S&P Capital IQ Real-Time Solutions

FeedOS™ Feed Description

BVMF Feed

Reference n°: 20150219 - 24099 - 25452



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TABLE OF CONTENTS

FeedOS™ BVMF Feed Description		
1. Referential Data1		
1.1. Available Markets and Branches		
1.1.1. BVMF Markets		
1.1.2. BVMF Branches		
1.2. Types of Instruments		
1.2.1. Equities		
1.2.2. Futures		
1.2.3. Indices		
1.2.4. Multilegs		
1.2.5. Options		
1.3. Specific Referential Tags		
1.3.1. LotType (for Equities Only)		
1.3.2. LocalCodeStr		
2. Quotation Data		
2.1. Quotation Values		
2.2. Trading Status		
2.3. Specific Quotation Tags		
2.3.1. Trade Conditions		
2.3.1.1. Trade Condition		
2.4. MBL, MBO and BBO Data10		
3. Official Closing Price		
4. Special Behavior		
4.1. Level1 Market Data Kinematics – OPEN		
5. Finding the Latest Information		



FEEDOS™ BVMF FEED DESCRIPTION

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

The topics this feed description covers include:

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

1. Referential Data

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

- 1.1. Available Markets and Branches
- 1.2. Types of Instruments
- 1.3. Specific Referential Tags.

1.1. Available Markets and Branches

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

- 1.1.1. BVMF Markets
- 1.1.2. BVMF Branches.

1.1.1. BVMF Markets

The BVMF market data stream broadcasts informations about the following markets:

Table 1 List of markets available on BVMF market data stream

FeedOS Market ID	Market
BVMF	BM&F BOVESPA S.A. Bolsa de Valores Mercadorias e Futuros

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

1.1.2. BVMF Branches

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

```
BRANCHES
   { BVMF CS
               EMXXXR } qty: 1254
   { BVMF CS EMXXXX } qty: 2059
   { BVMF CS EPNEFR } qty: 542
   { BVMF CS EPNGXR } qty: 132
   { BVMF CS EPNNXR } qty: 1
   { BVMF CS ESVUFR } qty: 859
   { BVMF CS
               EUCXSR } qty: 14
   { BVMF CS
               EUOGSR } qty: 16
   { BVMF CS
               EUOMSR } qty: 34
   { BVMF FUT
              FCAPSX } qty: 71
   { BVMF FUT
              FCSPSX } qty: 11
   { BVMF FUT FFCCSX } qty: 139
   { BVMF FUT FFDCSX } qty: 3
   { BVMF FUT FFFCSX } qty: 209
   { BVMF FUT FFICSX } qty: 49
   { BVMF FUT FXXXXX } qty: 88
   { BVMF MLEG FXXXXX } qty: 541
   { BVMF MLEG MCMUXX } qty: 31
   { BVMF MLEG MMXXXX } qty: 1944
   { BVMF MLEG OCEMCS } qty: 771
   { BVMF MLEG OPEMCS } qty: 771
   { BVMF NONE MMXXXX } qty: 68
   { BVMF NONE MRIXXX } qty: 49
   { BVMF NONE RSPXXR } qty: 2
   { BVMF NONE RSSXXE } qty: 30
   { BVMF NONE XXXXXX } qty: 13
   { BVMF OPT OCAACS } qty: 431
   { BVMF OPT OCAICS } qty: 6
   { BVMF OPT OCAMCS } qty: 685
   { BVMF OPT OCASCS } qty: 3159
   { BVMF OPT OCASPS } qty: 17048
   { BVMF OPT OCECCS } qty: 270
   { BVMF OPT OCEFCS } qty: 144
   { BVMF OPT OCEICS } qty: 489
   { BVMF OPT OCEMCS } qty: 1355
   { BVMF OPT OCESCS } qty: 572
   { BVMF OPT OCESPS } qty: 2142
   { BVMF OPT OPAACS } qty: 430
                                                                           (see next page)
```

```
{ BVMF OPT OPAMCS } qty: 558
{ BVMF OPT OPECCS } qty: 271
{ BVMF OPT OPEFCS } qty: 143
{ BVMF OPT OPEICS } qty: 494
{ BVMF OPT OPEMCS } qty: 1457
{ BVMF OPT OPESCS } qty: 2140
{ BVMF OPT OPESPS } qty: 19190
```

1.2. Types of Instruments

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

- 1.2.1. Equities
- 1.2.2. Futures
- 1.2.3. Indices
- 1.2.4. Multilegs
- 1.2.5. Options.

1.2.1. Equities

The sample below illustrates the details of an equity:

```
instr \# 496/87530 = 1040274922
   PriceCurrency
                                string{BRL}
   Symbol
                                string{PATI9}
   Description
                                string{PANATLANTICAON REC}
   SecurityType
                                string{CS}
   FOSMarketId
                                BVMF
   ContractMultiplier
                                float64{1}
   CFICode
                                string{EMXXXR}
   RoundLot
                                float64{100}
   SecuritySubType
                                string{Ordinary Receipts}
   LotType
                                uint8{2}
   SecurityGroup
                                string{01}
   InternalCreationDate
                                Timestamp{2014-07-10 03:42:26:205}
   InternalModificationDate
                                Timestamp{2014-10-02 09:00:00:318}
   InternalHideFromLookup
                                bool{True}
   InternalSourceId
                                uint16{111}
   InternalAggregationId
                                uint16{111}
   InternalEntitlementId
                                int32{1166}
   LocalCodeStr
                                string{E_3820818}
   ISIN
                                string{BRPATIR12OR8}
   PriceIncrement_static
                                float64{0.01}
```

1.2.2. Futures

The sample below illustrates the details of a future:

```
instr # 496/88751 = 1040276143
    PriceCurrency
                                 string{BRL}
    Symbol 3
                                 string{BGIK14}
    Description
                                 string{BOI GORDO R$}
    SecurityType
                                 string{FUT}
    StdMaturity
                                 string{201405}
    FOSMarketId
                                BVMF
    ContractMultiplier
                                 float64{330}
    CFICode
                                 string{FCAPSX}
    RoundLot
                                float64{1}
    SecurityGroup
                                 string{K1}
                                Timestamp{2013-05-10 20:13:35:945}
    InternalCreationDate
                                Timestamp{2014-06-02 03:02:36:287}
    InternalModificationDate
    InternalHideFromLookup
                                bool{True}
    InternalSourceId
                                uint16{111}
    InternalAggregationId
                                uint16{111}
    InternalMagic
                                 string{730846}
    LocalCodeStr
                                 string{7308462}
    TSTN
                                 string{BRBMEFBGI3H1}
    PriceIncrement_static
                                float64{0.01}
    UnderlyingFOSMarketId
                                BVMF
    UnderlyingLocalCodeStr
                                string{9800078}
    UnderlyingFOSInstrumentCode uint32{1040188557}
    MaturityYear
                                uint16{2014}
    MaturityMonth
                                uint8{5}
                                uint8{30}
    MaturityDay
```

1.2.3. Indices

The sample below illustrates the details of an index:

```
instr \# 496/28099 = 1040215491
    PriceCurrency
                                 string{BRL}
    Symbol
                                 string{IFIX11}
    Description
                                 string{IND FDO IMOBIFI}
                                 string{NONE}
    SecurityType
    FOSMarketId
                                 BVMF
    ContractMultiplier
                                 float64{1}
                                 string{MRIXXX}
    CFICode
    RoundLot
                                 float64{10}
    SecuritySubType
                                 string{Tradeable Index}
                                 uint8{2}
    LotType
    SecurityGroup
                                 string{9A}
    InternalCreationDate
                                 Timestamp{2014-11-06 22:00:02:582}
    InternalModificationDate
                                 Timestamp{2014-11-06 22:00:02:582}
    InternalSourceId
                                 uint16{111}
    InternalAggregationId
                                 uint16{111}
    InternalEntitlementId
                                 int32{1166}
    LocalCodeStr
                                 string{E_3804523}
    ISIN
                                 string{BRIFIXINDM10}
                                 float64{0.01}
    PriceIncrement_static
```

1.2.4. Multilegs

The sample below illustrates the details of a multileg:

```
instr \# 496/91660 = 1040279052
   PriceCurrency
                                string{BRL}
   Symbol
                                string{FROV16}
   Description
                                string{FRA DE COMPROM.}
   SecurityType
                                string{MLEG}
   StdMaturity
                                string{201610}
   FOSMarketId
                                BVMF
   ContractMultiplier
                                float64{0.5}
                                string{FXXXXX}
   CFICode
   NbLegs
                                uint8{2}
   RoundLot
                                float64{10}
   SecurityGroup
                                string{F6}
   InternalCreationDate
                                Timestamp{2013-05-27 04:36:01:583}
   InternalModificationDate
                                Timestamp{2013-12-27 08:00:00:785}
   InternalHideFromLookup
                                bool{True}
   InternalSourceId
                                uint16{111}
   InternalAggregationId
                                uint16{111}
                                string{274015}
   InternalMagic
   LocalCodeStr
                                string{2740156}
   ISIN
                                string{BRBMEFFR00C3}
   PriceIncrement_static
                                float64{0.01}
   MaturityYear
                                uint16{2016}
   MaturityMonth
                                uint8{10}
   MaturityDay
                                uint8{3}
   LegFOSInstrumentCode
                                uint32{1040277396}
   {\tt LegFOSInstrumentCode\_1}
                                uint32{1040277324}
```

1.2.5. Options

The sample below illustrates the details of an option:

```
instr # 496/45258 = 1040232650
   PriceCurrency
                                string\{BRL\}
   Symbol
                                string{BOVAD51E}
   Description
                                string{BOVA FM
                                                   CI
                                                       51,00}
   SecurityType
                                string{OPT}
   StdMaturity
                                string{201504}
   StrikePrice
                                float64{51}
                                BVMF
   FOSMarketId
   ContractMultiplier
                                float64{1}
   CFICode
                                string{OCAMCS}
   RoundLot
                                float64{10}
   SecuritySubType
                                string{Traceable ETF}
   StrikeCurrency
                                string{BRL}
   LotType
                                uint8{2}
   SecurityGroup
                                string{42}
   InternalCreationDate
                                Timestamp{2015-02-16 02:09:55:590}
   InternalModificationDate
                                Timestamp{2015-02-16 02:09:55:590}
   InternalSourceId
                                uint16{111}
   InternalAggregationId
                                uint16{111}
   InternalEntitlementId
                                int32{1166}
   LocalCodeStr
                                string{E_4370052}
   ISIN
                                string{BRBOVACTF003}
   PriceIncrement_static
                                float64{0.01}
   UnderlyingFOSMarketId
                                BVMF
   UnderlyingLocalCodeStr
                                string{E_3810165}
   UnderlyingFOSInstrumentCode uint32{1040195971}
   MaturityYear
                                uint16{2015}
   MaturityMonth
                                uint8{4}
   MaturityDay
                                uint8{20}
```

1.3. Specific Referential Tags

The sections below describe specific referential tags available on the BVMF market data stream:

- 1.3.1. LotType (for Equities Only)
- 1.3.2. LocalCodeStr.

1.3.1. LotType (for Equities Only)

The values of the referential tag **LotType** conveyed on the BVMF market data stream are disseminated via FeedOS data stream in *Referential* to detail the type of lot.

FeedOS implementation of the values currently available for the tag LotType is described below:

Table 2 LotType – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	LotType	FeedOS tag name.
Numeric ID	1093	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Туре	UInt8	UInt8 data type.
Format	[Exchange Specific Value]	An exchange specific value , detailing the type of lot.
Possible Values	1	Odd Lot
	2	Round Lot
	3	Block Lot

1.3.2. LocalCodeStr

The values of the referential tag **LocalCodeStr** conveyed on the BVMF market data stream are disseminated via FeedOS data stream in *Referential* to specify the security local code.

FeedOS implementation of the values currently available for the tag LocalCodeStr is described in the table below:

Table 3 LocalCodeStr – technical implementation in FeedOS

Component	Value	Description
Tag Name	LocalCodeStr	FeedOS tag name.
Numeric ID	9500	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Туре	String	String data type.
Format	D_[String]	Derivatives format.
	E_[String]	Equities format.
Possible Values	[Exchange Specific Value]	An exchange specific value , detailing the security local code, based on the MarketID of the messages from the BVMF market data stream.

2. Quotation Data

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

- 2.1. Quotation Values
- 2.2. Trading Status
- 2.3. Specific Quotation Tags
- 2.4. MBL, MBO and BBO Data.

2.1. Quotation Values

The example below shows the possible values of an instrument on the BVMF market data stream:

```
InstrumentStatusL1
-- 496/15419
        BID: 0.01
                                *NO ORDER*
        ASK: 0.01
                        1480200000
                                         @20
        LastPrice
                                         float64{0.01}
                                         float64{10000000}
        LastTradeQty
        DailyHighPrice
                                         float64{0.01}
                                         float64{0.01}
        DailyLowPrice
        DailyTotalVolumeTraded
                                         float64{10000000}
        DailyTotalAssetTraded
                                         float64{100}
        LastTradePrice
                                         float64{0.01}
                                         Timestamp{2015-02-19 13:43:12:605}
        LastTradeTimestamp
        InternalDailyOpenTimestamp
                                         Timestamp{2015-02-19 12:00:00:188}
        InternalDailyCloseTimestamp
                                         Timestamp{2015-02-18 23:35:00:125}
        InternalDailyHighTimestamp
                                         Timestamp{2015-02-19 13:43:12:601}
        InternalDailyLowTimestamp
                                         Timestamp{2015-02-19 13:43:12:601}
        InternalPriceActivityTimestamp
                                        Timestamp{2015-02-19 14:39:14:268}
        TradingStatus
                                         17=ReadyToTrade
        DailyOpeningPrice
                                         float64{0.01}
        PreviousDailyTotalVolumeTraded
                                        float64{89800000}
        PreviousDailyTotalAssetTraded
                                         float64{898}
        PreviousDailyClosingPrice
                                         float64{0.01}
                                         Timestamp{2015-02-05}
        PreviousBusinessDay
        CurrentBusinessDay
                                         Timestamp\{2015-02-19\}
        LastAuctionPrice
                                         float64{0.01}
        LastAuctionVolume
                                         float64{10000000}
        LastAuctionImbalanceSide
                                         char{Q}
        LastAuctionImbalanceVolume
                                         float64{1288200000}
        InternalLastAuctionTimestamp
                                         Timestamp{2015-02-19 13:13:12:589}
```

For more details about the fields and tags available in quotation data type, and their possible values, see *FeedOS 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 BVMF market data stream are disseminated via FeedOS'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 Levell event quotNotifTradeEventExt, for Java.

FeedOS implementation of the tag TradingStatus is described in the following table:

Table 4 TradingStatus – technical implementation in QuantFEED®

Component	Value	Description
Tag Name	TradingStatus	FeedOS tag name.
Numeric ID	9100	FeedOS unique ID disseminated on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Туре	Enum	Enum data type.
Format	[Exchange Specific Value]	An exchange specific value , detailing the characteristics of the trading status.
Possible Values	2	Trading Halt
	4	No-Open
	17	Ready to Trade
	18	Not Available for Trading
	21	Pre-Open

2.3. Specific Quotation Tags

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

• 2.3.1. Trade Conditions.

2.3.1. Trade Conditions

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

• 2.3.1.1. Trade Condition.

2.3.1.1. Trade Condition

Each time a trade occurs, the values of the quotation tag **Trade Condition** conveyed on the BVMF market data stream are disseminated via FeedOS data stream in *Context*:

- 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 TradeCondition is described in the table below:

Table 5 TradeCondition – technical implementation in FeedOS

Component	Value	Description
Tag Name	TradeCondition	FeedOS tag name.
Numeric ID	277	FeedOS unique ID broadcast on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Туре	String	String data type.
Format	[Exchange Specific Value]	An exchange specific value , detailing the conditions of a trade.
Possible Values	R	Opening Price
	Х	Crossed
	L	Last Trade at the Same Price Indicator
	P	Imbalance More Buyers
	Q	Imbalance More Sellers
	U	Exchange Last

2.4. MBL, MBO and BBO Data*

The MBL and MBO books are full depth.

3. Official Closing Price

For the BVMF market, the closing price can be sent by the market. If it is not sent by the market, the last trade is used as the closing price. A correction of the closing price after the closing is handled can occur, if the stock is split. The settlement price is handled when provided by the market.

4. Special Behavior

The following sections detail the specific behavior on BVMF market data stream:

4.1. Level1 Market Data Kinematics – OPEN.

^{*} The MBL, MBO and BBO data may not be included by default in your Level1 data subscription, but sold separately. Depending on your contract, additional terms, conditions and fees may apply. For more details about the subscription options, please contact S&P Capital IQ Real-Time Solutions.

4.1. Level1 Market Data Kinematics - OPEN

In the OPEN kinematics before 2014-09-01, the opening signal was sent when the market sent the OPEN message or after the first trade of an instrument, as shown 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 (TradeEvent) *SIGNAL* : SERVER_TIME INSTRUMENT SIGNAL LAST_PRICE"
VU 05:33:07:555 1040437519 PreviousDailySettlementPrice=117.43
VU 09:29:20:990 1040437519 OpenInterest=12739
VU 11:55:00:026 1040437519 TradSesOpenTime=2014-03-17 12:00:00
                                                                 TradingStatus=21
TE 11:59:00:418 1040437519 *
                                 * 117.02 5@1
                                                         *
TE 11:59:13:837 1040437519 *
                                                         119
                                                                 2@1
VU 12:00:00:015 1040437519 TradSesOpenTime=?
                                                  TradingStatus=17
TE 12:00:23:831 1040437519 *
                                                         118.44 22@1
TE 12:00:37:463 1040437519 *
                                          117.25 59@1
TE 12:00:51:915 1040437519 *
                                          *
                                                         118.4
                                                                 8@1
TE 12:01:13:140 1040437519 *
                                          117.5
                                                  2@1
                                                          *
TE 12:01:14:914 1040437519 *
                                                         118.3
                                                                 100@1
TE 12:02:56:488 1040437519 *
                                          117.65 1@1
SI 12:05:28:894 1040437519 OPEN
                                  117.65
TE 12:05:28:894 1040437519 117.65 1
                                                  1@1
                                          117.6
                                                         118.29 12@2
                                                                         OH
Buyer=15,Seller=3,TradeID=1040
VU 12:05:28:894 1040437519 SessionVWAPPrice=117.32 DailyTotalVolumeTraded=660
TE 12:05:28:894 1040437519 117.6 1 117.55 59@1
Buyer=3,Seller=3,TradeID=1050
```

In the OPEN kinematics after 2014-09-01, the opening signal is sent when the market sends the OPEN message, after the first trade of an instrument or when the trading status of the instrument changes to 17=ReadyToTrade, for the first time during the trading day, 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 (TradeEvent) *SIGNAL* : SERVER_TIME INSTRUMENT SIGNAL LAST_PRICE"
VU 04:29:46:181 1040437519 DailyTotalAssetTraded=103
VU 05:33:07:555 1040437519 PreviousDailySettlementPrice=117.43
VU 11:55:00:026 1040437519 TradSesOpenTime=2014-03-17 12:00:00
                                                                 TradingStatus=21
                                                      *
TE 11:59:00:418 1040437519 *
                                        117.02 5@1
TE 11:59:13:837 1040437519 *
                                          *
                                                         119
                                                                 2@1
SI 12:00:00:015 1040437519 OPEN
TE 12:00:00:015 1040437519 *
                                  *
                                                                        0
VU 12:00:00:015 1040437519 TradSesOpenTime=?
                                                  TradingStatus=17
TE 12:00:23:831 1040437519 *
                                *
                                                         118.44 22@1
TE 12:00:37:463 1040437519 *
                                          117.25 59@1
                                                         *
TE 12:00:51:915 1040437519 *
                                          *
                                                  *
                                                         118.4
                                                                 8@1
TE 12:01:13:140 1040437519 *
                                                         *
                                          117.5
                                                  2@1
TE 12:01:14:914 1040437519 *
                                                  *
                                                         118.3
                                                                 100@1
TE 12:02:56:488 1040437519 *
                                          117.65 1@1
TE 12:05:28:894 1040437519 117.65 1
                                                 1@1
                                        117.6
                                                         118.29 12@2
Buyer=15,Seller=3,TradeID=1040
VU 12:05:28:894 1040437519 SessionVWAPPrice=117.32 DailyTotalVolumeTraded=660
TE 12:05:28:894 1040437519 117.6 1 117.55 59@1
Buyer=3, Seller=3, TradeID=1050
```

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: rts-support@spcapitaliq.com
- Web: http://support.quanthouse.com.