



QRTMD Alpha Level 2

AL2

Functional Specifications

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Chapter 1 Overview

This specification defines the communications interface and the information records transmitted on the Quantum RTMD (QRTMD) Alpha Level 2 (AL2) service.

The AL2 service is comprised of:

- Symbol and market status
- Trades
- Orders and confirmations

The Alpha Level 2 business content messages are formatted using the STAMP protocol syntax. STAMP, the Securities Trading Access Message Protocol, is the messaging protocol developed by the TSX for order entry. More details about the STAMP protocol are given in the *STAMP Specification* (Reference [1]).

To develop and implement systems that can receive and process AL2 data, this document must be used with the *Quantum RTMD Protocol Specification and Service Access Guide*.

1.1 Intended audience

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

All readers should familiarize themselves with Section 1.2 – Rule notation conventions, paying close attention to how the notation conventions are defined, as this notation is used throughout the specification.

Business analysts should focus primarily on Chapter 3, *Business Content Messages*, and Chapter 5, *Field Definitions*. These two sections define how the trading information is defined in the Alpha Level 2 service. In addition to these sections, the business analysts should be familiar with the trading rules and trading scenarios that these messages represent.

Programmer analysts should be familiar with the entire specification, although their focus should be on message structure and parsing.

1.2 Rule notation conventions

This section describes the notation convention for the elements of STAMP syntax used in the business content. Although the rules presented below are somewhat formal in nature, for casual reading of the specification all that is required is to keep in mind the following points:

- Text presented in a Consolas typeface font means that it is a rule that is defined in the *Field Definitions* starting on page 20.
- Any rule that is enclosed in square brackets, “[” and “]” means that the rule is optional.
- The spaces between the rules mean that the rules are joined together.

When appropriate, this specification uses an augmented Backus-Naur Form (BNF) notation, similar to that presented in *RFC 822 – Standard For The Format of ARPA Internet Text Messages* (Reference [7]). The differences from standard BNF involve naming rules and indicating repetition and “local” alternatives. Comments about a rule, such as the hexadecimal representation of a character, are introduced by a semicolon (“;”) in-line after the rule definition. All text after a semicolon until the end of a line forms the comment.

Rules are used throughout the text of the specification when appropriate to formally define a concept. All of the rules are gathered in the *Field Definitions* for convenience.

1.2.1 Rule naming

Angle brackets (“<”, “>”) are used below in the syntax definition of rules to identify rule components; these brackets are not used, in general, in the rule names. The name of a rule is simply the name itself, rather than “<name>”. Capitalized letters are used in names to highlight the meaning of the name.

1.2.2 Literal text

Quotation marks enclose literal text (which is case sensitive). Literal text appears as is in the message content.

1.2.3 Alternatives: Rule1 | Rule2

Elements separated by vertical line (“|”) are alternatives. Therefore, “[abc | def]” will accept abc or def.

1.2.4 Local alternatives: (Rule1 | Rule2)

Elements enclosed in parentheses are treated as a single element. Thus, “(elem (abc | def) elem)” allows the token sequences “elem abc elem” and “elem def elem”.

1.2.5 Repetition: *Rule

The character “*” preceding an element indicates repetition. The full form is:

<l>*<m>element

indicating at least <l> and at most <m> occurrences of element, with default values of 0 and infinity respectively.

So that “*(element)” allows any number, *including zero*; “1*element” requires at least one; and “1*2element” allows one or two.

If the repeated element is a `FieldIdentifier`, the repeated element will be represented in the datastream using the `FieldIdentifierIndex` notation as described in *Section 2 of the STAMP Specification*.

1.2.6 Optional: [Rule]

Square brackets enclose optional elements; for example, “[abc def]” is equivalent to “1*1(abc def)”. The square bracket notation is used in the message description.

1.2.7 Specific repetition: Nrule

“<n>(element)” is equivalent to “<n>*<n>(element)”; that is, exactly <n> occurrences of (element). Thus `2Digit` is a 2-digit number, and `3AlphaNumeric` is a string of three alphabetic characters. If the repeated element is a STAMP `FieldIdentifier`, the repeated element will be represented in the datastream using the `FieldIdentifierIndex` notation as described in *Section 2 of the STAMP Specification*.

1.2.8 Client/Server notation convention

For the purpose of this specification, “Client” (initial capital letter) refers to the computer application that “listens” for output messages from the Alpha Level 2 service.

Chapter 2 Message Structure

Business content in AL2 messages is coded in STAMP format. This portion of the message is formally described as follows:

```

MessageContent      =  ControlHeader BusinessContent [ControlTrailer]
ControlHeader       =  ControlHeaderChar ControlHeaderContent
ControlHeaderContent =  1*ControlHeaderField
ControlHeaderChar   =  <US-ASCII SOH> ; 0x01  Start of Heading
BusinessContent     =  BusinessContentChar 1*BusinessContentField
BusinessContentChar =  <US-ASCII FS> ; 0x1c  File Separator
ControlTrailer      =  ControlTrailerChar
ControlTrailerChar  =  <US-ASCII GS> ; 0x1d  Group Separator

```

2.1 Control Header Content

```

ControlHeaderContent =  DestAddress SequenceNumber TimeStamp
                      [LastSequenceReceived] [Retrans] [RetransId]
                      [SourceAddress]

```

The Alpha Level 2 services include the STAMP control layer header and trailer. The STAMP control header is described in detail in Reference [1]. The only STAMP header field that provides useful information in the context of Alpha Level 2 service is TimeStamp.

The ControlHeaderChar (0x01), BusinessContentChar (0x1c), and ControlTrailerChar (0x1d) separators are not explicitly mentioned in Chapter 3, *Business Content Messages*.

2.2 Business Content fields

Both the Control and Business Content Sections are further divided into *Fields*. Each field is made up of a field identifier and an optional field value. The identifiers and values are variable in length and content; the *Field Definitions* must be consulted for appropriate qualifying rules.

A field is divided into two sections; a field identifier and an optional field value. The FieldIdentifier is introduced by a FieldIdentifierChar. The optional FieldValue is introduced by the US-ASCII equals sign “=”. Note that it is possible to have a FieldIdentifier without a FieldValue, in which case the FieldValue assumes a default value (see the *Field Definitions*).

The formal notation for a field is:

BusinessContentField = FieldChar FieldIdentifier “=” [FieldValue]

FieldChar = <US-ASCII RS; Record Separator> ; 0x1e

Note: The FieldIdentifier and FieldValue listed in the *Field Definitions* are for reference only. Some of these fields are defined as part of the STAMP protocol but will never appear in the business content messages delivered with the AL2 service.

2.2.1 Field ordering

The order of the fields within a section of a STAMP message is position independent. They must only be of the *correct type* (e.g. the fields within the ControlHeader must be of the type ControlHeaderField), and may be in any order within the section.

2.2.2 Field Identifier

The *Field Identifier* is a number that is used as an index into the *Field Definitions* to identify the syntactic meaning of the field value. As an example, if the field identifier of a field was “55”, this would mean the field value was a stock symbol.

For repeating groups of field identifiers, a “dot” notation is used. If a message contains multiple occurrences of a field identifier, each occurrence is represented by an addition field identifier index. If there are linked groups of fields the index is used to link the elements syntactically. It is important to note that field indexes start at zero and are contiguous. Also, a field identifier without an explicit index is equivalent to an index of zero. Fields at the same index level are conceptually “records”.

Note that the contiguous nature of the index refers to the conceptual record not individual FieldIdentifiers. For example, a STAMP message with the following tags, “11.0=ABC”, “11.1=DEF”, “15.1=5”, would be valid and would represent a situation where tag 15 was optional and not present for the “0” record. There would, however, be at least one field at each index level.

The formal notation for a field identifier is:

FieldIdentifier = 1*4Digit [FieldIdentifierIndex]; 1 to 9999,
no default

FieldIdentifierIndex = “.” 1*4Digit ; 0 to 9999, default is 0

2.2.3 Field Value

The *Field Value* contains the value of the field. To use a previous example, if the identifier was “55” and the value was “BCE”, then the stock symbol for this message would be “BCE”.

The formal notation for a field value is:

FieldValue = 1*PrintableChar

2.2.4 PrivateKeyIdentifier tag handling

The BusinessContent of some AL2 messages will include the PrivateKeyIdentifier field (tag 165). Tag 165 is a leftover after separating the public data part of the feed prior to dissemination. When present, this tag should be ignored. If the message's BusinessContent consists of only the PrivateKeyIdentifier field, it should be ignored.

Chapter 3 Business Content Messages

The messages described in this section are the trading messages that are broadcast from the TMX to the Client.

3.1 Trading Tier Status Message

Alpha sends Trading Tier Status messages to the Client at the beginning of each trading day. The Trading Tier Status message provides statistical information to the trading community about the total number of:

- Stock groups per Trading Engine for the trading day.
- Symbols per Trading Engine for the trading day.
- Open orders per Trading Engine for the trading day.

TradingTierStatus Message	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessAction BusinessClass ExchangeId TotalNumOpenOrders TotalNumStockGroups TotalNumSymbols TradingSysTimeStamp TradingTierId
Where:		
BusinessClass	=	"MarketInfo"
BusinessAction	=	"TradingTierStatus"

3.2 SymbolStatus Message

SymbolStatus message provides information for an equity, debenture or trading instrument for the current trading day.

- The SymbolStatus message is available at the beginning of each trading day.
- SymbolStatus message provides information for an equity, debenture or trading instrument for the current trading day.
- The ProductType field indicates an equity or debenture security.
- The LastMessage tag indicates the completion for the Symbol Status messages.

SymbolStatusMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessAction BusinessClass Symbol TradingSysTimeStamp [AcceptAnonymous] [AcceptSDL] [AcceptUndisplayed] [BoardLot] [Currency] [CUSIP] [ExchangelId] [FaceValue] [LastMessage] [LastSale] [ListingMkt] [NumberOfMessages] [OpeningTime] [ProductType] [SpecialistName] [SpecialistPhoneNumber] [StockGroup] [StockHaltDate] [StockState] [SymbolFullName] [TotalNumMessages]
Where:		
BusinessClass	=	"SymbolInfo"
BusinessAction	=	"SymbolStatus"

3.3 OrderBook Message

OrderBook message provides the public information for all open orders in the market. The information is as of the end of the previous business day. Its purpose is to enable the initialization of the Client's trading book for the current trading session.

- The OrderBook message is available at the beginning of each trading day.
- The LastMessage tag indicates the completion for the OrderBook messages.

OrderBookMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessAction BusinessClass TradingSysTimeStamp [BrokerNumber] [ExchangeId] [LastMessage] [MarketSide] [NonResident] [NumberOfMessages] [OrderNumber] [PrivateKeyIdentifier] [PriorityTimeStamp] [PublicPrice] [SettlementTerms] [Symbol] [TotalNumMessages] [Volume]
Where:		
BusinessClass	=	"OrderInfo"
BusinessAction	=	"OrderBook"

3.4 Order/Cancel Confirmation Report

Alpha sends an Order/Cancel Confirmation Report in response to a new order or cancel being entered into the trading system.

An Order/Cancel Confirmation Report will confirm changes to the attributes of an existing order when they have been modified.

OrderCancelRespMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
PublicContent	=	BrokerNumber BusinessAction BusinessClass ConfirmationType OrderNumber PublicPrice Symbol TradingSysTimeStamp Volume [ByPass] [CFOdOrderNumber] [ExchangedId] [NonResident] [PriorityTimeStamp] [PriorityVolume] [SettlementTerms]
BusinessClass	=	"OrderCancelResp"
BusinessAction	=	"Buy" "Sell"
ConfirmationType	=	AssignTimePriority Booked Cancelled PriceAssigned

The following are the meanings of the ConfirmationType field:

"AssignTimePriority"	The order has been sequenced in the book according to its time priority. The PriorityTimeStamp indicates the new time stamp used for sequencing the order in the book.
"Booked"	The order has been entered in the book and is now eligible for matching.
"Cancelled"	The order has been cancelled by the submitting broker and is no longer in the book.
"PriceAssigned"	The order has been re-priced.

3.5 Trade Report

Alpha sends a Trade Report in response to a trade occurring on a previously accepted new order, CFO, or cross.

The Trade Report includes all relevant transaction details including the opposite broker number, remaining order volume and if the member acted as principal on the trade.

TradeReportMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	2BrokerNumber BusinessAction BusinessClass 2OrderNumber Price Symbol TradeNumber TradingSysTimeStamp Volume [ByPass] [CFOdOrderNumber] [CrossType] [2DisplayVolume] [ExchangedId] [ExtendedHours] [IsDark] [LastSale] [NonResident] [OrigTradeId] [2PriorityTimeStamp] [SettlementTerms] [TradeCorrection] [TradeTimeStamp]
Where:		
BusinessClass	=	"TradeReport"
BusinessAction	=	"Cancelled" "Trade"

Each trade consists of two fills. By convention, the first element of any two element field (.0) will refer to the buy side and the second element (.1) will refer to the sell side.

BusinessAction of "Cancelled" will appear in the Trade Report when the TSX Trading Services officer cancels a trade after it has been transacted.

3.6 Stock Status Notification

Alpha sends a Stock Status Notification in response to a change in stock status on the Trading Engine.

StockStatusMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessClass Symbol TradingSysTimeStamp [AcceptAnonymous] [AcceptSDL] [AcceptUndisplayed] [Comment] [Currency] [ExchangedId] [OpeningTime] [SpecialistName] [SpecialistPhoneNumber] [StockState]
Where:		
BusinessClass	=	"StockStatus"

3.7 Market State Change

Alpha sends Market State Change message whenever a notice of a market state change or a trading session change has been received from the Trading Engine.

MarketStateChangeMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessClass TradingSysTimeStamp [ExchangedId] [MarketState] [StockGroup]
Where:		
BusinessClass	=	"MarketStateChange"

3.8 General Message

Alpha sends a General message when it is generated by the Trading Engine.

GeneralMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SequenceNumber SourceAddress TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessClass MessageText TradingSysTimeStamp [BulletinIndicator] [ExchangeId]
Where:		
BusinessClass	=	"GeneralMessage"

3.9 MBX Message

MBX is a generic name for "Market By Order" or "Market By Price".

The MBX message provides additional information, beyond orders and fills, to a gateway building MBX displays. A BusinessAction of "AssignCOP" is used when specifying the Calculated Opening Price (COP), and the list of Participating OrderKeys that are not priced at the COP. A BusinessAction of "AssignLimit" is used when resetting former better-priced-limit orders to their true limits.

A complete MBX message may be broken into parts for transmission if the message is very large. This is handled using the MBX_PartNumber and MBX_TotalParts fields. These fields will only be present if the message has been broken into parts.

MBXMessage	=	ControlHeader BusinessContent
ControlHeaderContent	=	DestAddress SourceAddress SequenceNumber TimeStamp [Retrans] [RetransId]
BusinessContent	=	BusinessAction BusinessClass CalculatedOpeningPrice Symbol TradingSysTimeStamp [ExchangeId] [MBX_PartNumber] [MBX_TotalParts] [1*OrderKey] [1*Price]
Where:		
BusinessClass	=	"MBXMessage"
BusinessAction	=	"AssignCOP" "AssignLimit"

Note: MBX messages exceeding 1,400 characters in length will be delivered on multiple packets using the header Continuation Indicator described in the *Quantum RTMD Protocol Specification and Service Access Guide*. For an MBX message, broken parts will not generally be in a stand alone packet. All packets corresponding to a single logical MBX message must be reassembled by the receiver before attempting to parse the STAMP tags inside the message.

Chapter 4 Operating Sequence

4.1 Transmission times

Clients can listen on the AL2 port at any time during the day. The unsequenced Heartbeat message is transmitted every 60 seconds.

Start of the day TradingTierStatus, StockStatus and OrderBook messages are sent at the beginning of each trading day.

Transmission times for AL2 are Eastern Standard/Daylight Savings Time.

Please contact TMX Vendor Services for Operational hours.

4.2 Trading hours for Alpha

Marketplace	Regular Trading Session (EST)			Last Sale Trading Session (EST)		
	Pre-Open	Open	Close	Pre-Open	Open	Close
Alpha	7:00	9:30	16:00	N/A	16:15	17:00

Chapter 5 Field Definitions

A

AcceptAnonymous

Flag to indicate if a stock symbol is eligible to accept Anonymous orders.

```
FieldIdentifier = 110      ;
AcceptAnonymous = "Y" | "N" ; default is "Y"
```

AcceptSDL

Flag to indicate if a stock symbol is eligible to accept SeekDarkLiquidity orders.

```
FieldIdentifier = 622      ; XATS only
AcceptSDL       = "Y" | "N" ; default is "Y"
```

AcceptUndisplayed

Flag to indicate if a stock symbol is eligible for undisplayed orders.

```
FieldIdentifier = 605      ;
AcceptUndisplayed = "Y" | "N" ; default is "Y"
```

AlphaNumeric

Alphabetic and numeric characters.

```
AlphaNumeric = all US-ASCII character, 0x00 to 0x7f
```

B

BoardLot

Board lot volume.

```
FieldIdentifier = 115
BoardLot        = Volume ; no default
```

BrokerNumber

An exchange-assigned number identifying a Member Firm.

```
FieldIdentifier = 70
BrokerNumber    = 1*3Digit ; no default
```

BulletinIndicator

Indicates message is a bulletin.

```
FieldIdentifier = 317
BulletinIndicator = "Y" | "N" ; default is "N"
```

BusinessAction

The action to take for a BusinessContent section.

FieldIdentifier = 5 ; no default	Maximum 35 Characters
BusinessAction = "AssignCOP"	
"AssignLimit"	
"Buy"	
"Cancelled"	
"Cross"	
"DelayOpenStock"	

"OpenDelayedStock"	
"Sell"	
"Trade"	
"SymbolStatus"	
"OrderBook"	
"TradingTierStatus"	

BusinessClass

The message class for a Business Content Layer message.

FieldIdentifier = 6 ; no default	Maximum 35 Characters
BusinessClass = "GeneralMessage"	
"MarketStateChange"	
"MBXMessage"	
"OrderCancelResp"	
"StockStatus"	
"TradeReport"	
"MocImbalanceStatus"	
"MarketInfo"	
"SymbolInfo"	
"OrderInfo"	

BusinessContent

The business fields for a STAMP message.

BusinessContent = BusinessContentChar 1*BusinessContentField

BusinessContentChar

The character that introduces BusinessContent.

BusinessContentChar = <US-ASCII FS; File Separator> ; 0x1c

BusinessContentField

A field found in the Business Content section of a message.

ByPass

To indicate orders are tradable against only visible/disclosed volumes and bypasses iceberg orders, RT participation and autofill, and special terms book. Any part of the OrderQty balance not filled immediately is "killed/cancelled".

FieldIdentifier = 503 ;
ByPass = "Y" | "N" ; default "N"

C**CalculatedOpeningPrice**

The price at which orders will trade at the opening.

FieldIdentifier = 191
CalculatedOpeningPrice = Price ; no default

CFOdOrderNumber

The original order number of the order that was CFOD.

FieldIdentifier = 11
CFOdOrderNumber = OrderNumber ; no default;

Comment

A text field corresponding to a reason code entered by Market Surveillance 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.

FieldIdentifier = 173
 Comment = 1*40AlphaNumeric ; no default

ConfirmationType

The type of confirmation for a report.

FieldIdentifier = 16
 ConfirmationType = "AssignTimePriority" |
 "Booked" |
 "Cancelled" |
 "PriceAssigned" |

ControlHeader

The portion of the STAMP message that contains administrative information.

ControlHeader = ControlHeaderChar 1*ControlHeaderField

ControlHeaderChar

The character that introduces ControlHeader.

ControlHeaderChar = <US-ASCII SOH; Start of Heading> ; 0x01

ControlHeaderField

A field found in the ControlHeader section of a message.

CrossType

Type of crosses originating from a Participating Organization between managed accounts that have the same manager.

FieldIdentifier = 390 ; no default
 CrossType = "Basis" ; Basis |
 "Contgt" ; Contingent |
 "Intrnl" ; Internal |
 "STS" ; Special Trading Session |
 "VWAP" ; Volume Weighted Average Price

Currency

The currency of a price.

FieldIdentifier = 58
 Currency = "CAD" ; default |
 "USD"

CUSIP

Clearing and settlement registration number.

FieldIdentifier = 171
 CUSIP = 9*12AlphaNumeric ; no default

D**Date**

The date format.

Date = 8Digit ; in YYYYMMDD format

DestAddress

The destination STAMP address.

```
FieldIdentifier = 17
DestAddress    = DirectedAddress | BroadcastAddress ; no default
```

Note that only servers are allowed to use BroadcastAddress.

Digit

Representation of numeric values.

```
Digit = "0" | "1" | "2" | "3" | "4" | "5" | "6" | "7" | "8" | "9"
```

DirectedAddress

A specific STAMP address.

```
DirectedAddress = 8Hexadecimal ; 4 bytes (00000000 is reserved)
```

The value is a 4-byte value encoded in 8-byte hexadecimal format. Please refer to the *STAMP Assigned Addresses* document for details as to how these numbers are assigned.

DisplayVolume

Public remaining volume.

```
FieldIdentifier = 150
DisplayVolume  = Volume
```

E**Empty**

Nothing.

```
Empty = ""
```

ExchangeId

Identifies the exchange from which the message originated.

```
FieldIdentifier = 247
ExchangeId     = "CDX" |
                 "CD1" |
                 "CD2" |
                 "CD3" |
                 "TSE" |
                 "TS1" |
                 "TS2" |
                 "TS3" |
                 "ALM" |
```

F**FaceValue**

The face value of a debenture.

```
FieldIdentifier = 119
FaceValue      = Price ; no default
```

Field

A unit within a section that includes a FieldIdentifier and an optional FieldValue.

```
Field = FieldChar FieldIdentifier "=" [FieldValue]
```


FieldChar

The character that introduces a field.

FieldChar = <US-ASCII RS; Record Separator> ; 0x1e

FieldIdentifier

The value that identifies what the field means.

FieldIdentifier = 1*4Digit [FieldIdentifierIndex] ; 1 to 9999, no default

FieldIdentifierIndex

An instance of a specific field within a message.

FieldIdentifierIndex = “.” 1*4Digit ; 0 to 9999, default is 0

FieldValue

The value of the field.

FieldValue = 1*PrintableChar

H**Hexadecimal**

Hexadecimal number representation.

Hexadecimal = Digit | “a” | “b” | “c” | “d” | “e” | “f”

I**IsDark**

Indicates at least one side of the trade is IntraSpread™ dark.

FieldIdentifier = 617 ; XATS only
IsDark = “Y” | “N”

L**LastMessage**

A marker to indicate that the current query response is the last in a series. It varies, depending on the type of message:

SymbolStatus message: Set the LastMessage indicator to ‘Y’ on the last symbol message in the stock group

OrderBook message: Set the LastMessage indicator to ‘Y’ on the last open order message in the stock group

FieldIdentifier = 113
LastMessage = “Y” | “N” ; default is “N”

LastSale

Last sale price of a stock.

FieldIdentifier = 114
LastSale = NumericPrice ; no default

LastSequenceReceived

The last sequence number received.

FieldIdentifier = 15
LastSequenceNumber = SequenceNumber ; no default

ListingMkt

The market on which the security is listed.

FieldIdentifier = 554
 ListingMkt = "CDX" | "TSE" | "ALM" ; no default

M**MarketSide**

The buy or sell side of the market.

FieldIdentifier = 197
 MarketSide = "Buy" | "Sell" ; no default

MarketState

The indication of the current market state.

FieldIdentifier = 159
 MarketState = "Pre-open" |
 "Opening" |
 "Open" |
 "Closed" |
 "Extended Hours Open" |
 "Extended Hours Close" |
 "Extended Hours CXLs" |
 "MOC Imbalance" |
 "CCP Determination" |
 "PriceMovementExtension" |
 "Closing"

MessageText

The description for a trading system generated message.

FieldIdentifier = 160
 MessageText = 1*1024PrintableChar ; no default

N**NonResident**

A terms marker indicating that trade participant is not a Canadian resident.

FieldIdentifier = 168
 NonResident = "Y" | "N" ; default is "N"

NumberOfMessages

Number of messages contained in the query response.

Symbol Status message: Assign incremental numbers for each symbol message in the stock group

Order Book message: Assign incremental numbers for each open order message in the stock group

FieldIdentifier = 111
 NumberOfMessages = 1*8Digit ; no default

NumericPrice

A price in a currency.

NumericPrice = 1*6Digit ["." 1*5Digit]

O

Opening Time

Contained in the Symbol Status.

Field Identifier = 120

OrderKey

Unique key identifying orders in the system.

FieldIdentifier = 192 ; XATS

OrderKey = BrokerNumber "|" OrderNumber ; no default

OrderNumber

A number assigned to the order by the trading system.

FieldIdentifier = 40 ; no default

OrderNumber = 1*18AlphaNumeric

OrigTradeID

Used with trade corrections to reference previously reported executions and the side initiating the cancel/correct

FieldIdentifier = 506 ;

OrigTradeID = Trade # | Side (B=Buy; S=Sell ; C = combined Indicator for both sides) |

P

Price

The limit or type of price for an order.

FieldIdentifier = 41

Price	= NumericPrice	
	"MKT" ; Market Price, default	
	"OPG" ; Opening Price	
	"MBF" ; Must Be Filled	

PrintableASCII

Characters that have a glyph from the US-ASCII character set.

PrintableASCII = <any printable char from US-ASCII char set plus HT>
; 0x09, 0x20 to 0x3c, 0x3e to 0x7e

PrintableChar

Characters that have a glyph.

PrintableChar = PrintableASCII | PrintableLatin1

PrintableLatin1

Characters that have a glyph from the Latin 1 character set.

PrintableLatin1 = <any printable char from Latin 1 char set> ; 0xa1 to 0xff

PriorityTimeStamp

Timestamp assigned by the trading engine to specify time priority of an order. Orders are sequenced in the order book based on symbol, price and PriorityTimeStamp.

FieldIdentifier = 178
 PriorityTimeStamp = 20Digit ; YYYYMMDDHHMMSSmmmmmm (year, month, day, hour, minute, second, millionths of a second)

PriorityVolume

The volume of the order that has priority.

FieldIdentifier = 68
 PriorityVolume = Volume ; no default

PrivateKeyIdentifier

The business fields for a message.

FieldIdentifier = 165
 PrivateKeyIdentifier = 1*4Digit

The PrivateKeyIdentifier identifies the entity that has the necessary key codes to decrypt the corresponding PrivateContent in a message (if present this tag should be ignored as it is not applicable to AL2 messages.)

ProductType

The product type for a symbol.

FieldIdentifier = 105
 ProductType = "CDNX-Equity" | ;
 "CDNX-Debenture" | ;
 "Debenture" |
 "Equity"

PublicPrice

The public price of an order (specifically different than the 'private' price for some pre-open orders).

FieldIdentifier = 196
 PublicPrice = Price ; no default

R**Retrans**

A marker that indicates the message is a retransmitted message.

FieldIdentifier = 97
 Retrans = "Y" | "N" ; default is "N"

RetransId

An identifier as to which retransmission request caused the retransmission.

FieldIdentifier = 147
 RetransId = 1*5AlphaNumeric ; no default

S

SequenceNumber

The sequence number of the message.

FieldIdentifier = 50
SequenceNumber = 1*9Digit ; 0 to 999,999,999 ; no default

SettlementTerms

The terms for settlement of the order.

FieldIdentifier = 53 ; no default; TSX, TSXV, and XATS
SettlementTerms = "Cash" |
"CT" | ; cash today
Date | ; delayed delivery date
"MS" | ; derivatives-related contingent equity trade
"NN" ; non-net, TSX and XATS only

SourceAddress

The source STAMP address.

FieldIdentifier = 54
SourceAddress = DirectedAddress ; no default

SpecialistName

The stock specialist's or odd lot trader's full name.

FieldIdentifier = 199 ; XATS
SpecialistName = 1*30AlphaNumeric ; default is none

SpecialistPhoneNumber

Phone number for the Specialist trader or odd lot trader on the stock.

FieldIdentifier = 312 ; XATS
SpecialistPhoneNumber = 1*30AlphaNumeric ; default is none

StockGroup

An indicator of stock group.

FieldIdentifier = 282
StockGroup = 1*2Digit ; no default

StockHaltDate

The date on which the stock was halted.

FieldIdentifier = 80
StockHaltDate = Date ; no default

StockState

The possible states that a stock may be in that are broadcast.

FieldIdentifier = 161
StockState = "Authorized" |
"AuthorizedDelayed" |
"AuthorizedFrozen" |
"AuthorizedHalted" |
"Inhibited" |
"InhibitedDelayed" |

"InhibitedFrozen"	
"InhibitedHalted"	
"AuthorizedPriceMovementDelayed"	
"AuthorizedPriceMovementFrozen"	
"InhibitedPriceMovementDelay"	
"InhibitedPriceMovementFrozen"	

Symbol

The security/issue symbol.

FieldIdentifier = 55
 Symbol = 1*17AlphaNumeric ; no default

SymbolFullName

The security/issue symbol's complete company name.

FieldIdentifier = 177
 SymbolFullName = 1*80PrintableASCII ; no default

T**TimeStamp**

The time at which the STAMP message was sent.

FieldIdentifier = 56 ; no default
 TimeStamp = 16Digit ; YYYYMMDDHHMMSShh (year, month, day, hour
 ; minute, second, hundredths of a second)

Note that for a retransmitted message, the value of TimeStamp is the time of the retransmission, not the transmission time of the original message.

TotalNumMessages

The total number of messages expected for a query response.

- **Symbol Status** message: Total number of symbols per stock group
- **Order Book** message: Total number of open orders per stock group

FieldIdentifier = 112
 TotalNumMessages = 1*8Digit ; no default

TotalNumOpenOrders

The total number of open orders per trading tier and Exchangeld.

FieldIdentifier = 581 ;
 TotalNumOpenOrders = 1*7Digit ; 0 to 9,999,999

TotalNumStockGroups

The total number of stock groups per trading tier and Exchangeld.

FieldIdentifier = 582 ;
 TotalNumStockGroups = 1*3Digit

TotalNumSymbols

The total number of stocks per trading tier and Exchangeld.

FieldIdentifier = 583 ;
 TotalNumSymbols = 1*5Digit

TradeCorrection

An indicator as to whether the Trade Report is a trade correction or a normal fill.

FieldIdentifier = 183

TradeCorrection = "Y" | "N" ; default is "N"

TradeNumber

Unique identifier assigned to each trade on a per stock basis.

FieldIdentifier = 220

TradeNumber = 1*7Digit ; no default

TradeTimeStamp

The time at which the trade occurred, manually set when a trade is added by XATS.

FieldIdentifier = 264

TradeTimeStamp = 16Digit ; YYYYMMDDHHMMSShh (year, month, day, hour
; minute, second, hundredths of a second)

TradingSysTimeStamp

The time at which the BusinessAction occurred.

FieldIdentifier = 57

TradingSysTimeStamp = 16Digit ; YYYYMMDDHHMMSShh (year, month, day, hour
; minute, second, hundredths of a second)

TradingTierId

A Trading Engine identifier.

FieldIdentifier = 584 ;

TradingTierId = 1*9Alphanumeric

V**Volume**

The quantity of shares for an order or a fill report.

FieldIdentifier = 64

Volume = 1*9Digit ; no default

Chapter 6 Field Identifiers by Numerical Order

1	RESERVED	40	OrderNumber
2	RESERVED	41	Price
3	RESERVED	42	RESERVED
4	RESERVED	43	RESERVED
5	BusinessAction	44	RESERVED
6	BusinessClass	45	RESERVED
7	RESERVED	46	RESERVED
8	RESERVED	47	RESERVED
9	RESERVED	48	RESERVED
10	RESERVED	50	SequenceNumber
11	CFOdOrderNumber	51	RESERVED
12	RESERVED	52	RESERVED
13	RESERVED	53	SettlementTerms
14	RESERVED	54	SourceAddress
15	LastSequenceReceived	55	Symbol
16	ConfirmationType	56	TimeStamp
17	DestAddress	57	TradingSysTimeStamp
18	RESERVED	58	Currency
19	RESERVED	59	RESERVED
20	RESERVED	60	RESERVED
21	RESERVED	61	RESERVED
22	RESERVED	62	RESERVED
23	RESERVED	63	RESERVED
24	RESERVED	64	Volume
25	RESERVED	65	RESERVED
26	RESERVED	67	RESERVED
27	RESERVED	68	PriorityVolume
28	RESERVED	69	RESERVED
29	RESERVED	70	BrokerNumber
30	RESERVED	71	RESERVED
31	MinimumFillVolume	72	RESERVED
32	RESERVED	73	RESERVED
33	RESERVED	74	LotsOf
34	RESERVED	75	RESERVED
35	RESERVED	76	ExtendedHours
36	RESERVED	77	RESERVED
37	RESERVED	78	RESERVED
38	RESERVED	79	RESERVED
39	RESERVED	80	StockHaltDate

81	RESERVED	123	RESERVED
82	RESERVED	124	RESERVED
83	RESERVED	125	RESERVED
84	RESERVED	126	RESERVED
85	RESERVED	127	RESERVED
86	RESERVED	128	RESERVED
87	RESERVED	129	RESERVED
88	RESERVED	130	RESERVED
89	RESERVED	131	RESERVED
90	RESERVED	132	RESERVED
91	RESERVED	133	RESERVED
92	RESERVED	134	RESERVED
93	RESERVED	135	RESERVED
94	RESERVED	136	RESERVED
95	RESERVED	137	RESERVED
96	RESERVED	138	RESERVED
97	Retrans	139	RESERVED
98	RESERVED	140	RESERVED
99	RESERVED	141	RESERVED
100	RESERVED	142	RESERVED
101	RESERVED	143	RESERVED
102	RESERVED	144	RESERVED
103	RESERVED	145	RESERVED
104	RESERVED	146	RESERVED
105	ProductType	147	RetransId
106	RESERVED	148	RESERVED
107	RESERVED	149	RESERVED
108	RESERVED	150	Display Volume
109	RESERVED	151	RESERVED
110	AcceptAnonymous	152	RESERVED
111	NumberOfMessages	153	RESERVED
112	TotalNumMessages	154	RESERVED
113	LastMessage	155	RESERVED
114	LastSale	156	RESERVED
115	BoardLot	157	RESERVED
116	RESERVED	158	RESERVED
117	EquityStatus	159	MarketState
118	RESERVED	160	MessageText
119	FaceValue	161	StockState
120	OpeningTime	162	RESERVED
121	RESERVED	163	RESERVED
122	RESERVED	164	RESERVED

165	PrivateKeyIdentifier	210	RESERVED
166	DELETED	211	RESERVED
167	DELETED	212	RESERVED
168	NonResident	213	RESERVED
169	RESERVED	214	RESERVED
170	RESERVED	215	RESERVED
171	CUSIP	216	RESERVED
172	RESERVED	217	RESERVED
173	Comment	218	RESERVED
174	RESERVED	219	RESERVED
177	SymbolFullName	220	TradeNumber
178	PriorityTimeStamp	221	RESERVED
179	RESERVED	222	RESERVED
180	RESERVED	223	RESERVED
181	RESERVED	224	RESERVED
182	RESERVED	225	RESERVED
183	TradeCorrection	226	RESERVED
184	RESERVED	227	RESERVED
185	RESERVED	228	RESERVED
186	RESERVED	229	RESERVED
187	RESERVED	230	RESERVED
188	RESERVED	231	RESERVED
189	RESERVED	232	RESERVED
190	RESERVED	233	RESERVED
192	OrderKey	234	RESERVED
193	RESERVED	235	RESERVED
194	MBX-PartNumber	236	RESERVED
195	MBX-TotalParts	237	RESERVED
196	PublicPrice	238	RESERVED
197	MarketSide	239	RESERVED
198	RESERVED	240	RESERVED
199	SpecialistName	241	RESERVED
200	RESERVED	242	RESERVED
201	RESERVED	243	RESERVED
202	RESERVED	244	RESERVED
203	RESERVED	245	RESERVED
204	RESERVED	246	RESERVED
205	RESERVED	247	Exchangeld
206	RESERVED	248	RESERVED
207	RESERVED	249	RESERVED
208	RESERVED	250	RESERVED
209	RESERVED	251	RESERVED

252	RESERVED	294	RESERVED
253	RESERVED	295	RESERVED
254	RESERVED	296	RESERVED
255	RESERVED	297	RESERVED
256	RESERVED	298	RESERVED
257	RESERVED	299	RESERVED
258	RESERVED	300	RESERVED
259	RESERVED	301	RESERVED
260	RESERVED	302	RESERVED
261	RESERVED	303	RESERVED
262	RESERVED	304	RESERVED
263	RESERVED	305	RESERVED
264	TradeTimeStamp	306	RESERVED
265	RESERVED	307	RESERVED
266	RESERVED	308	RESERVED
267	RESERVED	309	RESERVED
268	RESERVED	310	RESERVED
269	RESERVED	311	RESERVED
270	RESERVED	312	SpecialistPhoneNumber
271	RESERVED	313	RESERVED
272	RESERVED	314	RESERVED
273	RESERVED	315	RESERVED
274	RESERVED	316	RESERVED
275	RESERVED	317	BulletinIndicator
276	RESERVED	318	RESERVED
277	RESERVED	319	RESERVED
278	RESERVED	320	RESERVED
279	RESERVED	321	RESERVED
280	RESERVED	322	RESERVED
281	RESERVED	323	RESERVED
282	StockGroup	324	RESERVED
283	RESERVED	325	RESERVED
284	MGF-Setting	326	RESERVED
285	RESERVED	327	RESERVED
286	RESERVED	328	RESERVED
287	RESERVED	329	RESERVED
288	RESERVED	330	RESERVED
289	RESERVED	331	RESERVED
290	RESERVED	332	RESERVED
291	RESERVED	333	RESERVED
292	RESERVED	334	RESERVED
293	RESERVED	335	RESERVED

336	RESERVED	378	RESERVED
337	RESERVED	379	RESERVED
338	RESERVED	380	RESERVED
339	RESERVED	381	RESERVED
340	RESERVED	382	RESERVED
341	RESERVED	383	RESERVED
342	RESERVED	384	RESERVED
343	RESERVED	385	RESERVED
344	RESERVED	386	RESERVED
345	RESERVED	387	RESERVED
346	RESERVED	388	RESERVED
347	RESERVED	389	RESERVED
348	RESERVED	390	CrossType
349	RESERVED	391	RESERVED
350	RESERVED	392	TradeThroughExempt
351	RESERVED	393	RESERVED
352	RESERVED	394	RESERVED
353	RESERVED	395	RESERVED
354	RESERVED	396	RESERVED
355	RESERVED	397	RESERVED
356	RESERVED	398	RESERVED
357	RESERVED	399	RESERVED
358	RESERVED	400	RESERVED
359	RESERVED	401	RESERVED
360	RESERVED	402	RESERVED
361	RESERVED	403	RESERVED
362	RESERVED	404	RESERVED
363	RESERVED	405	RESERVED
364	RESERVED	406	RESERVED
365	RESERVED	407	RESERVED
366	RESERVED	408	RESERVED
367	RESERVED	409	RESERVED
368	RESERVED	410	RESERVED
369	RESERVED	411	RESERVED
370	RESERVED	412	RESERVED
371	RESERVED	413	RESERVED
372	RESERVED	414	RESERVED
373	RESERVED	415	RESERVED
374	RESERVED	416	RESERVED
375	RESERVED	417	RESERVED
376	RESERVED	418	RESERVED
377	RESERVED	419	RESERVED

420	RESERVED	462	RESERVED
421	RESERVED	463	RESERVED
422	RESERVED	464	RESERVED
423	RESERVED	465	RESERVED
424	RESERVED	466	RESERVED
425	RESERVED	467	RESERVED
426	RESERVED	468	RESERVED
427	RESERVED	469	RESERVED
428	RESERVED	470	RESERVED
429	RESERVED	471	RESERVED
430	RESERVED	472	RESERVED
431	RESERVED	473	RESERVED
432	RESERVED	474	RESERVED
433	RESERVED	475	RESERVED
434	RESERVED	476	RESERVED
435	RESERVED	477	RESERVED
436	RESERVED	478	RESERVED
437	RESERVED	479	RESERVED
438	RESERVED	480	RESERVED
439	RESERVED	481	RESERVED
440	RESERVED	482	RESERVED
441	RESERVED	483	RESERVED
442	RESERVED	484	RESERVED
443	RESERVED	485	RESERVED
444	RESERVED	486	RESERVED
445	RESERVED	487	RESERVED
446	RESERVED	488	RESERVED
447	RESERVED	489	RESERVED
448	RESERVED	497	RESERVED
449	RESERVED	498	RESERVED
450	RESERVED	499	RESERVED
451	RESERVED	500	RESERVED
452	RESERVED	503	ByPass
453	RESERVED	506	OrigTradeID
454	RESERVED	554	ListingMkt
455	RESERVED	580	DELETED
456	RESERVED	581	TotalNumOpenOrders
457	RESERVED	582	TotalNumStockGroups
458	RESERVED	583	TotalNumSymbols
459	RESERVED	584	TradingTierId
460	RESERVED	585	RESERVED
461	RESERVED	586	RESERVED

587	RESERVED	612	RESERVED
588	RESERVED	613	RESERVED
589	RESERVED	614	RESERVED
590	RESERVED	615	RESERVED
591	RESERVED	616	RESERVED
592	RESERVED	617	IsDark
593	RESERVED	618	RESERVED
594	RESERVED	619	RESERVED
605	AcceptUndisplayed	620	RESERVED
606	RESERVED	621	RESERVED
607	RESERVED	622	AcceptSDL
608	RESERVED		
609	RESERVED		
610	RESERVED		
611	RESERVED		

Chapter 7 Field Identifiers by Alphabetical Order

This section lists the subset of STAMP tags (public fields) used in the AL2 business content.

110	AcceptAnonymous	192	OrderKey
622	AcceptSDL	40	OrderNumber
605	AcceptUndisplayed	506	OrigTradeID
115	BoardLot	41	Price
70	BrokerNumber	178	PriorityTimeStamp
317	BulletinIndicator	68	PriorityVolume
5	BusinessAction	165	PrivateKeyIdentifier
6	BusinessClass	105	ProductType
503	ByPass	196	PublicPrice
191	CalculatedOpeningPrice	97	Retrans
11	CFOdOrderNumber	147	RetransId
173	Comment	50	SequenceNumber
16	ConfirmationType	53	SettlementTerms
390	CrossType	54	SourceAddress
58	Currency	199	SpecialistName
171	CUSIP	312	SpecialistPhoneNumber
17	DestAddress	282	StockGroup
150	Display Volume	80	StockHaltDate
117	EquityStatus	176	StockIndex
247	Exchangeld	161	StockState
76	ExtendedHours	55	Symbol
119	FaceValue	177	SymbolFullName
617	IsDark	56	TimeStamp
113	LastMessage	112	TotalNumMessages
114	LastSale	581	TotalNumOpenOrders
15	LastSequenceReceived	582	TotalNumStockGroups
554	ListingMkt	583	TotalNumSymbols
74	LotsOf	183	TradeCorrection
197	MarketSide	220	TradeNumber
159	MarketState	392	TradeThroughExempt
194	MBX-PartNumber	264	TradeTimeStamp
195	MBX-TotalParts	57	TradingSysTimeStamp
160	MessageText	584	TradingTierId
31	MinimumFillVolume	64	Volume
168	NonResident		
111	NumberOfMessages		
120	OpeningTime		

Appendix A Symbology Rules

Description	Symbology
Debenture	.DB
Installment	.IR
Preferred Share	.PR
Preferred Share	.PE
Preferred Share	.PF
Rights	.RT
Notes	.NO
Notes	.NS
Notes	.NT
Units	.UN
Warrants	.WT
Class	See table below for Share Classes

A.1 Share Classes

Description	Descriptor
Class A, B, C, X	.A, .B, .C
Equity Dividend	.E
Capital Pool Company	.P
Legended Share	.L
BOOMS	.M
Subscription Receipt	.R
Second Subscription Receipts	.N
Third Subscription Receipts	.O
U.S. Trading Terms	.S
Second U.S. Trading Terms	.T
USD Traded Issue	.U
Second USD Traded Issue	.V
When Issued	.W
Second When Issued	.I
Redeemable Common Shares	.Y

A.2 Symbology Notes

Description	Note	Example
All	Symbol Roots can be 1, 2 or 3 digits in length	A – valid AB – valid ABC – valid ABCD – not valid
All	In limited cases, common and preferred shares can have different symbol roots. These cases arise when a company name change is only applicable to common share issues but preferred shares remain under the old company name	TransAlta Corp Common share – TA Preferred share – TAU.PR.A
All	A symbol cannot contain two single letter extensions	ABC.XX.Y – valid ABC.X.Y – not valid
Preferred Share	.PR, .PE, .PF extension must be followed by a second, single letter, extension	ABC.PR.A
Unit	.UN extension cannot be followed by a second, single letter, extension. A second Unit issue for the same issuer will be denoted with a single letter extension	1st Unit Issue – ABC.UN 2nd Unit Issue – ABC.A
Warrant	.WT extension can be followed by a single letter extension for additional warrant issues	1st Warrant – ABC.WT 2nd warrant – ABC.WT.A
Right	.RT extension can be followed by a single letter extension for additional rights issues	1st Right – ABC.RT 2nd Right – ABC.RT.A
Debenture	.DB extension can be followed by a single letter extension for additional debenture issues	1st debenture – ABC.DB 2nd debenture – ABC.DB.A

Appendix B ASCII Character Set

HEX	ASCII	HEX	ASCII	HEX	ASCII
00	NUL	2D	-	5A	Z
01	SOH	2E	.	5B	
02	STX	2F	/	5C	
03	ETX	30	0	5D	
04	EOT	31	1	5E	
05	ENQ	32	2	5F	
06	ACK	33	3		
07	BEL	34	4	5B	
08	BS	35	5	5C	
09	HT	36	6	5D	
0A	LF	37	7	5E	
0B	VT	38	8	60	
0C	FF	39	9	61	a
0D	CR	3A		62	b
0E	SO	3B		63	c
0F	SI	3C		64	d
10	DLE	3D		65	e
11	DC1	3E		66	f
12	DC2	3F		67	g
13	DC3	40	@	68	h
14	DC4	41	A	69	i
15	NAK	42	B	6A	j
16	SYN	43	C	6B	k
17	ETB	44	D	6C	l
18	CAN	45	E	6D	m
19	EM	46	F	6E	n
1A	SUB	47	G	6F	o
1B	ESC	48	H	70	p
1C	FS	49	I	71	q
1D	GS	4A	J	72	r
1E	RS	4B	K	73	s

HEX	ASCII	HEX	ASCII	HEX	ASCII
1F	US	4C	L	74	t
20	SP	4D	M	75	u
21	!	4E	N	76	v
22	"	4F	O	77	w
23	#	50	P	78	y
24	\$	51	Q	79	z
25	%	52	R	7A	
26	&	53	S	7B	
27	'	54	T	7C	
28	(55	U	7D	
29)	56	V	7E	
2A	*	57	W	7F	DEL
2B	+	58	X		
2C	,	59	Y		

Appendix C Glossary

AL1	Alpha Level 1
AL2	Alpha Level 2
ARPA	Advanced Research Projects Agency
ASCII	American Standard Code for Information Interchange
BNF	Backus Naur Form
CAD	Canadian dollar
CDNX	TSX Venture Exchange
CFO	Change Former Order
COP	Calculated Opening Price
CUSIP	Committee on Uniform Security Identification Procedures
CXL	Cancel
DES	Data Encryption Standard
EST	Eastern Standard Time
ETX	End Of Text
MBX	Market By (Order or Price)
MGF	Minimum Guaranteed Fill
MKT	Market Price
OPG	Opening Price
RFC	Request for Comment
QRTMD	Quantum RTMD
STAMP	Securities Trading Access Message Protocol
STX	Start Of Text
TMXS	TMX Select
TSX	Toronto Stock Exchange
TSXV	TSX Venture Exchange
USD	United States dollar
XATS	Alpha Trading Systems Limited Partnership, Alpha

Appendix D References

- [1] *STAMP Specification*, Version 6.4, TMX Group, November 2012.
- [2] *QRTMD Protocol Specification and Service Access Guide*, Version 2.0, TMX Group, December 2012.
- [3] *QRTMD AL1 Functional Specifications*, Version 1.01, TMX Group, January 2013.
- [4] *RFC 791, Internet Protocol*, J. Postel, September 1981, <http://www.ietf.org>.
- [5] *RFC 792, Internet Control Message Protocol*, J. Postel, September 1981, <http://www.ietf.org>.
- [6] *RFC 793, Transmission Control Protocol*, J. Postel, September 1981, <http://www.ietf.org>.
- [7] *RFC 822, Standard for the Format of ARPA Internet Text Messages*, David M. Crocker, August 1982, <http://www.ietf.org>.
- [8] *RFC 2117, Protocol Independent Multicast Sparse Mode*, D. Estrin et al, June 1997, <http://www.ietf.org>.
- [9] *RFC 2770, GLOP Addressing in 233/8*, <http://www.ietf.org>.

Appendix E Revision History

Version	Date	Changes
1.02	2013/03/15	Changed all occurrences of tag 613, SeekDarkLiquidity, to tag 622, AcceptSDL.
1.01	2013/01/08	Added information about QRTMD Protocol Specification and Service Access Guide to Introduction. Removed \$ for Currency values "CAD" and "USD".
1.0	2012/12/10	Initial release.



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