TSX and TSXV Level 2 TMX QuantumFeed

Business Message Specification

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Contents

Chapter 1 Introduction

This document is the *TSX and TSX Venture (TSXV) Level 2 TMX QuantumFeed Business Message Specification*.

The Level 2 TMX QuantumFeed™ Business messages provide the following information:

- Symbol and market status
- Trades
- Orders and confirmations

1.1 Intended Audience

The intended audience of this specification consists of business analysts and programmer analysts.

1.2 Scope

The scope of this document is limited to describing the *Business messages* disseminated on the TSX and TSXV Level 2 TMX QuantumFeed. The document provides:

- The structure of each type of Business message
- Fields that constitute those messages
- The data types and formats to which the fields comply
- Additional details on processing the information contained in those fields

To design and implement systems that can receive and process Level 2 TMX QuantumFeed, this document must be used along side the following documents:

- *TMX QuantumFeed Service Access Guide*
- *TMX eXtreme Message Transfer Protocol Specification*

Chapter 2 Business Messages Overview

Business messages disseminated on TSX and TSXV Level 2 TMX QuantumFeed contain business-related information; for example: information on booked orders, information on cancelled orders, and so on. A Business message is composed of two sections, a *message header* and the *message body*.

- The **message header** is common to all Business messages and provides information that is required to process the given message.
- The **message body** contains the business-related information.

2.1 Business message types

TSX and TSXV Level 2 TMX QuantumFeed contains the following types of Business messages.

Message Name	**Message Type**		**Description**
	ASCII	**HEX**	
Start of Day Messages (Messages disseminated at the start of day)			
Symbol Status	J	0x4A	Symbol Status messages contain information regarding equity, debenture, or trading Instruments for the current trading day for both TSX and TSXV markets. One message is disseminated for each valid symbol at the beginning of each trading day.
Order Book	G	0x47	An Order Book message provides public information for all open non-terms orders in the market at the start of day. One message is disseminated for each valid non-terms order at the beginning of each trading day. Feed clients can use the Order Book message to initialize their order book for the current trading day.
Order Book – Terms	j	0x6A	An Order Book – Terms message provides public information for all open terms orders in the market at the start of day. One message is disseminated for each valid non-terms order at the beginning of each trading day. Feed clients can use the Order Book – Terms message to initialize their order book for the current trading day.

Message Name	Message Type		Description
	ASCII	HEX	
Special Market/Stock State Messages			
Assign COP – Orders	A	0x41	An Assign COP – Orders message specifies the calculated opening price (COP) for a security and the participating orders that are priced at the COP. Each Assign COP – Orders message can contain up to 15 orders priced at COP, and the orders are positional. All the orders reported on a single Assign COP – Orders message always belong to the same market side. **Note:** This message is generated only if one or more orders are repriced to the COP.
Assign COP – No Orders	B	0x42	An Assign COP – No Order message specifies the calculated opening price for a security when there are no orders that are to be repriced to the COP. **Note:** This message is generated only if the COP is changing, but no orders are being repriced to the COP.
Assign Limit	C	0x43	An Assign Limit message is disseminated when former better-priced-limit orders are reset to their true limits. Each Assign Limit message can contain up to 15 orders along with their prices, and the orders are positional. All the orders reported on a single Assign Limit message always belong to the same market side.
Intraday messages (Messages that are disseminated intraday)			
Market State Update	E	0x45	A Market State Update message is disseminated each time a notice of a market state change or a trading session change is sent from the Trading Engine.
MOC Imbalance	F	0x46	A MOC Imbalance message is disseminated for every MOC-eligible stock. The MOC Imbalance message is disseminated once per MOC-eligible stock at the beginning of the MOC Imbalance trading session.
Order Booked	P	0x50	An Order Booked message is disseminated in response to a new non-terms order being entered into the trading system.
Order Booked – Terms	m	0x6D	An Order Booked - Terms message is disseminated in response to a new terms order being entered into the trading system.
Order Cancelled	Q	0x51	An Order Cancelled message is disseminated if a non-terms order is cancelled.
Order Cancelled – Terms	n	0x6E	An Order Cancelled – Terms message is disseminated if a terms order is cancelled.
Order Price-Time Assigned	R	0x52	An Order Price-Time Assigned message is disseminated when a new Price or Time is assigned to a non-terms order.

Message Name	Message Type		Description
	ASCII	HEX	
Order Price-Time Assigned – Terms	o	0x6F	An Order Price-Time Assigned – Terms message is disseminated if a new Price or Time is assigned to a terms order.
Stock Status	I	0x49	A Stock Status notification is disseminated in response to a change in stock status from the Trading Engine.
Trade Report	S	0x53	A Trade Report is generated when a trade occurs that has no settlement terms.
Trade Report – Terms	p	0x70	A Trade Report – Terms is generated when a trade occurs that has settlement terms.
Trade Cancelled	T	0x54	A Trade Cancelled message is generated when a trade with no settlement terms is cancelled.
Trade Cancelled – Terms	q	0x71	A Trade Cancelled – Terms message is generated when a trade with settlement terms is cancelled.
Trade Correction	U	0x55	A Trade Correction message is generated when a trade with no settlement terms is corrected
Trade Correction – Terms	r	0x72	A Trade Correction – Terms message is generated when a trade with settlement terms is corrected.

2.2 Message data types

Each field that is contained in the Business messages is formatted according to one of the following data types

Data Type	Description
Alphanumeric	Alphanumeric fields are left-justified ASCII fields (displayable characters from hex 0x20 to hex 0x7E) that are space padded (hex 0x20) on the right and are sized to their corresponding lengths. **Example**: Consider a field with length *10 bytes*, data type *Alphanumeric* and which must contain the information *"CASH"*. In this scenario, the field will contain the value *"CASH "*. The information is left justified and is space padded (" ") on the right. The information and the padding (if required) make the field length 10. **Default**: Space (whole length of the field padded with space)
Binary	Binary fields are unsigned and are Little Endian encoded. Length of the binary fields is one of the following: • 1-Byte Binary • 2-Byte Binary • 4-Byte Binary • 8-Byte Binary **Default value**: Null (binary value 0)

2.3 Message field definitions

For descriptions of fields that make up the Business messages, refer to "Field Definitions" on page 24.

Chapter 3 Business Message Formats

This section contains the structure of each Business message disseminated on TSX and TSXV Level 2 TMX QuantumFeed.

Each Business message consists of a message header followed by the message body. For a description of the message header's structure, refer to *TMX eXtreme Message Transfer Protocol Specification*. Only the message body's structure is provided below.

Note: The size of the header is mentioned for message structure completion purposes.

3.1 Message structure

All Business messages must adhere to the Quantum Message Format, as described in *TMX QuantumFeed Service Access Guide.* Below are the structures of different types of Business messages that are disseminated on the TSX & TSXV Level 2 TMX TM.

Note: Comments columns in the following tables are intentionally left blank.

3.2 Start-of-Day messages

3.2.1 Symbol Status

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Stock Group	1	1-Byte Binary	
CUSIP	12	Alphanumeric	
Board Lot	2	2-Byte Binary	
Currency	1	Alphanumeric	
Face Value	8	8-Byte Binary	
Last Sale	8	8-Byte Binary	

Total Message Size = 53 bytes

3.2.2 Order Book

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Priority Time Stamp	8	8-Byte Binary	

Total Message Size = 52 bytes

3.2.3 Order Book – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Non Resident	1	Alphanumeric	
Settlement Terms	1	Alphanumeric	
Settlement Date	4	4-Byte Binary	
Priority Time Stamp	8	8-Byte Binary	

Total Message Size = 58 bytes

3.3 Special Market/Stock State Messages

3.3.1 Assign COP – Orders

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Calculated Opening Price	8	8-Byte Binary	
Order Side	1	Alphanumeric	
Broker Number-1	2	2-Byte Binary	
Order ID-1	8	8-Byte Binary	
Broker Number-2	2	2-Byte Binary	
Order ID-2	8	8-Byte Binary	
Broker Number-3	2	2-Byte Binary	
Order ID-3	8	8-Byte Binary	
Broker Number-4	2	2-Byte Binary	

Field Name	Length (In Bytes)	Data Type	Comments
Order ID-4	8	8-Byte Binary	
Broker Number-5	2	2-Byte Binary	
Order ID-5	8	8-Byte Binary	
Broker Number-6	2	2-Byte Binary	
Order ID-6	8	8-Byte Binary	
Broker Number-7	2	2-Byte Binary	
Order ID-7	8	8-Byte Binary	
Broker Number-8	2	2-Byte Binary	
Order ID-8	8	8-Byte Binary	
Broker Number-9	2	2-Byte Binary	
Order ID-9	8	8-Byte Binary	
Broker Number-10	2	2-Byte Binary	
Order ID-10	8	8-Byte Binary	
Broker Number-11	2	2-Byte Binary	
Order ID-11	8	8-Byte Binary	
Broker Number-12	2	2-Byte Binary	
Order ID-12	8	8-Byte Binary	
Broker Number-13	2	2-Byte Binary	
Order ID-13	8	8-Byte Binary	
Broker Number-14	2	2-Byte Binary	
Order ID-14	8	8-Byte Binary	
Broker Number-15	2	2-Byte Binary	
Order ID-15	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 188 bytes

3.3.2 Assign COP – No Orders

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Calculated Opening Price	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 37 bytes

3.3.3 Assign Limit

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Calculated Opening Price	8	8-Byte Binary	
Order Side	1	Alphanumeric	
Broker Number-1	2	2-Byte Binary	
Order ID-1	8	8-Byte Binary	
Price-1	8	8-Byte Binary	
Broker Number-2	2	2-Byte Binary	
Order ID-2	8	8-Byte Binary	
Price-2	8	8-Byte Binary	
Broker Number-3	2	2-Byte Binary	
Order ID-3	8	8-Byte Binary	
Price-3	8	8-Byte Binary	
Broker Number-4	2	2-Byte Binary	
Order ID-4	8	8-Byte Binary	
Price-4	8	8-Byte Binary	
Broker Number-5	2	2-Byte Binary	
Order ID-5	8	8-Byte Binary	
Price-5	8	8-Byte Binary	
Broker Number-6	2	2-Byte Binary	
Order ID-6	8	8-Byte Binary	

Field Name	Length (In Bytes)	Data Type	Comments
Price-6	8	8-Byte Binary	
Broker Number-7	2	2-Byte Binary	
Order ID-7	8	8-Byte Binary	
Price-7	8	8-Byte Binary	
Broker Number-8	2	2-Byte Binary	
Order ID-8	8	8-Byte Binary	
Price-8	8	8-Byte Binary	
Broker Number-9	2	2-Byte Binary	
Order ID-9	8	8-Byte Binary	
Price-9	8	8-Byte Binary	
Broker Number-10	2	2-Byte Binary	
Order ID-10	8	8-Byte Binary	
Price-10	8	8-Byte Binary	
Broker Number-11	2	2-Byte Binary	
Order ID-11	8	8-Byte Binary	
Price-11	8	8-Byte Binary	
Broker Number-12	2	2-Byte Binary	
Order ID-12	8	8-Byte Binary	
Price-12	8	8-Byte Binary	
Broker Number-13	2	2-Byte Binary	
Order ID-13	8	8-Byte Binary	
Price-13	8	8-Byte Binary	
Broker Number-14	2	2-Byte Binary	
Order ID-14	8	8-Byte Binary	
Price-14	8	8-Byte Binary	
Broker Number-15	2	2-Byte Binary	
Order ID-15	8	8-Byte Binary	
Price-15	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 308 bytes

3.4 Intraday messages

3.4.1 Market State Update

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Market State	1	Alphanumeric	
Stock Group	1	1-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 22 bytes

3.4.2 MOC Imbalance

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Imbalance Side	1	Alphanumeric	
Imbalance Volume	4	4-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 34 bytes

3.4.3 Order Booked

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Priority Time Stamp	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 60 bytes

3.4.4 Order Booked – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Non Resident	1	Alphanumeric	
Settlement Terms	1	Alphanumeric	
Settlement Date	4	4-Byte Binary	
Priority Time Stamp	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 66 bytes

3.4.5 Order Cancelled

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 40 bytes

3.4.6 Order Cancelled – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 40 bytes

3.4.7 Order Price-Time Assigned

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Priority Time Stamp	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 60 bytes

3.4.8 Order Price-Time Assigned – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Broker Number	2	2-Byte Binary	
Order Side	1	Alphanumeric	
Order ID	8	8-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Priority Time Stamp	8	8-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 60 bytes

3.4.9 Stock Status

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Comment	40	Alphanumeric	
Stock State	2	Alphanumeric	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 71 bytes

3.4.10 Trade Report

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Trade Number	4	4-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Buy Broker Number	2	2-Byte Binary	
Buy Order ID	8	8-Byte Binary	
Buy Display Volume	4	4-Byte Binary	
Sell Broker Number	2	2-Byte Binary	
Sell Order ID	8	8-Byte Binary	
Sell Display Volume	4	4-Byte Binary	
Bypass	1	Alphanumeric	
Trade Time Stamp	4	4-Byte Binary	
Cross Type	1	Alphanumeric	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 79 bytes

3.4.11 Trade Report – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Trade Number	4	4-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Buy Broker Number	2	2-Byte Binary	
Buy Order ID	8	8-Byte Binary	
Buy Display Volume	4	4-Byte Binary	
Sell Broker Number	2	2-Byte Binary	
Sell Order ID	8	8-Byte Binary	
Sell Display Volume	4	4-Byte Binary	
Trade Time Stamp	4	4-Byte Binary	
Non Resident	1	Alphanumeric	
Settlement Terms	1	Alphanumeric	
Settlement Date	4	4-Byte Binary	
Cross Type	1	Alphanumeric	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 84 bytes

3.4.12 Trade Cancelled

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Trade Number	4	4-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 33 bytes

3.4.13 Trade Cancelled – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Trade Number	4	4-Byte Binary	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 33 bytes

3.4.14 Trade Correction

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Trade Number	4	4-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Buy Broker Number	2	2-Byte Binary	
Sell Broker Number	2	2-Byte Binary	
Initiated By	1	Alphanumeric	
Orig Trade Number	4	4-Byte Binary	
Bypass	1	Alphanumeric	
Trade Time Stamp	4	4-Byte Binary	
Cross Type	1	Alphanumeric	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 60 bytes

3.4.15 Trade Correction – Terms

Field Name	Length (In Bytes)	Data Type	Comments
Message Header	**12**		
Symbol	9	Alphanumeric	
Trade Number	4	4-Byte Binary	
Price	8	8-Byte Binary	
Volume	4	4-Byte Binary	
Buy Broker Number	2	2-Byte Binary	
Sell Broker Number	2	2-Byte Binary	
Initiated By	1	Alphanumeric	
Orig Trade Number	4	4-Byte Binary	
Trade Time Stamp	4	4-Byte Binary	
Non Resident	1	Alphanumeric	
Settlement Terms	1	Alphanumeric	
Settlement Date	4	4-Byte Binary	
Cross Type	1	Alphanumeric	
Trading System Time Stamp	8	8-Byte Binary	

Total Message Size = 65 bytes

Chapter 4 Field Definitions

B

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Board Lot	Contains the board lot size.	Binary (2 Bytes)	No implied decimal places **Example**: A board lot value of 500 is represented by 11110100 00000001.
Broker Number	An Exchange-assigned public number uniquely identifying a Partici-pating Organization.	Binary (2 Bytes)	No implied decimal places **Example**: A TSX Broker Number 009 is represented by 00001001 00000000.
Buy Broker Number	An Exchange-assigned public number uniquely identifying a Partici-pating Organization associated with a buy order	Binary (2 Bytes)	No implied decimal places **Example**: A TSX Broker Number 009 is represented by 00001001 00000000.
Buy Display Volume	Public remaining display volume for the buy order	Binary (4 Bytes)	No implied decimal places **Example**: A Volume of 2,500 is represented by 11000100 00001001 00000000 00000000.
Buy Order ID	Public numeric identifier assigned to the buy order by the trading system	Binary (8 Bytes)	No implied decimal places **Example**: An Order ID 20101010000078654 is represented by 00111110 01100111 10101110 00011000 11000011 01101001 01000111 00000000. The feed client can obtain the Order ID by converting the binary to decimal. The Order ID thus obtained will be of the format YYYYMMDDXXXXXXXXX, where YYYYMMDD is the business date and XXXXXXXXX is the sequence number assigned to the order.

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Bypass	Indicates that the orders are tradable against only visible/disclosed volumes and bypass the undisclosed volume of iceberg orders, RT participation, autofill, and the special terms book. Any part of the balance of the order's quantity not filled immediately is "killed/cancelled".	Alphanumeric (1 Byte)	Valid values are: • "Y": The order is a Bypass. • "N": The order is not a Bypass.

C

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Calculated Opening Price	The price at which orders will trade at the open	Binary (8 Bytes)	6 implied decimal places **Example:** A Price of 50.45 is represented by 01010000 11001110 00000001 00000011 00000000 00000000 00000000 00000000. The feed client must convert the binary to decimal and divide the resulting number by 1,000,000 to obtain the price.

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Comment	A text field corresponding to a reason code entered when a stock is halted; or, the initiator of a delayed opening on a stock, or when there is a change to the RT/Oddlot trader on a stock. As well, this is a system-generated text field to describe the disabling of the MOC session by TSX Trading Services.	Alphanumeric (40 Bytes)	
Cross Type	Type of crosses originating from a Participating Organization between managed accounts that have the same manager	Alphanumeric (1 Byte)	Valid values are: • "I": Internal • "B": Basis • "C": Contingent (TSX Only) • "S": Special Trading session (TSX Only) • "V": VWAP – Volume Weighted Average Price (TSX Only)
Currency	The currency associated with a reported price	Alphanumeric (1 Byte)	Valid values are: • "U": USD • "C": CAD
CUSIP	Clearing and settlement registration number	Alphanumeric (12 Byte)	

F

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Face Value	The face value of a debenture	Binary (8 Bytes)	6 implied decimal places **Example:** A Face Value of 50.45 is represented by 01010000 11001110 00000001 00000011 00000000 00000000 00000000 00000000. The feed client must convert the binary to decimal and divide the resulting number by 1,000,000 to obtain the face value.

I

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Imbalance Side	Marker to indicate which side has an imbalance volume for Market on Close	Alphanumeric (1 Byte)	Valid Values are: • "B": Buy Side • "S": Sell Side • " ": No imbalance exists
Imbalance Volume	Identifies the volume of shares of the imbalance side for Market on Close	Binary (4 Bytes)	No implied decimal places **Example**: A volume of 2,500 Is represented by 11000100 00001001 00000000 00000000.
Initiated By	Indicates which side initiated the Trade Correction	Alphanumeric (1 Byte)	Valid values are: • "B": Buy Side • "S": Sell Side • "C": Both Buy Side and Sell Side

L

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Last Sale	Last sale price of a stock	Binary (8 Bytes)	6 implied decimal places **Example:** A last sale price of 50.45 is represented by 01010000 11001110 00000001 00000011 00000000 00000000 00000000 00000000. The feed client must convert the binary to decimal and divide the resulting number by 1,000,000 to obtain the last sale price.

M

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Market State	Indicates the current market state	Alphanumeric (1 Byte)	Valid Values are: • “P”: Pre-open • “O”: Opening • “S”: Open • “C”: Closed • “R”: Extended Hours Open • “F”: Extended Hours Close • “N”: Extended Hours CXLs • “M”: MOC Imbalance • “A”: CCP Determination • “E”: Price Movement Extension • “L”: Closing

N

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Non-Resident	A terms marker indicating that trade participant is not a Canadian resident	Alphanumeric (1 Byte)	Valid values are: • "Y": Participant is not a Canadian resident. • "N": Participant is a Canadian resident.

O

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Order ID	Public numeric identifier assigned to an order by the trading system.	Binary (8 Bytes)	No implied decimal places **Example**: An Order ID of 20101010000078654 is represented by 00111110 01100111 10101110 00011000 11000011 01101001 01000111 00000000. The feed client can obtain the Order ID by converting the binary to decimal. The Order ID thus obtained will be of the format YYYYMMDDXXXXXXXXX, where YYYYMMDD is the business date and XXXXXXXXX is the sequence number assigned to the order.
Order Side	Market side of an order	Alphanumeric (1 Byte)	Indicates if an order is a buy order or a sell order Valid values are: • "B" ; Buy • "S"; Sell
Orig Trade Number	Used with trade corrections to reference previously reported executions	Binary (4 Bytes)	No implied decimal places **Example**: A Trade Number 1000002 is represented by 01000010 01000010 00001111 00000000.

P

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Price	The price in a valid currency	Binary (8 Bytes)	6 implied decimal places **Example:** A Price of 50.45 is represented by 01010000 11001110 00000001 00000011 00000000 00000000 00000000 00000000. The feed client must convert the binary to decimal and divide the resulting number by 1,000,000 to obtain the actual price.
Priority Time Stamp	Time stamp assigned by the Trading Engine to specify time priority of an order. Orders are sequenced in the order book based on symbol, price, and priority time stamp.	Binary (8 Bytes)	Microseconds since the Epoch (00:00:00 UTC, January 1, 1970) **Example**: A Priority Time Stamp of 2010-10-20 11:12:44.032174 is represented as 10101110 00010000 01011111 11010111 00001101 10010011 00000100 00000000.

S

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Sell Broker Number	An Exchange-assigned number uniquely identifying a Partici-pating Organization associated with a sell order	Binary (2 Bytes)	No implied decimal places **Example**: A TSX Broker Number 009 is represented by 00001001 00000000.
Sell Display Volume	Public remaining volume for the sell order	Binary (4 Bytes)	No implied decimal places **Example**: A volume of 2500 is represented by 11000100 00001001 00000000 00000000.

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Sell Order ID	Public numeric identifier assigned to a sell order by the trading system.	Binary (8 Bytes)	No implied decimal places **Example**: An Order ID 20101010000078654 is represented by 00111110 01100111 10101110 00011000 11000011 01101001 01000111 00000000. The feed client can obtain the Order ID by converting the binary to decimal. The Order ID thus obtained is of the format YYYYMMDDXXXXXXXXX, where YYYYMMDD is the business date and XXXXXXXXX is the sequence number assigned to the order.
Settlement Date	Settlement date associated with the order	Binary (4 Bytes)	No implied decimal places **Example**: A Settlement Date of 20101010 is represented by 10010010 10110111 00110010 00000001. The feed clients can obtain the Settlement Date by converting the binary to decimal. The date thus obtained will be of the format YYYYMMDD.
Settlement Terms	Settlement terms associated with the order	Alphanumeric (1 Byte)	Valid values are: • “C”: Cash • “N”: NN • “M”: MS • “T”: CT • “D”: If there is a valid Settlement Date associated with the order
Stock Group	An identifier of the stock group	Binary (1 Byte)	No implied decimal places **Example**: A Stock Group of 3 is represented by 00000011.

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Stock State	The state of the stock	Alphanumeric (2 Bytes)	Valid Values are: • "AR": AuthorizedDelayed • "IR": InhibitedDelayed • "AS": AuthorizedHalted • "IS": InhibitedHalted • "AG": AuthorizedFrozen • "IG": InhibitedFrozen • "AE": Authorized Price Movement Delayed • "AF": Authorized Price Movement Frozen • "IE": Inhibited Price Movement Delayed • "IF": Inhibited Price Movement Frozen • "A": Authorized • "I": Inhibited
Symbol	A unique alphanumeric identifier for a security	Alphanumeric (9 Bytes)	

T

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Trade Number	Unique identifier assigned to each trade on a per stock basis	Binary (4 Bytes)	No implied decimal places **Example**: A Trade Number of 1000002 is represented by 01000010 01000010 00001111 00000000.

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Trade Time Stamp	The time at which the trade occurred, manually set when a trade is added	Binary (4 Bytes)	No implied decimal places **Example**: A Trade Time Stamp of 121010 is represented by 10110010 11011000 00000001 00000000. Feed clients can obtain the Trade Time Stamp by converting the binary to decimal. The Trade Time Stamp is of the format HHMMSS.
Trading System Time Stamp	The time at which the event being reported occurred in the Trading Engine	Binary (8 Bytes)	Microseconds since the Epoch (00:00:00 UTC, January 1, 1970) **Example**: A Trading System Time Stamp of 2010-10-20 11:12:44.032174 is represented as 10101110 00010000 01011111 11010111 00001101 10010011 00000100 00000000.

V

Field Name	Description	Data Type and Size	Valid Field Values & Comments
Volume	The quantity of shares for an order or fill	Binary (4 Bytes)	No implied decimal places **Example**: A Volume of 2500 is represented by 11000100 00001001 00000000 00000000.

Appendix A Acronyms

- **CAD**: Canadian dollar
- **CFO**: Change Former Order
- **COP**: Calculated Opening Price
- **CUSIP**: Committee on Uniform Security Identification Procedures
- **MOC**: Market On Close
- **TSX**: Toronto Stock Exchange
- **TSXV**: TSX Venture Exchange
- **USD**: United States dollar
- **UTC**: Coordinated Universal Time
- **VWAP**: Volume Weighted Average Price

Appendix B Revision History

Version	Date	Changes
2.02	2013/07/12	Added Trading System Time Stamp field to Order Booked and Order Booked – Terms messages.
2.01	2013/04/10	Branding and minor editorial corrections.
2.0	2010/11/16	Initial release.
1.0	2010/11/12	Internal release.

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