There is no correction or settlement price.

5. Finding the Latest Information

For the latest documentation and product updates, additional support and training, please contact our support services one of the following ways:

- E-mail: support@quanthouse.com
- Web: http://support.quanthouse.com.