



SOLA[®] High Speed Vendor Feed

SOLA[®] HSVF Specifications Guide for MX

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Equities

Toronto Stock Exchange
TSX Venture Exchange
Equicom

Derivatives

Montréal Exchange
CDCC
Montréal Climate Exchange

Fixed Income

Shorcan

Energy

NGX

Data

TMX Datalinx
PC Bond

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Document History

Version	Date	Change Description
1.6	2007-09-24	Modification to Section 2.7 Options - 2nd item - in the table. - added that Options can be filtered by class
1.6.1	2008-07-18	Conversion to FrameMaker
1.7	2009-02-18	Changed Doc. ID: to HSVF-MX-001E Changed Doc. Title to SOLA HSVF Specifications Guide Changed Filename to MX SOLA HSVF Specifications Guide Approved and updated to Intranet
1.8	2009-03-24	Modifications applicable to: Implied Pricing and Strategy Leg Execution (TN 09-002) New Options Symbology Initiative (OSI) (TN 09-003). Affects all Products <ul style="list-style-type: none">• Sequence Number field increased from 8 to 9 bytes• Symbol increased from 20 to 30 bytes• Symbol Root field increased from 5 to 6 bytes Impacts Equity, Index, ETF, and Currency options: <ul style="list-style-type: none">• Expiry Year increased from 1 to 2 bytes• Introduction of new field Expiry Day• Underlying Symbol Root increased from 5 to 10 bytes• Removal of field Conversion Ratio

Version	Date	Change Description
1.8 (cont		<p>Impacts Futures, Options on Futures, and Strategies:</p> <ul style="list-style-type: none"> • New field Instrument replacing field ISIN • Instrument External Code field increased from 20 to 30 bytes • New field Group Instrument added <p>Connection Message - RS</p> <ul style="list-style-type: none"> • Option Classes Requested field increased from 5 to 6 bytes • HSVF Protocol Version field added
1.9	2009-08-24	<p>Modifications applicable to:</p> <ul style="list-style-type: none"> • Symbol Root field type changed from Alpha (A) to Alphanumeric (X) • Insertion of Note in section 3.1 Message Types in Chapter 3 • Underlying Symbol Root field type changed from Alpha (A) to Alphanumeric (X) in messages J and N
1.10	2010-02-03	<p>The following modifications were made:</p> <ul style="list-style-type: none"> • Changed Symbol Root to Root Symbol • Inserted text in section 3.2.1 listing exceptions to the format convention for Alphanumeric fields.
1.10.1	2010-11-02	<p>In Chapter 3 - Messages, the following messages were updated for Implied Price Dissemination:</p> <ul style="list-style-type: none"> • H for Options, HF for Futures, HB for Future Options, HS for Strategies • RS Connection Message <p>Made minor modifications related to Implied Price Dissemination to the following sections: 3.2.26, 3.2.38. 9.1, and 10.1</p>
1.11	2010-12-08	Approved
1.12	2011-01-06	<p>The following modifications were completed:</p> <ul style="list-style-type: none"> • Dissemination of the Currency • In Chapter 3 - Messages, 4 new fields have been added to the J, JB, JF Futures Instrument Keys message (CORE) • Markers for Options <ul style="list-style-type: none"> • Removal of German Mark • Insertion of Danish Krone, Norwegian Krone, Swedish Krona, and British Pence • Removal of Option Strike Price Codes <p>Approved</p>
1.13	2011-02-17	<p>In section 5.1 - Price Fraction Rules (Tick Increment), replaced previous table with a new one and renamed section 5.1 to Price Tick Increment Rules</p>

Document Notes

Date	Description
2010-11-01	Converted to latest template

Typographic Conventions

Convention	Meaning
Abbreviated menu commands	This document uses abbreviated menu. For example, "Click Display > Toolbars > Standard " means that you should click the Display menu, point to Toolbars , and click the Standard entry.
Boldface type	Boldface type is used for commands, keywords, file names URLs, or other information that you must use literally. Name of windows, dialogs, and other controls also appear in boldface type.
Initial Capital Letters	The first letter of the names of menus, dialog boxes, dialog box elements, and commands are capitalized.
<Text in angle brackets>	Angle brackets are used for variables and values that you must provide.
Emphasized type	Emphasized type is used for words and phrases that need to be emphasized, as for new terms defined in the text. Italicized type is also used for foreign languages terms.
Monospace	Code and script examples appear in a monospace font.
Plus sign in text	Keyboard shortcuts are indicated by a plus sign separating key names. For example, Ctrl+F1 means that you must press the Ctrl and F1 keys at the same time.

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Chapter 1 Introduction

This specification defines the communications interface and message formats for the high speed transmission which broadcasts real-time trading and statistical information from Bourse de Montréal Inc..

The MX - High Speed Vendor Feed (HSVVF) is comprised of trades, quotes, market depth, strategies, bulletins, summaries and other statistics. Information is provided on all Bourse de Montréal Inc. listings.

Chapter 2 Overview

2.1 Basic Conventions

All messages which comprise the MX-HSVF are transmitted to the user on a dedicated line. Each message type is fixed in format and messages are non-blocked. Re-transmission of any data on the transmission is available. See [paragraph “2.6, Transmission Capability” on page 4](#).

2.2 Connection Generalities

2.2.1 Interface

Bourse de Montréal uses a TCP/IP broadcast interface.

2.2.2 Hub Facilities

MONTREAL	TORONTO
Bourse de Montréal Inc.	Bourse de Montréal Inc.
800 Victoria Square	c/o ADP
4th Floor Computer Room	4 King Street West, Suite 600
Montréal, Quebec	Toronto, Ontario
H4A 1A9	M5H 1B6
Contact: <ul style="list-style-type: none"> • Ralph Tomasiello • David Wilson • Yann Didier at 514-871-3512 	Contact: <ul style="list-style-type: none"> • Merri-Lynne Highland • Ryan Newman at 416-865-6478

2.3 Transmission Format

Each message is framed by an STX and an ETX character. The format used is:

S T X	MESSAGE HEADER	MESSAGE	E T X
-------------	----------------	---------	-------------

STX and ETX indicate the beginning and the end of the record being transmitted.

2.4 Data Format

Each message consists of a standard message header followed by the message body which varies in format according to the message type.

2.5 Message Header

The standard message header attached to all messages has the following format:

Field Name	L	T	Definition / Validation Rules
Sequence Number	9	N	Each message is assigned a sequence number starting at '000000001' every day, and incremented by 1 for each message sent. The sequence numbers will range from 000000001 to 999999999 (decimal, ASCII) with wrap around. Retransmitted messages will contain the original sequence numbers.
Message Type	2	X	Identifies the type of message being sent. Format is left-aligned, right 'blank' filled (if necessary).

2.6 Transmission Capability

The following describes Transmission Capability. For formatting details on examples shown, refer to section [3.2.38, Message Type RS - Connection Message - Min. 32 / Max. 6026 bytes](#).

Normal Connection (START OF DAY @ 1:35am EST)	<ol style="list-style-type: none"> Participant connects to specified port Participant sends RS message type ex. 000000001RS0000000000YNYYN0D1000 Exchange sends data to Participant with: <ul style="list-style-type: none"> Starting sequence number 000000001 Regular market messages on Options, not Futures Market depth messages for all Trading Instruments Regular market messages and Strategies for all Trading Instruments Regular market messages with Summaries GAP Control: 0 (will receive GAP messages) Protocol version D1 to ensure receipt of Symbology messages All options classes
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RETRANSMISSION -A- (REQUESTING TO RECEIVE FROM BEGINNING OF THE DAY)	<ol style="list-style-type: none"> 1 Participant connects to specified port 2 Participant sends RS message type ex. 000000001RS000000000YNYYN0D1000 3 Exchange resends all messages disseminated so far through out the day
RETRANSMISSION -B- (REQUESTING THE NEXT MES- SAGE IN LINE)	<ol style="list-style-type: none"> 1 Participant connects to specified port 2 Participant sends RS message type ex. 000000001RS999999999YNYYN0D1000 3 Exchange sends the next message to Participant
RETRANSMISSION -C- (FROM A SPECIFIC SEQUENCE NUMBER)	<ol style="list-style-type: none"> 1 Participant connects, if disconnected to specified port 2 Participant sends RS message type ex. 000000001RS0000013247YNYYN0D1000 3 Exchange sends all messages with sequence numbers greater than 13247 <p>Note: If the Exchange's sequence number is lower than Participant's, transmission will begin with the next message</p>
DISCONNECTION	<ol style="list-style-type: none"> 1 Participant disconnects from port

Note 1: For a retransmission (type 'A' or 'C'), Participants should keep the same parameters (Type of market data / GAP Control / Option classes requested).

Note 2: Participants need to reconnect every day after 1:35 a.m. EST. Their connections are disabled by MX at 11:00 p.m. EST.

Chapter 3 Messages

3.1 Message Types

Below is a summary of all message types that are transmitted.

Note: HSVF users must have the ability to skip and ignore any message that is not defined below. The Montréal Exchange (MX) may introduce new message types to support extended functions in the future. Since new message types may be defined in future versions of the protocol, anyone using this version of the HSVF protocol must be able to avoid impact of undefined new messages types they may receive.

3.1.1 Trade Messages

C	Option Trade
CB	Future Options Trade
CF	Future Trade
CS	Strategy Trade

3.1.2 Request for Quote Messages (RFQ)

D	Option Request for Quote
DB	Future Option Request for Quote
DF	Future Request for Quote
DS	Strategy Request for Quote

3.1.3 Quote Messages

F	Option Quote
FB	Future Options Quote
FF	Future Quote
FS	Strategy Quote

3.1.4 Market Depth Messages

H	Option Market Depth
HB	Future Options Market Depth
HF	Future Market Depth
HS	Strategy Market Depth

3.1.5 Trade Cancellation Messages

I	Option Trade Cancellation
IB	Future Options Trade Cancellation
IF	Future Trade Cancellation
IS	Strategy Trade Cancellation

3.1.6 Instrument Keys Messages

J	Options Instrument Keys
JE	Underlying Instrument keys
JB	Future Options Instrument Keys
JF	Future Instrument Keys
JS	Strategy Instrument Keys

3.1.7 Summary Messages

N	Option Summary
NB	Future Options Summary
NF	Future Summary
NS	Strategy Summary

Summary messages will be sent:

- At the beginning of the day to define the instruments traded on that day
- After a trade cancellation if extreme values have been changed (Open/High/Low/Last)
- At the end of the day with relevant data such as the Open/High/Low/Last/Volume
- During the day if a new instrument is added

3.1.8 Beginning of Summary Messages

Q	Beginning of Option Summary
QB	Beginning of Future Options Summary
QF	Beginning of Futures Summary
QS	Beginning of Strategy Summary

3.1.9 Other Messages

GR	Group Status
GS	Group Status (Strategies)
L	Bulletins
R	Beginning of Futures Summary
RS	Connection Message
S	End of Sales
U	End of Transmission
V	Circuit Assurance ("Heartbeat")
W	Gap Sequence

3.2 Message Record Format and Definitions

3.2.1 Basic Conventions

- Whenever a field is indicated as being blank it contains the ASCII space character (hex 20).
- All numeric fields: Numbers (0 to 9), Right justified, zero filled with a possibility to see a '.' (ASCII character hex 2).
- Alphanumeric fields: All characters possible (numbers, letters, others), right justified, zero filled, with the exception of the following fields, which are left justified, and blank filled:
 - Instrument External Code
 - Root Symbol (Options related messages)
 - Symbol (Strategy related messages)
- All alphabetic fields: Letters (A to Z) left justified, blank filled unless stated otherwise.
- The 'Filler' field can have any format [numeric, alphanumeric, ASCII space character (hex 20)].

In the following tables, the column **L** represents the length in bytes of the described field, and the column **T** ('Data Type') will be represented by the following characters. Refer to the above for a more detail description of each:

- A = Alphabetic
- N = Numeric
- X = Alphanumeric

3.2.2 Message Type C - Option Trade - 76 Bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Root Symbol	6	X	Option base symbol (symbol of the underlying)
Expiry Month	1	A	Expiry month of the option Refer to paragraph "8.1" on page 61
Filler	1	A	Filler
Strike Price	7	N	Strike price of the option in full Refer to paragraph "5.1" on page 51
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Expiry Year	2	N	Last two digits of the option expiry year
Expiry Day	2	N	Expiry day
Volume	8	N	Number of contracts for the trade Refer to paragraph "6.4" on page 54
Trade Price	6	N	Price at which the transaction took place
Trade Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Net Change Sign +/-	1	A	For the net change field
Net Change	6	N	Net change = last trade price - previous close
Net Change Fraction Indicator	1	X	Fraction indicator for the net change price Refer to paragraph "4.2" on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of transaction HHMMSS
Open Interest	7	N	This field contains the outstanding number of contracts in the series. Updated on a trade by trade basis Refer to paragraph "6.4" on page 54
Filler	1	X	Filler
Price Indicator Marker	1	A	Identifies the type of transaction Refer to paragraph "6.3" on page 54

3.2.3 Message Type CB - Future Options Trade - 71 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred."Q" for Montreal
Root Symbol	3	A	Option symbol
Contract Month Code	1	A	Option month code Refer to paragraph "8.2" on page 61
Expiry Year	1	N	Last digit of the expiry year
Call / Put Code	1	A	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Volume	8	N	Total number of contracts traded Refer to paragraph "6.4" on page 54
Trade Price	6	N	Price at which the transaction took place
Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Price Indicator Marker	1	A	Identifies the type of transaction Refer to paragraph "6.3" on page 54
Net Change Sign +/-	1	A	For net change field (sign)
Net Change	6	N	Net change = last trade price - previous settlement price
Net Change Fraction Indicator	1	A	Fraction indicator for the net change Refer to paragraph "4.2" on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of transaction HHMMSS
Open Interest	7	N	Outstanding number of contracts in the series as of previous day Refer to paragraph "6.4" on page 54
Filler	2	X	Filler

At approximately 3:45 p.m. (EST), closing settlement prices are determined and transmitted for all OGB (options on the 10-Year Canadian Government Bond Futures) and OBX (options on the 3-Month Canadian Bankers' Acceptance Futures). At this point most fields for each series will be blank/zero filled except for the Price field which will contain the closing settlement price.

3.2.4 Message Type CF - Futures Trade - 53 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the trade occurred."Q" for Montreal
Root Symbol	3	A	Futures series symbol
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Delivery Year	1	N	Last digit of the delivery year of the future series
Volume	8	N	Total number of contracts traded Refer to paragraph "6.4" on page 54
Trade Price	6	N	Price at which the transaction took place.
Trade Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Net Change Sign +/-	1	X	For net change field (sign)
Net Change	6	N	Net change = last trade price - previous settlement price
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of transaction HHMMSS
Price Indicator Marker	1	X	Identifies the type of transaction Refer to paragraph "6.3" on page 54

3.2.5 Message Type CS - Strategy Trade - 79 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the trade occurred."Q" for Montreal
Symbol	30	X	Identification of the strategy The legs (underlying) are defined in message type NS Alphanumeric with ".", "+", "-"
Volume	8	N	Total number of contracts traded Refer to paragraph "6.4" on page 54
Trade Price Sign +/-	1	X	For Trade Price field (sign)
Trade Price	6	N	Price at which the transaction took place.
Trade Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Net Change Sign +/-	1	X	For net change field
Net Change	6	N	Net change = last trade price - previous close
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of transaction HHMMSS
Price Indicator Marker	1	X	Identifies the type of transaction Refer to paragraph "6.3" on page 54

3.2.6 Message Type D - Option Request for Quote (RFQ) - 40 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the quote occurred."Q" for Montreal
Root Symbol	6	X	Option base symbol
Expiry Month	1	A	Expiry month of the option Refer to paragraph "8.1" on page 61
Filler	1	A	Filler
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Expiry Year	2	N	Last two digits of the option expiry year
Expiry Day	2	N	Expiry day
Size of the Price Requested	8	X	Number of contracts for which the price is requested Refer to paragraph "6.4" on page 54

3.2.7 Message Type DB - Future Options Request for Quote (RFQ) - 34 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	3	A	Option symbol
Contract Month Code	1	A	Option month code Refer to paragraph "8.2" on page 61

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Expiry Year	1	N	Last digit of the expiry year
Call/Put Code	1	A	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Size of the Price Requested	8	X	Number of contracts for which the price is requested Positive whole number Refer to paragraph "6.4" on page 54

3.2.8 Message Type DF - Futures Request for Quote (RFQ) - 25 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	3	A	Symbol for the Future series
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Delivery Year	1	N	Last digit of the delivery year of the contract
Size of the Price Requested	8	X	Number of contracts for which the price is requested Positive whole number Refer to paragraph "6.4" on page 54

3.2.9 Message Type DS - Strategy Request for Quote (RFQ) - 50 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Symbol	30	X	Identification of the strategy The legs (underlying) are defined in message type NS. Alphanumeric with ".", "+", "-"
Size of the Price Requested	8	X	Number of contracts for which the price is requested Positive whole number Refer to paragraph "6.4" on page 54

3.2.10 Message Type F - Option Quote - 58 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	6	X	Option base symbol
Expiry Month	1	A	Expiry month of the option Refer to paragraph "8.1" on page 61
Filler	1	A	Filler
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Expiry Year	2	N	Last two digits of the option expiry year
Expiry Day	2	N	Expiry day
Bid Price	6	X	Bid price for the option series
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Size	5	X	Number of option contracts represented by the Bid Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Ask Price	6	X	Ask price for the option series
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Ask Size	5	X	Number of option contracts represented by the Ask Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Filler	1	X	Filler
Instrument Status Marker	1	A	Indicates instrument status Refer to paragraph "6.2" on page 53

3.2.11 Message Type FB - Future Options Quote - 52 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	3	A	Option symbol
Contract Month Code	1	A	Option month code Refer to paragraph "8.2" on page 61
Expiry Year	1	N	Last digit of the expiry year
Call/Put Code	1	A	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Price	6	X	Bid price for the series
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Size	5	X	Total number of contracts being bid at this price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Ask Price	6	X	Ask price for the series
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Ask Size	5	X	Total number of contracts being offered at this price If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Filler	1	X	Filler
Instrument Status Marker	1	A	Indicates instrument status Refer to paragraph "6.2" on page 53

3.2.12 Message Type FF - Futures Quote - 42 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	3	A	Symbol for the Future series
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Delivery Year	1	N	Last digit of the delivery year of the contract
Bid Price	6	X	Bid price for the future contract
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Size	5	X	Number of futures contracts represented by the Bid Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Ask Price	6	X	Ask Price for the future contract
Ask Price Fraction Indicator	1	N	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Ask Size	5	X	The number of futures contracts represented by the aSk Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Instrument Status Marker	1	A	Indicates instrument status Refer to paragraph "6.2" on page 53

3.2.13 Message Type FS - Strategy Quote - 69 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Symbol	30	X	Identification of the strategy The legs (underlying) are defined in message type NS. Alphanumeric with ".", "+", "-"

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Bid Price Sign +/-	1	X	For Bid Price field
Bid Price	6	X	Bid price for the future contract
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Size	5	X	Number of futures contracts represented by the Bid Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Ask Price sign +/-	1	X	For Ask Price field
Ask Price	6	X	Ask price for the future contract
Ask Price Fraction Indicator	1	N	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Ask Size	5	X	The number of futures contracts represented by the Ask Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Instrument Status Marker	1	X	Indicates instrument status Refer to paragraph "6.2" on page 53

3.2.14 Message Type GR - Group Status - 19 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	6	X	Root of the instrument group
Group Status	1	A	Group status of the trading instrument Refer to paragraph "6.2" on page 53

This message will be sent when a group of trading instruments enters a new status. For more details, go to section 10 "Operating Sequence" for a complete list of the trading hours schedule for Bourse de Montréal Inc products.

3.2.15 Message Type GS - Group Status (Strategies) - 15 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Group Instrument	2	X	Group of the instrument
Group Status	1	A	Group status of the trading instrument Refer to paragraph "6.2" on page 53

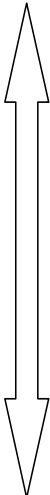
This message will be sent when a Strategy group of trading instruments enters a new status. All strategies have a predetermined group that can be found in the JS message (Strategy Instrument Keys message)

3.2.16 Message Type H - Option Market Depth - up to 179 bytes

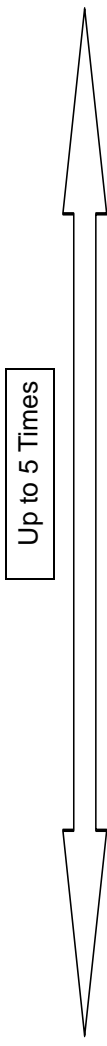
FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	6	X	Option base symbol
Expiry Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Filler	1	A	Filler
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Expiry Year	2	N	Last two digits of the option expiry year
Expiry Day	2	N	Expiry day
Instrument Status Marker	1	A	Indicates Instrument status Refer to paragraph "6.2" on page 53
Number of Level	1	N	Number of level for the trading instrument. 1 to 5

Up to 5 Times	FIELD NAME	L	T	DEFINITION / VALIDATION RULES
	Level of Market Depth	1	X	Level of market depth 1 to 5 and A (Implied)
	Bid Price	6	X	Bid price for the option series. For Implied, it represents the best (1st limit) indicative implied bid price.
	Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
	Bid Size	5	X	Number of option contracts represented by the Bid Price. For Implied, it represents the indicative quantity at the best (1st limit) implied bid price. If size is greater than 99999, the 5th character becomes an exponent. Refer to paragraph "6.4" on page 54
	Number of Bid Orders	2	X	Number of bid orders, present at a given moment, in the order book. For Implied, it represents the indicative number of implied bid orders making up the implied bid size at that implied bid price. If greater than 99-> the 2nd character becomes an exponent. Refer to paragraph "6.4" on page 54
	Ask Price	6	X	Ask price for the option series For Implied, it represents the best (1st limit) indicative implied ask price.
	Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
	Ask Size	5	X	Number of option contracts represented by the Ask Price. For Implied, it represents the indicative quantity at the best (1st limit) implied ask price. If size is greater than 99999, the 5th character becomes an exponent. Refer to paragraph "6.4" on page 54
	Number of Ask Orders	2	X	Number of Ask Orders, present at a given moment, in the order book. For Implied, it represents the indicative number of implied ask orders making up the implied ask size at that implied ask price. If greater than 99-> the 2nd character becomes an exponent Refer to paragraph "6.4" on page 54

3.2.17 Message Type HB - Future Options Market Depth - up to 172 bytes



FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	3	A	Symbol for the Future series
Contract Month Code	1	A	Option month code Refer to paragraph "8.2" on page 61
Expiry Year	1	N	Last digit of the expiry year
Call/Put Code	1	A	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Instrument Status Markers	1	A	Indicates instrument status Refer to paragraph "6.2" on page 53
Number of Level	1	N	Number of level for the trading instrument. 1 to 5
Level of Market Depth	1	X	Level of market depth 1 to 5 and A (Implied)
Bid Price	6	X	Bid Price for the series. For Implied, it represents the best (1st limit) indicative implied bid price.
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Size	5	X	Total number of contracts being bid at this price. For Implied, it represents the indicative quantity at the best (1st limit) implied bid price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54

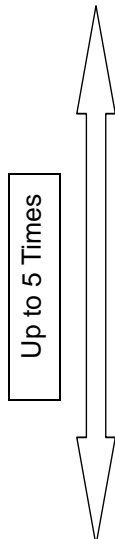


FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Number of Bid Orders	2	X	<p>Number of bid orders, present at a given moment, in the order book.</p> <p>For Implied, it represents the indicative number of implied bid orders making up the implied bid size at that implied bid price.</p> <p>If greater than 99-> the 2nd character becomes an exponent.</p> <p>Refer to paragraph "6.4" on page 54.</p>
Ask Price	6	X	<p>Ask price for the series.</p> <p>For Implied, it represents the best (1st limit) indicative implied ask price.</p>
Ask Price Fraction Indicator	1	X	<p>Defines number of decimal places or fraction positions.</p> <p>Refer to paragraph "4.2" on page 49</p>
Ask Size	5	X	<p>Total number of contracts being offered at this price.</p> <p>For Implied, it represents the indicative quantity at the best (1st limit) implied ask price.</p> <p>If size is greater than 99999, the 5th character becomes an exponent.</p> <p>Refer to paragraph "6.4" on page 54.</p>
Number of Ask Orders	2	X	<p>Number of Ask Orders, present at a given moment, in the order book.</p> <p>For Implied, it represents the indicative number of implied ask orders making up the implied ask size at that implied ask price.</p> <p>If greater than 99-> the 2nd character becomes an exponent</p> <p>Refer to paragraph "6.4" on page 54</p>

3.2.18 Message Type HF - Futures Market Depth - up to 164 bytes

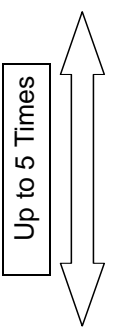
FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Root Symbol	3	A	Symbol for the Future series
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Delivery Year	1	N	Last digit of the delivery year of the contract
Instrument Status Marker	1	A	Indicates instrument status Refer to paragraph "6.2" on page 53
Number of Level	1	N	Number of level for the trading instrument 1 - 5
Level of Market Depth	1	X	Level of market depth 1 - 5 and A (Implied)
Bid Price	6	X	Bid price for the future contract For Implied, it represents the best (1st limit) indicative implied bid price
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Bid Size	5	X	Number of futures contracts represented by the Bid Price. For Implied, it represents the indicative quantity at the best (1st limit) implied bid price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Number of Bid Orders	2	X	Number of Bid Orders, present at a given moment, in the order book. For Implied, it represents the indicative number of implied bid orders making up the implied bid size at that implied bid price. If greater than 99-> the 2nd character becomes an exponent
Ask Price	6	N	Ask Price for the future contract. For Implied, it represents the best (1st limit) indicative implied ask price.
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49

Up to 5 Times



FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Ask Size	5	X	The number of futures contracts represented by the Ask Price. For Implied, it represents the indicative quantity at the best (1st limit) implied ask price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Number of Ask Orders	2	X	Number of Ask Orders, present at a given moment in the order book. For Implied, it represents the indicative number of implied ask orders making up the implied ask size at that implied ask price. If greater than 99-> the 2nd character becomes an exponent Refer to paragraph "6.4" on page 54

3.2.19 Message Type HS - Strategy Market Depth - up to 199 bytes



FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the quote occurred. Q = Montreal
Symbol	30	X	Identification of the strategy. The legs (underlying) are defined in message type NS Alphanumeric with ".", "+", "-"
Instrument Status Marker	1	A	Indicates instrument status. Refer to paragraph "6.2" on page 53
Number of Level	1	N	Number of level for the trading instrument 1 - 5
Level of Market Depth	1	X	Level of market depth 1 - 5 and A (Implied)
Bid Price Sign +/-	1	X	For the Bid Price field
Bid Price	6	X	Bid price for the strategy instrument. For Implied, it represents the best (1st limit) indicative implied bid price.
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49

Up to 5 Times

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Bid Size	5	X	Number of strategy units represented by the Bid Price. For Implied, it represents the indicative quantity at the best (1st limit) implied bid price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Number of Bid Orders	2	X	Number of Bid Orders, present at a given moment, in the order book. For Implied, it represents the indicative number of implied bid orders making up the implied bid size at that implied bid price. If greater than 99-> the 2nd character becomes an exponent Refer to paragraph "6.4" on page 54
Ask Price Sign +/-	1	X	For the Ask Price field.
Ask Price	6	X	Ask price for the strategy instrument. For Implied, it represents the best (1st limit) indicative implied ask price.
Ask Price Fraction Indicator	1	N	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Ask Size	5	X	The number of strategy units represented by the Ask Price. For Implied, it represents the indicative quantity at the best (1st limit) implied ask price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Number of Ask Orders	2	X	Number of Ask Orders, present at a given moment, in the order book. For Implied, it represents the indicative number of implied ask orders making up the implied ask size at that implied ask price. If greater than 99-> the 2nd character becomes an exponent Refer to paragraph "6.4" on page 54

3.2.20 Message Type I - Option Trade Cancellation - 68 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Root Symbol	6	X	Option base symbol
Expiry Month	1	A	Expiry month of the option Refer to paragraph "8.1" on page 61
Filler	1	A	Filler
Strike Price	7	N	This field contains the strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Expiry Year	2	N	Last two digits of the option expiry year
Expiry Day	2	N	Expiry day
Volume	8	N	Number of contracts being cancelled. Refer to paragraph "6.4" on page 54
Trade Price	6	N	Price at which the transaction took place
Trade Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of the option trade HHMMSS
Open Interest	7	N	Open long position of the option series, as of the trade Refer to paragraph "6.4" on page 54
Filler	1	X	Filler
Price Indicator Marker	1	A	Identifies the type of transaction Refer to paragraph "6.3" on page 54

A cancellation will reduce the total volume, value and transactions by the amount of the cancelled trade. A cancellation message is followed by an Option Summary message (message type N) which will reflect the corrected market.

3.2.21 Message Type IB - Future Options Trade Cancellation - 63 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Root Symbol	3	A	Option symbol
Contract Month Code	1	A	Option month code Refer to paragraph "8.2" on page 61
Expiry Year	1	N	Last digit of the expiry year
Call/Put Code	1	A	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Volume	8	N	Total number of contracts traded Refer to paragraph "6.4" on page 54
Price	6	N	Price at which the transaction took place
Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Price Indicator Marker	1	A	Identifies the type of transaction Refer to paragraph "6.3" on page 54
Filler	6	N	Filler
Stamp Time	6	N	Time at which the original transaction took place HHMMSS
Open Interest	7	N	Outstanding number of contracts in the series as of the previous day Refer to paragraph "6.4" on page 54
Filler	2	X	Filler

A cancellation will reduce the total volume, value and transactions by the amount of the cancelled trade. A cancellation message is followed by a Future Options Summary message (message type NB) which will reflect the corrected market.

3.2.22 Message Type IF - Futures Trade Cancellation - 45 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Root Symbol	3	A	Futures series symbol
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Delivery Year	1	N	Last digit of the delivery year of the contract
Volume	8	N	Number of contracts being cancelled Refer to paragraph "6.4" on page 54
Trade Price	6	N	Estimated price at which the transaction took place
Trade Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions. Refer to paragraph "4.2" on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of the futures trade HHMMSS
Price Indicator Marker	1	X	Identifies the type of transaction Refer to paragraph "6.3" on page 54

A cancellation will reduce the total volume, value and transactions by the amount of the cancelled trade. A cancellation message is followed by a Future Summary message (message type NF) which will reflect the corrected market.

3.2.23 Message Type IS - Strategy Trade Cancellation - 71 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Symbol	30	X	Identification of the strategy The legs (underlying) are defined in message type NS. Alphanumeric with ".", "+", "-"
Volume	8	N	Number of contracts being cancelled Refer to paragraph "6.4" on page 54
Trade Price sign +/-	1	X	For the Trade Price field
Trade Price	6	N	Estimated price at which the transaction took place

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Trade Price Fraction Indicator	1	X	Defines the number of decimal places or fraction positions. Refer to paragraph “4.2” on page 49
Filler	6	N	Filler
Stamp Time	6	N	Time of the futures trade HHMMSS
Filler	1	X	Filler

A cancellation will reduce the total volume, value and transactions by the amount of the cancelled trade. A cancellation message is followed by a Strategy Summary message (message type NS) which will reflect the corrected market.

3.2.24 Message Type J - Option Instrument Keys - 137 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph “2.5” on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred Q = Montreal
Root Symbol	6	X	Option base symbol (symbol of the underlying)
Expiry Month	1	A	Expiry month of the option Refer to paragraph “8.1” on page 61
Filler	1	A	Filler
Strike Price	7	N	Strike price of the option in full Refer to paragraph “5.1” on page 51
Strike Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Expiry Year	2	N	Last two digits of the expiry year
Expiry Day	2	N	Expiry day of the option
Strike Price Currency	3	X	Currency used for the Option Strike Price Refer to paragraph “6.5” on page 55
Maximum Number of Contracts per Order	6	N	Maximum authorized number of contract per order Refer to paragraph “6.4” on page 54
Minimum Number of Contracts per Order	6	N	Minimum authorized number of contract per order Refer to paragraph “6.4” on page 54
Maximum Threshold Price	6	N	Maximum threshold price authorized for an option contract Refer to paragraph “6.4” on page 54

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Maximum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Minimum Threshold Price	6	N	Minimum threshold price authorized for an option contract Refer to paragraph “6.4” on page 54
Minimum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Tick Increment	6	X	Precision with which the price of an order limit can be expressed Refer to paragraph “5.1” on page 51
Tick Increment Fraction Indicator	1	N	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Option type	1	N	Type of option A = American E = European
Market Flow Indicator	2	X	Defines the type of instruments Refer to paragraph “8.3” on page 61
Group Instrument	2	X	Group of the instrument
Instrument	4	X	Instrument
Instrument External Code	30	X	External identifier used by traders when entering an order
Option Marker	2	A	Refer to paragraph “6.1” on page 53
Underlying Symbol Root	10	X	Symbol root for the underlying security
Contract Size	8	N	Defines the quantity of an underlying per contract
Tick Value	6	N	Precision with which the price of an order limit can be expressed
Tick Value Fraction Indicator	1	X	Defines number of decimal places or fraction positions
Currency	3	A	Defines the currency of an underlying Refer to paragraph “6.5” on page 55

3.2.25 Message Type JB - Future Options Instrument Keys - 120 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Root Symbol	3	A	Option symbol
Contract Month Code	1	A	Option month code Refer to paragraph "8.2" on page 61
Expiry Year	1	N	Last digit of the expiry year
Call / Put Code	1	A	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Fraction indicator for the strike price Refer to paragraph "4.2" on page 49
Expiry Day	2	N	Expiration day of the future option
Strike Price Currency	3	X	Currency used for the option strike price Refer to paragraph "6.5" on page 55
Maximum Number of Contracts per Order	6	N	Maximum authorized number of contract per order Refer to paragraph "6.4" on page 54
Minimum Number of Contracts per Order	6	N	Minimum authorized number of contract per order Refer to paragraph "6.4" on page 54
Maximum Threshold Price	6	N	Maximum threshold price authorized for an option contract Refer to paragraph "6.4" on page 54
Maximum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Minimum Threshold Price	6	N	Minimum threshold price authorized for an option contract Refer to paragraph "6.4" on page 54
Minimum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Tick Increment	6	X	Precision with which the price of an order limit can be expressed Refer to paragraph "5.1" on page 51
Tick Increment Fraction Indicator	1	N	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Market Flow Indicator	2	X	Defines the type of instruments Refer to paragraph "8.3" on page 61
Group Instrument	2	X	Group of the instrument
Instrument	4	X	Instrument
Instrument External Code	30	X	External identifier used by traders when entering an order
Contract Size	8	N	Defines the quantity of an underlying per contract
Tick Value	6	N	Precision with which the price of an order limit can be expressed
Tick Value Fraction Indicator	1	X	Defines number of decimal places or fraction positions
Currency	3	A	Defines the currency of an underlying Refer to paragraph "6.5" on page 55

3.2.26 Message Type JE - Underlying Instrument Keys - 48 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Group Instrument	2	X	Group of the instrument
Instrument	4	X	Instrument
Instrument External Code	30	X	External identifier used by traders when entering an order

Please note that:

- The 'Underlying Instrument Keys' message will be the first messages sent during the day
- There is no 'Underlying Summary' message attached to the 'Instrument keys' messages

3.2.27 Message Type JF - Futures Instrument Keys - 108 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Exchange on which the trade occurred. Q = Montreal
Root Symbol	3	A	Futures series symbol
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Delivery Year	1	N	Last digit of the delivery year of the future series
Expiry Day ¹	2	N	Expiration day of the future
Maximum Number of Contracts per Order	6	N	Maximum authorized number of contract per order Refer to paragraph "6.4" on page 54
Minimum Number of Contracts per Order	6	N	Minimum authorized number of contract per order Refer to paragraph "6.4" on page 54
Maximum Threshold Price	6	N	Maximum threshold price authorized for an option contract Refer to paragraph "6.4" on page 54
Maximum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Minimum Threshold Price	6	N	Minimum threshold price authorized for an option contract Refer to paragraph "6.4" on page 54
Minimum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Tick Increment	6	X	Precision with which the price of an order limit can be expressed Refer to paragraph "5.1" on page 51
Tick Increment Fraction Indicator	1	N	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Market Flow Indicator	2	X	Defines the type of instruments Refer to paragraph "8.3" on page 61
Group Instrument	2	X	Group of the instrument
Instrument	4	X	Instrument
Instrument External Code	30	X	External identifier used by traders when entering an order
Contract Size	8	N	Defines the quantity of an underlying per contract

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Tick Value	6	N	Precision with which the price of an order limit can be expressed
Tick Value Fraction Indicator	1	X	Defines number of decimal places or fraction positions
Currency	3	A	Defines the currency of an underlying Refer to paragraph "6.5" on page 55

1. The Expiry Day for the S&P/TSX futures contracts (SXA/SXB/SXH/SXF & SXY) is set up as the third Friday of the month in our system. But the real last trading day for these instruments is the day before the 3rd Friday of the month (the 3rd Thursday).

3.2.28 Message Type JS - Strategy Instrument Keys - 118 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I. D.	1	A	Exchange on which the trade occurred. Q = Montreal
Symbol	30	X	Identification of the strategy The legs (underlying) are defined in message type NS Alphanumeric with ".", "+", "-"
Expiry Year	1	N	Expiration year of the strategy
Delivery Month	1	A	Delivery month for the contract Refer to paragraph "8.2" on page 61
Expiry Day	2	N	Expiration day of the option
Maximum Number of Contracts per Order	6	N	Maximum authorized number of contract per order Refer to paragraph "6.4" on page 54
Minimum Number of Contracts per Order	6	N	Minimum authorized number of contract per order Refer to paragraph "6.4" on page 54
Maximum Threshold Price	6	N	Maximum threshold price authorized for an option contract Refer to paragraph "6.4" on page 54
Maximum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Minimum Threshold Price	6	N	Minimum threshold price authorized for an option contract Refer to paragraph "6.4" on page 54
Minimum Threshold Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Tick Increment	6	X	Precision with which the price of an order limit can be expressed Refer to paragraph “5.1” on page 51
Tick increment Fraction Indicator	1	N	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Market Flow Indicator	2	X	Defines the type of instruments Refer to paragraph “8.3” on page 61
Group Instrument	2	X	Group of the instrument
Instrument	4	X	Instrument
Instrument External Code	30	X	External identifier used by traders when entering an order
Strategy Allow Implied	1	A	Indicates if the Strategy supports Implied Pricing Y = Yes N = No

3.2.29 Message Type L - Bulletins - 93 bytes

Bulletins will be sent throughout the trading day. More than one message will be used if the bulletin is longer than 79 characters. The continuation character "0" indicates that the bulletin continues to the next record.

When a Trading instrument has been halted by the Bourse de Montréal Inc., a Bulletin Message explaining the reason for the halt will be transmitted. When the trading instrument is reinstated, another Bulletin Message explaining the news that accompanied the reinstatement will be transmitted.

All records that make up a particular bulletin will be sent out together. No other message will be interspersed among the records that make up a complete bulletin.

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph “2.5” on page 4
Reserved	1		Reserved for future use
Bulletin Type	1	X	1 = regular text bulletin, refer to section , Bulletin Type 1 - Regular Text Bulletin 2 = special text bulletin, refer to section , Bulletin Type 2 - Special Text Bulletin

Bulletin Type 1 - Regular Text Bulletin

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Bulletin Contents	79	X	Bulletin in textual form. Left justified, blank fill
Continue Marker	1	N	0 = bulletin continues in next record 1 = bulletin ended

Bulletin Type 2 - Special Text Bulletin

This bulletin type will be used for bulletins relating to a specific trading instrument

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Symbol	30	X	
Bulletin Contents	49	X	Bulletin in textual form. Left justified, blank fill
Continue Marker	1	N	0 = bulletin continues in next record 1 = bulletin ended

Note: Any continuation records will also contain the symbol as the first 30 bytes of the bulletin field.

3.2.30 Message Type N - Option Summary - 120 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Identifies the exchange for the option Q = Montreal
Root Symbol	6	X	Option base symbol
Expiry Month	1	A	Expiry month of the contract Refer to paragraph "8.1" on page 61
Filler	1	A	Filler
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Fraction indicator for the strike price Refer to paragraph "4.2" on page 49
Expiry Year	2	N	Last two digits of the option expiry year
Expiry Day	2	N	Expiry day
Bid Price	6	N	Closing or most recent bid price
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Bid Size	5	N	Number of contracts represented by the Bid Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph “6.4” on page 54
Ask Price	6	N	Closing or most recent ask price
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Ask Size	5	N	Number of contracts represented by the Ask Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph “6.4” on page 54
Last Price	6	N	Closing or most recent trade price
Last Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Open Interest	7	N	This field contains current outstanding number of contracts in the series. Updated on a trade by trade basis. Refer to paragraph “6.4” on page 54
Tick	1	X	Determined by the difference between last price and the previous different trade price + = uptick - = downtick
Volume	8	N	Total number of contracts traded or current volume if sent after a cancellation
Net Change Sign +/-	1	X	For net change field
Net Change	6	N	Net change = last trade price - previous close Net change will be zero if the option did not trade on the last business day or did not trade today.
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Open Price	6	N	Price of the first trade of the day
Open Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
High Price	6	N	Highest trade price of the day or current high price if sent after a cancellation
High Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Low Price	6	N	Lowest trade price of the day or current low price if sent after a cancellation

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Low Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Option Marker	2	A	Refer to paragraph “6.1” on page 53
Underlying Symbol Root	10	X	Symbol root for the underlying security

An option summary message is sent following an option trade cancellation. An option summary message is also sent each day at the start of the day in order to provide a list of options which will be trading each day. At that point, all price fields with the exception of Last Price (closing from the previous day), will contain zero values.

Any option summary sent after the BEGINNING OF OPTIONS SUMMARY message (with Message Type = Q) contains the list of trading instruments for the day (sent prior to market opening) or the summaries after the close of the market for Bourse de Montréal Inc. options (sent at 5:10 p.m. EST).

3.2.31 Message Type NB - Future Options Summary - 109 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph “2.5” on page 4
Exchange I.D.	1	A	Identifies the exchange on which the trade occurred Q = Montreal
Root Symbol	3	A	Option symbol
Contract Month Code	1	A	Option month code Refer to paragraph “8.2” on page 61
Expiry Year	1	N	Last digit of expiry year
Call/Put Code	1	S	C = Call P = Put
Strike Price	7	N	Strike price in full
Strike Price Fraction Indicator	1	X	Defines the number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Bid Price	6	N	Closing bid price or current bid if sent after a cancellation
Bid Price Fraction Indicator	1	X	Defines the number of decimal places or fraction positions Refer to paragraph “4.2” on page 49

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Bid Size	5	N	Total number of contracts being bid at this price If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph “6.4” on page 54
Ask Price	6	N	Closing Ask Price or current Ask Price if sent after a cancellation
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Ask Size	5	N	Total number of contracts being offered at this price If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph “6.4” on page 54
Last/Settlement Price	6	N	Most current price or Settlement Price if sent at the closing of the market
Last/Settlement Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Open Interest	7	N	Outstanding number of contracts in the series as of the previous day
Tick	1	X	Calculated on the difference of the last sale price to the different previous last price + = uptick - = downtick
Volume	8	N	Total volume of contracts traded for this option series during the day or current volume if sent after a cancellation Refer to paragraph “6.4” on page 54
Net Change Sign +/-	1	X	For net change field
Net Change	6	N	Net change = last trade price - previous settlement price If no previous settlement price (new series) then net change is zero
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Opening Price	6	N	Opening price of the option series for the day
Opening Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
High Price	6	N	Highest trade price of the options series for the day or current high price if sent after a cancellation
High Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Low Price	6	N	Lowest trade price of the option series for the day or current low price if sent after a cancellation
Low Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Filler	2	X	
Underlying Symbol Root	3	A	Base symbol of the underlying future
Delivery Month	1	A	Delivery month for the underlying futures contract
Delivery Year	1	N	Last digit of the delivery year of the underlying futures contract

A future options summary is sent following a future option trade cancellation. A Future options summary is also sent each day at the start of the day in order to provide a list of Future options which will be trading each day. At that point, all price fields will contain zero values.

Any Future options summary sent after the BEGINNING OF FUTURE OPTIONS SUMMARY message (with Message Type. = QB) contains the list of trading instruments for the day (sent prior to market opening) or the summaries after the close of the market for Bourse de Montréal Inc. Future options (sent at 5:10 p.m. EST).

3.2.32 Message Type NF - Futures Summary - 106 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph “2.5” on page 4
Exchange I.D.	1	A	Identifies the exchange for the future Q = Montreal
Root Symbol	3	A	Symbol for the Future Series
Delivery Month	1	A	Delivery month for the underlying futures contract Refer to paragraph “8.2” on page 61
Delivery Year	1	N	Last digit of the delivery year
Bid Price	6	N	Closing bid or most recent bid if sent after a cancellation
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph “4.2” on page 49
Bid Size	5	N	Number of contracts represented by the Bid Price If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph “6.4” on page 54
Ask Price	6	N	Closing Ask Price or most recent Ask Price if sent after a cancellation

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Ask Size	5	N	Number of contracts represented by the ask price If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Last Price	6	N	Last trade price for the contract or the current price if sent after a cancellation
Last Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Open Price	6	N	Price of the first trade of the day
Open Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
High Price	6	N	Highest trade price of the day or current high price if sent after a cancellation
High Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Low Price	6	N	Lowest trade price of the day or current low price if sent after a cancellation
Low Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Settlement Price	6	N	Closing settlement price for the contract 0 until market closes
Settlement Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Net Change Sign +/-	1	X	For net change field
Net Change	6	N	Net change = last Trade Price - previous Settlement Price If no previous settlement price (new series) then net change is zero
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Volume	8	N	Total number of contracts traded Refer to paragraph "6.4" on page 54
Previous Settlement	6	N	Settlement Price for the previous day
Previous Settlement Fraction Indicator	1	X	Fraction indicator for the previous Settlement Price

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Open Interest	7	N	Previous day's outstanding number of contracts in the series Refer to paragraph "6.4" on page 54

A Futures summary is sent following a Futures trade cancellation. A Futures summary is also sent each day at the start of the day in order to provide a list of Futures which will be trading each day. At that point, all price fields with the exception of previous settlement will contain zero values.

Any summary sent after the BEGINNING OF FUTURE SUMMARY message (with Message Type. = QF) contains the list of trading instruments for the day (sent prior to market opening) or the summaries after the close of the market for Bourse de Montréal Inc. Futures (sent at 5:10 p.m. EST).

3.2.33 Message Type NS - Strategy Summary -Min 184 bytes / Max 778 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	X	Identifies the exchange for the future Q=Montreal
Symbol	30	X	Identification of the strategy The legs (underlying) are defined in message type NS
Bid Price sign +/-	1	X	For the Bid Price field
Bid Price	6	N	Closing bid or most recent bid if sent after a cancellation
Bid Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Bid Size	5	N	Number of contracts represented by the Bid Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54
Ask Price Sign +/-	1	X	For the Ask Price field
Ask Price	6	N	Closing ask or most recent ask if sent after a cancellation
Ask Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Ask Size	5	N	Number of contracts represented by the Ask Price. If size is greater than 99999, the 5th character becomes an exponent Refer to paragraph "6.4" on page 54

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Last Price Sign +/-	1	X	For the Last Price field
Last Price	6	N	Last Trade Price for the contract or the current price if sent after a cancellation
Last Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Open Price Sign +/-	1	X	For the Open Price field
Open Price	6	N	Price of the first trade of the day
Open Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
High Price Sign +/-	1	X	For the High Price field
High Price	6	N	Highest trade price of the day or current high price if sent after a cancellation
High Price Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Low Price Sign +/-	1	X	For the Low Price field
Low Price	6	N	Lowest Trade Price of the day or current low price if sent after a cancellation
Low Price Fraction Indicator	1	X	Defines number of decimal or fraction positions Refer to paragraph "4.2" on page 49
Net Change Sign +/-	1	X	For net change field
Net Change	6	N	Net change = last trade price - previous close If no previous settlement price (new series) then net change is zero
Net Change Fraction Indicator	1	X	Defines number of decimal places or fraction positions Refer to paragraph "4.2" on page 49
Volume	8	N	Total number of contracts traded Refer to paragraph "6.4" on page 54
Number of Legs	2	N	Number of legs in the strategy 2 to 20
Ratio Sign	1	X	Identification of the transaction in the strategy (buy or sell of the underlying) + : Buy of the underlying - : Sell of the underlying
Ratio	2	N	Quantity (bought or sold) on underlying in the strategy. 1 to 20
Symbol	30	X	Identification of the underlying

From 2 to 20
Times

A Strategy summary is sent following a Strategy trade cancellation. A Strategy summary is also sent each day at the start of the day in order to provide a list of Strategies which will be trading each day. At that point, all price fields, with the exception of open interest will contain zero values.

Any Strategy summary sent after the BEGINNING OF STRATEGY SUMMARY message (with message Type. = QS) contains the list of trading instruments for the day (sent prior to market opening) or the summaries after the close of the market for Bourse de Montréal Inc. Strategies (sent at 5:10 p.m. EST).

3.2.34 Message Type Q - Beginning of Options Summary - 12 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Identifies the exchange Q = Montreal

This message indicates that the beginning and the end of day option summaries (message type N) are to follow. Other messages (such as bulletins) can be interspersed with the summaries.

3.2.35 Message Type QB - Beginning of Future Options Summary - 12 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Identifies the exchange Q = Montreal

This message indicates that the beginning and the end of day Future options summaries (message type NB) are to follow. Other messages (such as bulletins) can be interspersed with the summaries.

3.2.36 Message Type QF - Beginning of Futures Summary - 12 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Identifies the exchange Q = Montreal

This message Indicates that the beginning or end-of-day Futures summaries (message type NF) are to follow. Other messages can be interspersed with the summaries.

3.2.37 Message Type QS - Beginning of Strategy Summary - 12 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	Identifies the exchange Q = Montreal

This message indicates that the beginning or the end of day Strategy summaries (message type NS) are to follow. Other messages can be interspersed with the summaries.

3.2.38 Message Type RS - Connection Message - Min. 32 / Max. 6026 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Header	11	X	Refer to paragraph "2.5" on page 4
Reset Sequence	10	N	Indicates the last message received. Messages will restart at '0000000001' every day.
Equity Options	1	A	Client wants to receive all regular market messages on the Options market. Y = Yes N = No Note: Options can be filtered by class. See 'Option Classes Requested' field.
Futures	1	A	Client wants to receive all regular market messages on the Futures market. Y = Yes N = No
Market Depth	1	A	Client wants to receive: Y = Market Depth messages (type H*) on the top 5 Bids/Asks for the type of trading instruments chosen I = Market Depth messages (type H*) on the top 5 Bids/Asks and the calculated implied best limit N = The best Bid/Ask message (type F*) for the type of trading instrument chosen T = Trade messages (type C*) without Quotes or Market Depth messages
Strategies	1	A	Client wants to receive: Y = Regular market messages, and all the Strategies on the different trading instruments N = Only regular market messages

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Market Summaries	1	A	Y = Client wants to receive ONLY the market summaries and the Instrument key messages N = Client wants to receive the regular market messages with the summaries and the Instrument key messages
GAP Control	1	N	Client will receive GAP messages: 0 = Yes Note: Applicable only if 'Number of Options Classes Requested' is greater than 000. Is not available under HSVF Protocol Version D2. 1 = No Note: The sequence number will not be in an n+1 order.
HSVF Protocol Version	2	X	Values supported: D1 = to receive the new Symbology message format. D2 = to receive the implied price in the market depth message. [] = leave 'blank' to receive the actual message format.
Number of Option Classes Requested	3	N	000: Client wants to receive messages on all option classes. 001 to 999: Client wants to receive messages on indicated number of option classes.
Option Classes Requested	Up to 5994 bytes	X	Option class requested (using the 6 character Root Symbol, right padded with blanks). The client must also specify the 6 character Root Symbol for all option symbols linked to an underlying (ex: for NT, you need to request NT, ZNT, WNT) Maximum: 999 option classes Ex : to request for classes ABC and DEF: ABC<blank><blank><blank>DEF<blank><blank><blank>

3.2.39 Message Type S - End of Sales - 18 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Reserved	1		Reserved for future use
Time	6	N	Time at which the message is transmitted HHMMSS

The "End of Sales" message will be sent when there is no more trading activity to be transmitted. This will occur after the closing of the market.

3.2.40 Message Type U - End of Transmission - 18 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Exchange I.D.	1	A	"Q" by default
Time	6	N	Time at which the message is transmitted HHMMSS

This message will be sent to indicate that the day's transmission is complete. This message will be sent at approximately 5:15 pm daily. After this hour, no HSVF messages will be transmitted. Transmission will resume the following day at 1:00 am.

3.2.41 Message Type V - Circuit Assurance - 17 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph "2.5" on page 4
Time	6	N	Time at which the message is transmitted HHMMSS

This message is sent out if no messages were sent by SAM for more than one minute once the broadcast has started (i.e. at the termination of the Test Loop message). This will be an assurance that the line is up.

This message will continue to be sent until the End of Transmission message (type U) is sent. The Circuit Assurance message will repeat the sequence number of the previous record transmitted (except if it is a re-transmit message) i.e. it will not augment the sequence number.

3.2.42 Message Type W - Gap Sequence - 20 bytes

FIELD NAME	L	T	DEFINITION / VALIDATION RULES
Message Header	11		Refer to paragraph “2.5” on page 4 Note: Sequence Number for the 'W' message is the same as the Sequence Number for the first skipped message of an Option Class different from the Option Class requested.
Sequence Numbers Skipped	9		Sequence numbers skipped. Note: This value must be equal to the Sequence Number of the last skipped message of an Option Class different from the Option Class requested.

The Gap message signals the beginning and ending sequence numbers of messages relating to classes different from those subscribed to by the client during the connection message.

The example outlined in the following table indicates the messages to be received by a client who has subscribed to receive market data on Option Class 'YYY', along with Gap messages.

The table data under Message Log lists a number of message types showing; Sequence Number, Message Type, Exchange ID., and Root Symbol. Based on what the client has subscribed to in the Connection Message (RS), the messages to be received are listed under the Client Received Messages section of the table. Refer to section [3.2.38, Message Type RS - Connection Message - Min. 32 / Max. 6026 bytes](#) for details on subscription options.

MESSAGE LOG				CLIENT RECEIVED MESSAGES				
SEQ. NBR.	MSG. TYPE	EXCH. ID.	ROOT SYMBOL	SEQ. NBR.	MSG. TYPE	EXCH. ID.	ROOT SYMBOL	SKIPPED SEQ. NBRS
000007393	C	Q	YYY	000007393	C	Q	YYY	n/a
000007394	H	Q	ZZZ					
000007395	C	Q	XXX					
000007396	C	Q	ZZZ					
000007397	H	Q	FFF	000007394	W	n/a	n/a	000007397
000007398	N	Q	YYY	000007398	N	Q	YYY	n/a
000007399	H	Q	ZZZ					

Chapter 4 Price Fields

4.1 Description

The Price field will be a six (6) character numeric field. The delineation of the whole number portion of the price and the decimal/fractional portion of the price will be defined by the Fraction Indicator Code (FI). Furthermore, the FI will indicate the manner in which the price is to be displayed visually. This implies that all zero fractions may be sent in order to maintain consistency in the visual alignment of the implied decimal places. The all zero fraction would be replaced by spaces for visual display.

No truncation of price data is permitted by this Specification except for high order zeros for products which trade in fractions of 1/10,000,000 or smaller. Should such truncation be necessary then it will be implicit from the FI which will be 7, 8, or 9.

4.2 Fraction Indicator Code

All fractions are expressed as fractions or in decimals as defined by the price fraction rules of the particular product (section 5.1, [Price Fraction Rules \(Tick Increment\)](#)). The Fraction Indicator Code will be one (1) Alphanumeric Character as follows:

FRACTION	CODE	FRACTION	CODE
1/1	0	-1/1	A
1/10	1	-1/10	B
1/100	2	-1/100	C
1/1,000	3	-1/1,000	D
1/10,000	4	-1/10,000	E
1/100,000	5	-1/100,000	F
1/1,000,000	6	-1/1,000,000	G
1/10,000,000	7		
1/100,000,000	8		
1/1,000,000,000	9		

Chapter 5 Tick Table

5.1 Price Tick Increment Rules

INSTRUMENT TYPE	INSTRUMENTS	TICK INCREMENT	QUOTATION
Equity Options	Bid/Ask < \$0.10	0000T1	\$ 0.01
	Bid/Ask ≥ \$0.10	0000T1	\$ 0.05
	Penny Options	0000T1	\$ 0.01
	Penny 300 Options	0000T1	\$ 0.01
	Bid/Ask < \$3.00	0000T1	\$ 0.05
	Bid/Ask ≥ \$3.00	0000T1	\$ 0.05
Futures	BAX (front month)	000005	\$ 0.005
	BAX	000010	\$ 0.01
	CGZ, ONX	000005	\$ 0.005
	CGB, CGF, LGB, WCH, MCX	000010	\$ 0.01
	SXA, SXB, SXF, SXY	000100	\$ 0.10
	SCF	005000	\$ 5.00
Future Options	OBX, OBY, OBZ	000000	\$ 0.001
	Bid/Ask < \$0.01	000000	\$ 0.005
	Bid/Ask ≥ \$0.01	000000	\$ 0.005
	OGB	000005	\$ 0.005

Chapter 6 Marker Codes

6.1 Markers for Options

FIRST LETTER (CURRENCY OR TYPE OF MARKET)	
<u>Marker</u>	<u>Description</u>
B	Trading in British Pound
C	Trading in Canadian Dollar
D	Danish Krone
E	Trading in Swiss Franc
F	Trading in Euro
N	Norwegian Krone
S	Swedish Krona
U	Trading in US Dollar
Y	Trading in Japanese Yen
X	British Pence
2ND LETTER (TYPE OF OPTIONS)	
<u>Marker</u>	<u>Description</u>
Blank	Regular Options

6.2 Status Markers

STATUS		USED IN	
MARKER	DESCRIPTION	GROUP MESSAGES	INSTRUMENT MESSAGES
Y	Pre-opening phase	X	X
O	Opening phase	X	X
T	Opened for Trading	X	X
F	Forbidden phase	X	X
H	Trading Halted	X	X
R	Reserved phase (goes into a state as pre-opening where orders can be sent, modified, or canceled)		X

STATUS		USED IN	
MARKER	DESCRIPTION	GROUP MESSAGES	INSTRUMENT MESSAGES
S	Suspended phase (goes into a state as pre-opening where orders can be sent, modified, or canceled)		X
Z	Frozen		X
A	Surveillance Intervention phase (Consultation phase)	X	X
C	End-of-Day Inquiries phase	X	X
BLANK	If not used		

6.3 Price Indicator Markers

PRICE INDICATOR	
MARKER	DESCRIPTION
P	Strategy reporting
S	Reference price (volume field zero filled)
V	Volume adjustment (price field zero filled)
E	EFP reporting
B	Block trade
L	Late trade
A	As-of-trade
R	EFR reporting
I	Implied trade
BLANK	Actual transaction took place

6.4 Indicator Code

This code is used for Bid/Ask Size, Volume, and Open Interest.

MARKER	DESCRIPTION (THE SIZE OF THE BID/ASK FIELD IS IN ...)	
C	100	(Hundreds)
D	1,000	(Thousands)
E	10,000	(Ten-Thousands)
F	100,000	(Hundred-Thousands)
G	1,000,000	(Millions)
H	10,000,000	(Ten-Millions)

MARKER	DESCRIPTION (THE SIZE OF THE BID/ASK FIELD IS IN ...)	
I	100,000,000	(Hundred-Millions)
J	1,000,000,000	(Billions)

DATA	MESSAGE SENT	PARTICIPANT SHOULD DISPLAY...
Bid size of 124 872	Size field will indicate '1248C'	124 800
Volume of 8,457,188	Volume will indicate '8457188'	8,457,188
Volume of 258,487,797	Volume will indicate '2584877C'	258,487,700
Open Interest of 544,871	Size field will indicate '544871'	544871
Open Interest of 17,458,795	Size field will indicate '174587C'	17,458,700

6.5 Currency Codes

CURRENCY	
MARKER	DESCRIPTION
USD	US \$
CAD	Canadian \$
Blank	Not provided

Chapter 7 Strategies

7.1 How to Process Strategies

7.1.1 Message to Use

- NS (Strategy summary messages)
- J/JB/JF/JS (Instrument key messages for options, bond options, futures and strategies)

7.1.2 Process

1. For each J/JB/JF/JS message received, you should create and maintain a table of the couples "Symbols-Instrument External Code".
2. For each leg received in each NS messages:
 - We find the Instrument External Code link to the symbol legs in the table created at Step 1.
 - You generate the leg description by joining
 - Legs ratio sign
 - Legs ratio
 - Instrument External code
 - You remove all the insignificant " 0 " and spaces
3. You generate the strategy description by joining the legs description in their respective order in the NS message and you remove all the insignificant spaces

Example:

JB messages received:

JB0QOBXM5C0968753CAD0010000000001999990300001030000053BDM003B70
OX1PUOBXM05C96875 Couple (OBXM5C0968753, OBXM05C96875)

JB0QOBXM5P0968753CAD0010000000001999990300001030000053BDM003C70
OX9PUOBXM05P96875 Couple (OBXM5P0968753, OBXM05P96875)

NS message received:

NS0QCPOBX+1M5D+1M5D____+0000000000+0000000000+0000000+0000000+
0000000+0000000+000000000000000002+01OBXM5C0968753____+01OBXM5
P0968753_____

==> Number of legs: 2

==> 1st leg description: +1OBXM05C96875

==> 2nd leg description: +1OBXM05P96875

==> Strategy description: +1OBXM05C96875+1OBXM05P96875

7.2 Futures Spreads

LEG BEING BOUGHT			LEG BEING SOLD			BLANK
ROOT SYMBOL	MONTH CODE	EXPIRY YEAR	ROOT SYMBOL	MONTH CODE	EXPIRY YEAR	8
3 (ABC)	1 (M)	2 (08)	3 (ABC)	1 (U)	2 (08)	

The above table identifies a spread between the following two contracts 1) ABC June 2008 and ABC September 2008, June being bought and September being sold.

Note: Following a Spread between two BAX, CGB or SXF futures contract, a Message type **CF**-Future Trade - is transmitted for each of the BAX, CGB or SXF futures contract of the spread. These Messages type CF contain a Marker "**P**" (Strategy Reporting) to identify that a strategy has occurred. Furthermore, these messages will contain the volume of contracts traded to keep an up-dated volume at all times.

7.3 Futures Strips Symbology

ROOT SYMBOL	MONTH CODE OF THE FIRST CONTRACT IN THE STRIP	EXPIRY YEAR OF THE FIRST CONTRACT IN THE STRIP	TOTAL NUMBER OF LEGS IN THE STRIP	BLANK
3 (ABC)	1 (M)	2 (08)	2 (04)	12

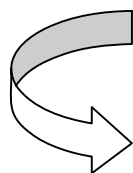
The above table identifies a 4 contract STRIP for ABC starting with June 2008 and ending with March 2009.

Note: Following a BAX Strip transaction, a Message type CF- Future Trade -is transmitted for each of the BAX futures contract of the strip. These Messages type CF contain a Marker "**P**"(Strategy Reporting) to identify that a strategy has occurred. Furthermore, these messages will contain the volume of contracts traded to keep an up-dated volume at all times.

7.3.1 BAX Strips Symbolology

The table below describes the BAX strips, and the difference between the old HSVF/CCDF symbolology and the SAM-HSVF symbolology.

BAX STRIPS	OLD TICKER HSVF/CCDF(STATIC)	SYMBOL ON THE SAM-HSVF PROTOCOL (NON-STATIC)	UNDERLYING BAX FUTURES
Red Strip	BAXW9	BAXU0304	Fifth to the eighth BAX Futures quarterly contract months listed.
Green Strip	BAXY9	BAXU0404	Ninth to the twelfth BAX Futures quarterly contract months listed.
1-Year Strip	BAXR9	BAXU0204	First four BAX Futures quarterly contract months listed.
2-Year Strip	BAXS9	BAXU0208	First eight BAX Futures quarterly contract months listed.
3-Year Strip	BAXT9	BAXU0212	First twelve BAX Futures quarterly contract months listed.



BAX U02	BAX Z02	BAX H03	BAX M03	BAX U03	BAX Z03	BAX H04	BAX M04	BAX U04	BAX Z04	BAX H05	BAX M05
1 Year Strip				Red Strip				Green Strip			
2 Year Strip											
3 Year Strip											

Note: The BAX Strip SAM-HSVF symbol will NOT be static and will change with every monthly expiration.

Chapter 8 Month Codes

8.1 Options

CALL OPTIONS		
A - January	E - May	I - September
B - February	F - June	J - October
C - March	G - July	K - November
D - April	H - August	L - December
PUT OPTIONS		
M - January	Q - May	U - September
N - February	R - June	V - October
O - March	S - July	W - November
P - April	T - August	X - December

8.2 Futures / Futures Options / Strategies

F - January	N - July
G - February	Q - August
H - March	U - September
J - April	V - October
K - May	X - November
M - June	Z - December

8.3 Market Feed Indicators

FIRST LETTER	TYPE OF INSTRUMENT	SECOND LETTER	TYPE OF UNDERLYING
F	Futures	U	Rate / Other
P	Options on Futures	X	Index
O	Options	E	Equities
U	Strategies on Options on Futures		
V	Strategies on Futures		
W	Strategies on Options		
Other indicator could be determined later			

Chapter 9 Bourse de Montréal Products

9.1 Futures

3-Month Canadian Bankers' Acceptance	BAX	3
S&P Canada 60 Index Futures	SXF	3
Ten-Year Government of Canada Bonds	CGB	3
Two-Year Government of Canada Bonds	CGZ	3
30-Day Overnight Repo Rate	ONX	7
Sectorial Futures	SXA/SXB/SXH/SXY	3
NGX WCS WTI Daily Weighted Crude Oil Index	WCH	B

9.2 Options

S&P Canada 60 Index Options	SXO	5
Options on the BAX Future	OBX	3
Options on the iUnits S&P/TSE 60 Index	XIU	3
Participation Fund (i60 Fund)		

Equity options (please refer to our Website at www.m-x.ca to have an updated list of all our equity options)

EXPIRY CYCLE (OPTIONS AND FUTURES)

1. January / April / July / October (3 months at a time).
 2. February / May / August / November (3 months at a time).
 3. March / June / September / December (3 months at a time for equity options, but 4 months for futures (BAX and CGB) and OBX future options).
 4. 3 consecutive months and at least two months of Cycle 3 for equity options. 3 consecutive months plus the next month of Cycle 3 for OGB future options.
 5. 2 consecutive months and at least two months of Cycles 1, 2 or 3
 6. January, March, May, June, September, November (3 months at a time).
 7. 4 consecutive months
- B - Any 12 month period.

Chapter 10 Operating Sequence

10.1 Overview of a Regular Trading Day (in EST)

INSTRUMENT	PRE-OPENING	OPENING	CLOSING
BAX (3-Month Cdn Bankers' Acceptance Futures)	5:30-6:00 am 7:45-8:00 am 3:00-3:09 pm	6:00 am 8:00 am 3:09 pm	7:45am 3:00 pm 4:00 pm
BAX Strategies (spreads/strips)	5:30-6:01 am 7:45-8:01 am 3:00-3:10 pm	6:01 am 8:01 am 3:10 pm	7:45am 3:00 pm 3:00 pm
ONX (30-Day Overnight Repo Rate Future)	5:30-6:00 am 7:45-8:00 am 3:00-3:06 pm	6:00 am 8:00 am 3:06 pm	7:45am 3:00 pm 3:30 pm
OBX (Options on the BAX)	7:30-8:00 am	8:00 am	3:00 pm
CGB (10-Year Gvnt of Canada Bonds Futures)	7:30-8:20 am 3:00-3:06 pm	8:20 am 3:06 pm	3:00 pm 3:30 pm
CGB Strategies (spreads)	7:30-8:20 am 3:00-3:06	8:20 am 3:06	3:00 pm 3:30 pm
CGZ (2-Year Gvnt of Canada Bonds Futures)	7:30-8:20 am 3:00-3:06 pm	8:20 am 3:06 pm	3:00 pm 3:30 pm
SXF (S&P Canada 60 Index Futures)	9:00-9:30 am	9:30 am	4:15 pm
SXF Strategies (spreads)	9:00-9:31 am	9:31 am	4:15 pm
SXA/SXB/SXH/SXY (Sectoral Futures)	9:00-9:30 am	9:30 am	4:15 pm
SXO (S&P Canada 60 Index Options)	9:00-9:31 am	9:31 am	4:15 pm
Equity options	7:00-9:35 am	9:35 am	4:00 pm

Note: The circuit assurance message will be sent every minute from the time the test loop is terminated to the end of transmission. Its sequence number will be in sequence with all other messages.

Re-transmissions can be sent any time between the end of the test loop and the end of transmission on a low priority basis so that real time data is not affected.

Chapter 11 Montréal Exchange Inc. Contacts

11.1 General Information

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800, square Victoria
Montréal (Québec)
H4Z 1A9
514-871-2424
www.m-x.ca

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