S&P CAPITAL IQ
McGRAW HILL FINANCIAL

S&P Capital IQ Real-Time Solutions

FeedOS™ Feed Description

CHIX CANADA

Reference n°: 20150812 – 22829 – 27328 – 28169

S&P Capital IQ Real-Time Solutions
FeedOS™ Feed Description: CHIX CANADA
Reference 20150812 – 22829 – 27328 – 28169
August 11, 2015

France
52 Rue de la Victoire
75009 Paris
France
Tel: +33 (0) 1 73 02 32 11

United States
55 Water Street, 44th floor
New York, NY 10041
United States of America
Tel: +1-(212)-438-4346

130 East Randolph
One Prudential Plaza, Suite 2900
Chicago, IL 60601
United States of America
Tel: +1-(312)-233-7129

United Kingdom
20 Canada Square
Canary Wharf
London E14 5LH
United Kingdom
Tel: +44 (0) 203 107 1676

Singapore
12 Marina Boulevard
#23-01 Marina Bay
Financial Centre Tower 3
Singapore 018982
Tel: +65 6530 6546

www.spcapitaliq.com

TABLE OF CONTENTS

FEEDOS™ CHIX CANADA FEED DESCRIPTION

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

The topics this feed description covers include:

1. Referential Data

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

1.1. Available Markets and Branches

This section details the list of Markets and Branches available on the CHIX CANADA market data stream.

1.1.1. Markets

The CHIX CANADA market data stream disseminates informations about the following markets:

Table 1 Markets available on the CHIX CANADA market data stream

FeedOS Market ID	Market
CHIC	CHI-X Canada

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

```
MARKETS
market # 472    CC=CA/CANADA/TORONTO,DESCR=CHI-X CANADA ATS, WEB=www.chi-xcanada.com
    MIC = CHIC
    TimeZone = America/Toronto
    Country = CA
    NbMaxInstruments = 2000000
```

1.1.2. Branches

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

```
BRANCHES
    { CHIC CS   EXXXXX } qty: 6222
```

1.2. Types of Instruments

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

1.2.1. Equities

The sample below illustrates the details of an equity:

```
instr # 472/7069 = 989862813
    PriceCurrency               string{CAD}
    Symbol                      string{EFN.DB.A}
    SecurityType                string{CS}
    FOSMarketId                 CHIC
    CFICode                     string{EXXXXX}
    InternalCreationDate        Timestamp{2015-05-29 11:00:00:283}
    InternalModificationDate    Timestamp{2015-05-29 11:00:00:283}
    InternalSourceId            uint16{148}
    LocalCodeStr                string{XTSE_EFN.DB.A}
    ForeignFOSMarketId          XTSE
    ForeignMarketId             string{XTSE}
    OperatingMIC                string{CHIC}
```

2. Quotation Data

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

2.1. Quotation Values

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

```
InstrumentStatusL1
-- 472/7069
        BID: 107.75     0       *NO ORDER*
        ASK: 105.95     0       *NO ORDER*
        LastPrice                       float64{110.6}
        LastTradeQty                    float64{455000}
        DailyTotalVolumeTraded          float64{0}
        DailyTotalAssetTraded           float64{0}
        LastTradePrice                  float64{110.6}
        LastTradeTimestamp              Timestamp{2015-08-10 16:47:00:165}
        InternalDailyOpenTimestamp      Timestamp{2015-08-11 12:29:59:998}
        InternalDailyCloseTimestamp     Timestamp{2015-08-10 20:59:59:999}
        InternalDailyHighTimestamp      Timestamp{2015-08-10 16:47:00:165}
        InternalDailyLowTimestamp       Timestamp{2015-08-10 16:47:00:165}
        InternalPriceActivityTimestamp  Timestamp{2015-08-10 23:00:01:319}
        TradingStatus                   17=ReadyToTrade
        PreviousDailyTotalVolumeTraded  float64{455000}
        PreviousDailyTotalAssetTraded   float64{50323000}
        PreviousDailyClosingPrice       float64{110.6}
        InternalDailyClosingPriceType   char{d}
        PreviousBusinessDay             Timestamp{2015-08-10}
        CurrentBusinessDay              Timestamp{2015-08-11}
```

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

2.2. TradingStatus

Each time a modification of the trading status occurs, the values of the quotation tag **TradingStatus** conveyed on the CHIX CANADA 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:

Table 2 TradingStatus – technical implementation in FeedOS

Component	Value	Description
Tag Name	`TradingStatus`	FeedOS tag name.
Numeric ID	9100	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	`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
	15	New Price Indication
	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 CHIX CANADA 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 the CHIX CANADA market data stream:

- 2.3.1.1. TradeCondition
- 2.3.1.2. Buyer
- 2.3.1.3. Seller.

2.3.1.1. TradeCondition

Each time a trade occurs, the values of the quotation context tag **TradeCondition** conveyed on the CHIX CANADA 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 3 TradeCondition – technical implementation in FeedOS

Component	Value	Description
Tag Name	`TradeCondition`	FeedOS tag name.
Numeric ID	`277`	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	`String`	String data type.
Format	*`[Exchange Specific Value]`*	An ***exchange specific value***, detailing the conditions of a trade.
Possible Values	`AJ`	Official Closing Price **Note:** This value also applies to MOC trades.

2.3.1.2. Buyer

Each time a trade occurs, the values of the quotation context tag **Buyer** conveyed on the CHIX CANADA market data stream are disseminated via FeedOS data stream in *Context* to identify the buyer side:

- 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 `Buyer` is described in the table below:

Table 4 Buyer – technical implementation in FeedOS

Component	Value	Description
Tag Name	`Buyer`	FeedOS tag name.
Numeric ID	`288`	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 value***, detailing the value on the buyer side. **Note:** The Broker is always set to 001 (Anonymous) for Chi-X only.

2.3.1.3. Seller

Each time a trade occurs, the values of the quotation context tag **Seller** conveyed on the CHIX CANADA market data stream are disseminated via FeedOS data stream in *Context* to identify the seller side:

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

Table 5 Seller – technical implementation in FeedOS

Component	Value	Description
Tag Name	`Seller`	FeedOS tag name.
Numeric ID	`289`	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 value***, detailing the value on the seller side. **Note:** The Broker is always set to 001 (Anonymous) for Chi-X only.

2.3.2. Other Values

The following subsections describe the quotation tags available on the CHIX CANADA market data stream:

- 2.3.2.1. InternalDailyClosingPriceType.

2.3.2.1. InternalDailyClosingPriceType

The values of the quotation tag **InternalDailyClosingPriceType** conveyed on the CHIX CANADA market data stream are disseminated via FeedOS data stream in *Other Values* to indicate the type of the internal daily closing 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 `InternalDailyClosingPriceType` is described in the table below (the values currently disseminated are highlighted in `green`):

Table 6 InternalDailyClosingPriceType – technical implementation in FeedOS

Component	Value	Description
Tag Name	`InternalDailyClosingPriceType`	FeedOS tag name.
Numeric ID	`9155`	FeedOS unique ID disseminated on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	`Char`	Char data type.
Format	*`[Internal Specific Value]`*	An ***internal specific value***, detailing the type of daily closing price, as described below.

Table 6 InternalDailyClosingPriceType – technical implementation in FeedOS (Continued)

Component	Value	Description
Possible Values	0	**Undefined**
	a	**Official Close** – Explicit closing price value calculated and distributed by an exchange for the main trading session of a given trading day.
	b	**Official Indicative** – Exchange has provided an indicative price and marked it as indicative, however no trading activity is observed.
	c	**Official Carry Over** – Explicit Closing price value from a previous trading day carried forward by the exchange to the given trading day.
	d	**Last Price** – Final price disseminated by the exchange for the main trading session or dissemination period of a given trading day (for indices).
	e	**Last Eligible Price** – Execution price of the final trade (subject to trade qualifiers) accepted by the exchange for the main trading session of a given trading day.
	z	**Manual** – Price disseminated manually (in case of production correction).

2.4. MBL and MBO Data*

The MBL book has a 10-level depth. The MBO book is full depth.

3. Closing Price

The closing price is the last trade price upon close.

4. Special Behavior

The following sections detail the CHIX CANADA market data stream special behavior in terms of:

- 4.1. Level1 Market Data Kinematics – CLOSE and TradingStatus
- 4.2. Microsecond Timestamp Precision on the Level1 Market Data.

* The MBL and MBO 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 – CLOSE and TradingStatus

In the Level1 Market Data Kinematics **before 2015-09-07**, at 21:00:00 UTC, the exchange sent the CLOSE signal and the `TradingStatus` was set to `18=NotAvailableForTrading`, 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"

TE   20:48:48:804   989858382    *    *    34.75    200@2    *    *
TE   20:59:03:584   989858382    *    *    34.75    100@1    *    *
TE   20:59:03:588   989858382    *    *    *    *    34.87    2400@2
SI   21:00:00:000   989858382    CLOSE    35.13
TE   21:00:00:000   989858382    35.13    *    *    *    *    *    C
VU   21:00:00:000   989858382    TradingStatus=18
TE   21:00:06:543   989858382    *    *    *    *    34.87    1200@1
TE   21:00:06:549   989858382    *    *    *    *    35    100@1
TE   21:00:06:553   989858382    *    *    *    *    35.09    500@1
TE   21:00:06:553   989858382    *    *    *    *    36.08    100@1
TE   21:00:06:553   989858382    *    *    34.56    200@1    *    *
TE   21:00:06:553   989858382    *    *    34.55    100@1    *    *
TE   21:00:06:633   989858382    *    *    !    0    *    *
TE   21:00:06:673   989858382    *    *    *    *    !    0
TE   23:00:00:583   989858382    *    *    !    0    !    0
```

In the Level1 Market Data Kinematics **after 2015-09-07**, at 21:00:00 UTC, the exchange sends the CLOSE signal, the `TradingStatus` is set to `15=NewPriceIndication` and the `InternalDailyClosingPriceType` set to `d=LastPrice`, accepting post-trade orders. One hour later, at 22:00:00 UTC, the `TradingStatus` is set to `18=NotAvailableForTrading`, 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"

TE   20:48:48:804   989858382    *    *    34.75    200@2    *    *
TE   20:59:03:584   989858382    *    *    34.75    100@1    *    *
TE   20:59:03:588   989858382    *    *    *    *    34.87    2400@2
SI   21:00:00:000   989858382    CLOSE    35.13
TE   21:00:00:000   989858382    35.13    *    *    *    *    *    C
VU   21:00:00:000   989858382    InternalDailyClosingPriceType=d    TradingStatus=15
TE   21:00:06:543   989858382    *    *    *    *    34.87    1200@1
TE   21:00:06:549   989858382    *    *    *    *    35    100@1
TE   21:00:06:553   989858382    *    *    *    *    35.09    500@1
TE   21:00:06:553   989858382    *    *    *    *    36.08    100@1
TE   21:00:06:553   989858382    *    *    34.56    200@1    *    *
TE   21:00:06:553   989858382    *    *    34.55    100@1    *    *
VU   22:00:00:000   989858382    TradingStatus=18
```

4.2. Microsecond Timestamp Precision on the Level1 Market Data

Effective **2015-09-07**, 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   18:12:22:962.842    989857470   15.32   750   *    *    *    *
```

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: https://support.quanthouse.com.