ASEAN Link
FAST Rules Of Engagement

September 2012

Table of Contents

Document Update

Document Update			
Versions	**Written by**	**Comments**	**Date**
1.0	jfm	Initial version.	November 2011
1.1	jfm	Added tag Indicator1 (10085). Changed tag number for CFICode to 461. Added RoundLot (561). Removed SignatureLength (93) and Signature (264). Added tick size tables for each exchange. Added missing CFICode. Replaced Security Definition Request with Security List Request. Added comments about when TestReqID (112) is required in a Heartbeat. Added exchanges supporting SecurityID (48). Added maximum length for tag Symbol (55). Added BM values for TradingPhase (10140). Updated BM values for SuspensionIndicator (10013). Added Session Management section.	November 2011
1.2	jfm, jnya	Updated title page, header and colors. Changed format to highlight fields being part of a repeating group.	December 2011
1.3	jfm	Added username and password in Logon message. Removed tag HeartBtInt (108) in Logon message. Added tags SecurityDesc (107), GroupNumber (10037), LocalCode (10042) and SubSegment (18000) in the SecurityList message. Added tag SubSegment (18000) in the Market Data Snapshot Full Refresh message. Added tag SubscriptionRequestType (263) in message Market Data Request. Added tags 10193 and 10204 in the Market Data Snapshot Full Refresh message. Tag names are to be confirmed. Updated Session security section. Added tag MDBookType (1021) to messages Market Data Request, Market Data Snapshot Full Refresh and Market Data Incremental Refresh and Market Data Reject. Added description of messages Market Data Full Refresh and Market Data Incremental Refresh with MDBookType (1021) set to 2. Replaced SecurityType (167) by CFICode (461) in the Sample message flow section. Added information on sequence numbers and recommended design.	December 2011
1.4	jfm	Updated sample CompIDs. Replaced Asean Link by ASEAN Link. Added names of tags CorporateFlagNews (10193) and SettlementPeriod (10204),	December 2011
1.5	jfm	Fixed sample flow table and added more flows. Added a section to explain the Market Data messages. Added a section to explain the Price Depth. Added a section about Trading Status messages. Added that the gateways are centralized. Added information about FAST encoding. Added connection details. Added details on the recommended design. Removed unused data type ByteVector. Removed BodyLength (9), CheckSum(10) and PossDupFlag (43). Added comments in Logon. Removed messages Resend Request, Sequence Reset. Added description of tag SettlementPeriod (10204). Added tag FutureLegQuantityBid (10161).	February 2012

		Added tag SecurityRequestResult (560). Added tag NoRelatedSym (146). Added repeating group in Security List. Added tag SubSegment (18000) in Security List Request and moved its position in Market Data messages. Changed value of SubSegment (18000) for ASEAN Stars. Fixed number of limits on BM to 5 in description of tag MDPriceLevel (1023). Updated for SET new Trading Engine: removed AllTradeVWAP (10091), AskStatus (10165), GLIC (176) and MiddleYield (177), added TBC (10100) and TBC (10197). Fixed format of MDEntryTime (273) and MaturityDate (541). Moved CorporateFlagNews (10193) to the Exchange specifics. Changed type of SecurityListRequestType (559). Fixed name of OpenCloseSettlFlag (286) and added its use for Closing price. Changed size of SuspensionIndicator (10013) and values for BM and SGX.	
1.6	jfm	Updated FAST template version. Added NoUnderlyings (711). Added value for MDReqRejReason (281).	February 2012
1.7	jfm	Corrected markets using LocalCode (10042) in Security List. Added a mention the logout messages may not close the TCP connection. Added SubSegment (18000) in Market Data Request. Added BM Tick size Tables. Added sample values for Text(58) in Logout and Market Data Request Reject. Added Text (58) in Security List. Changed MDReqRejReason (281) into not required in Market Data Request Reject. Added value in TradingPhase (10140) for SGX. Removed tags RefTagID (371), RefMsgType (372), SessionRejectReason (373) and RefApplVerID (1130) from Reject message. Deleted the unsupported Test Request. Removed tag TestReqID (112) from the Heartbeat message. Added information about heartbeats. Added that uniqueness of MDReqID (262) and SecurityReqID (320) will not be checked. Moved AskBidModality (10001) inside the MDEntry sequence. Added AskBidModality (10001) to Market Data Snapshot Full Refresh (1021=2). Updated description of CategoryCodeCredit (10113). Updated FAST template version.	March 2012
1.8	jfm	Updated FAST template version.	March 2012
1.9	jfm	Added name and type of LastACTTransactionTime (10100). Added name of ShortSellFlag (10197). Fixed type of MDEntryTime (273), TimeOfQuotationResumption (10056), LastACTTransactionTime (10100). Moved description of ShortSellFlag (10197) to SET. Added NominalValue (10136) on BM. Added Indicator1 (10085) on BM and moved its description in the Exchange specifics section. Removed MDUpdateAction (279) from Market Data Snapshot Full Refresh (35=W, 1021=2). Changed SecurityRequestResult (560) to not required. Added SGX as market for TheoreticalOpeningVariation (10076).	March 2012
1.10	jfm	Removed unused tag HourLastPrice (10173). Added values for tag Indicator1 (10085) for BM. Added a section about empty tags. Updated FAST template version.	April 2012

		Updated TradingPhase (10140) for SET.	
1.11	jfm	Added SET sample Symbol (55). Increased Symbol (55) length to up to 24. Removed that MDEntrySize (271) was required for entry 4. Removed that VWAP (10160) is used on SGX. Moved corporation action into TradingPhase (10140) and removed CorporateFlagNews (10193) on SGX. Added SET Tick size Tables. Moved BM Tick size Tables in the right section.	April 2012
1.12	jfm	Added blowfish encryption of the password. Removed that MDEntrySize (271) was required for entry 4 in all messages.	April 2012
1.13	jfm	Added comment about snapshot request. Changed values for SuspensionIndicator (10013), Indicator1 (10085), TradingPhase (10140), CorporateFlagNews (10193) and ShortSellFlag (10197) on SET. Added more details on the blowfish encryption.	May 2012
1.14	jfm	Split the definition of GroupNumber (10037) per exchange and added explicit values (issue SET 20120517-1). Added change to values of SuspensionIndicator (10013) on SET in history of version 1.13 (issue SET 20120510-3). Added that MDEntrySize (271) is only required for action 0 (issue SET 20120514-6). Added actual port numbers. Removed unused tags CountryOfIssue (470), MinimumOrderSizePrincipal (10077), MaximumOrderSizePrincipal (10080) (issue BM 20120222-1). Added chapter Password management and tags NewPassword (925) and DaysToPwdExpiry (20002). Updated FAST template version.	Jun 2012
1.15	jfm, tia	Added ShortSellIndicator (10197) on BM. Added value ‘I’ for SuspensionIndicator (10013) on BM. Updated FAST template version. Changed type and fixed typo in description of SessionClosePrice (10145). Changed description on VariationSign (10014).	September 2012

Introduction

This chapter describes FIX Protocol versions, FAST Protocol versions and FIX message types supported.

FIX Protocol versions

The message types, tags, data types and value ranges defined in the following specifications are based on FIX Protocol version 5.0 SP2 and FIXT1.1.
Please refer to www.fixprotocol.org for more information on FIX Protocol versions.

FAST Protocol versions

The encoding methods used by FAST are defined in the FAST Specification 1.x.1.
Please refer to www.fixprotocol.org for more information on FAST Protocol versions.

FIX message types supported

FIXT1.1 / Administrative Messages		Side
A	Logon	⇔
0	Heartbeat	⇔
1	Test Request	⇔
3	Reject	⇔
5	Logout	⇔

FIX5.0 SP2 / Application Messages		Side
x	Security List Request	⇨
y	Security List	⇦
V	Market Data Request	⇨
W	Market Data Snapshot Full Refresh	⇦
X	Market Data Incremental Refresh	⇦
Y	Market Data Request Reject	⇦

Legend:
⇔ Message from both sides
⇨ Message from the FIX client side
⇦ Message from the FIX server side (i.e. ASEAN)

Market Data messages

Market Data information is provided through 2 different and independent flows:

Tag MDBookType (1021)	Information provided
1 or not set	Security information Trade information Top Of Book
2	Price Depth

A single flow can be requested or both depending on the information required. In order to get both flows, 2 requests must be sent.

Trading Status messages

Messages to provide security or market trading status are not supported. The trading status of a security can be known using tags SuspensionIndicator (10013) and TradingPhase (10140).

Sample message flow

High level flow

The following table gives a sample message flow to better understand how the messages should be used. It excludes administrative messages and assumes the client is logged into the server. This sample applies irrelevant of the value of MDBookType (1021).

Client sends...	Side	Server sends...
Security List Request (207=XKLS, 461=E)	⇨	
	⇦	Security List (207=XKLS, 461=E, 55=*Security1…SecurityA*)
	⇦	Security List (207=XKLS, 461=E, 55=*SecurityB…SecurityC*)
	…	…
	⇦	Security List (207=XKLS, 461=E, 55=SecurityZ..*SecurityN*)
	⇦	Security List (207=XKLS, 461=E, 55=Φ)[1]
Security List Request (207=XSES, 461=E)	⇨	
	⇦	Security List (207=XSES, 461=E, 55=*Security1…SecurityA*)
	⇦	Security List (207=XSES, 461=E, 55=*SecurityB…SecurityC*)
	…	…
	⇦	Security List (207=XSES, 461=E, 55=*SecurityZ…SecurityM*)
	⇦	Security List (207=XSES, 461=E, 55=Φ)
Market Data Request (207=XKLS, 461=E, 263=1, 55=*Security1*)	⇨	
	⇦	Market Data Snapshot Full Refresh (207=XKLS, 461=E, 55=*Security1*)
Market Data Request (207=XKLS, 461=E, 263=1, 55=*SecurityM+1*)	⇨	
	⇦	Market Data Request Reject (58=Unknown StockCode)
Market Data Request (207=XKLS, 461=E, 263=1, 55=*Security2*)	⇨	
	⇦	Market Data Snapshot Full Refresh (207=XKLS, 461=E, 55=*Security2*)
	⇦	Market Data Incremental Refresh (207=XKLS, 461=E, 55=*Security2*)
	⇦	Market Data Incremental Refresh (207=XKLS, 461=E, 55=*Security1*)[2]
	⇦	Market Data Incremental Refresh (207=XKLS, 461=E, 55=*Security2*)
Market Data Request (207=XSES, 461=E, 263=1, 55=*Security1*)	⇨	
	⇦	Market Data Snapshot Full Refresh (207=XSES, 461=E, 55=*Security1*)
	⇦	Market Data Incremental Refresh (207=XSES, 461=E, 55=*Security1*)

[1] An empty Security List message will indicate the end of a specific Security List Request.
[2] We are subscribed to both Security1 and Security2, so messages about both securities should be expected.

Security1 to SecurityN/M represent the securities available under the requested market and type.
SecurityM+1 represents a security not listed in the specified market and type.

SecurityList flow

Each Security List message will contain multiple securities. The number of securities per message is variable and depends on the size of the information required for each security. At most there can be 1000 instruments per message.
In order to indicate that the Security List Request has been fully replied, a last Security List message will be sent with no security in it.
Example: we would like to receive the list of securities listed on Bursa Malaysia Cash market, in the default SubSegment. In our example, there are 294 instruments listed. They will be sent through 3 messages, with respectively 120, 143 and 31 securities in each. A fourth message without any security will then be sent to indicate the end of the request.

Client sends...	Side	Server sends...
Security List Request (207=XKLS, 320=ID1, 461=E, 18000=0)	⇨	
	⇦	Security List (207=XKLS, 320=ID1, 461=E, 18000=0, 146=120, →55=*Security1,* →55=*Security2,* →… →55=*Security120*)
	⇦	Security List (207=XKLS, 320=ID1, 461=E, 18000=0, 146=143, →55=*Security121,* →55=*Security122,* →… →55=*Security263*)
	⇦	Security List (207=XKLS, 320=ID1, 461=E, 18000=0, 146=31, →55=*Security264* →55=*Security265* →… →55=*Security294*)
	⇦	Security List (207=XKLS, 320=ID1, 461=E, 18000=0, 146=0)

FIX Protocol standard messages

Session Management

Connectivity

Connectivity is done through FAST protocol over TCP/IP.
ASEAN Link acts as an acceptor of all FAST Connections. Clients must initiate the Logon sequence and establish their connection to the appropriate ASEAN Link FAST Gateway as per the schedule outlined below. The ASEAN Link FAST Gateways are centralized at the exchange sites.

The TCP/IP connection details are outlined below for the production environment:

Originating Exchange	Site	FAST Gateway	IP address	Comment
BM	Main	Primary	To be confirmed	
BM	Main	Backup	To be confirmed	
BM	DR	DR	To be confirmed	Activated as part of the Disaster Recovery procedure.
PSE	Main	Primary	To be confirmed	
PSE	Main	Backup	To be confirmed	
PSE	DR	DR	To be confirmed	Activated as part of the Disaster Recovery procedure.
SET	Main	Primary	To be confirmed	
SET	DR	Backup/DR	To be confirmed	Acts as backup and DR.
SGX	Main	Primary	To be confirmed	
SGX	DR	Backup/DR	To be confirmed	Acts as backup and DR.

The TCP/IP connection details are outlined below for the CERT environment:

Originating Exchange	Site	FAST Gateway	IP address	Comment
N/A	Main	Primary	To be confirmed	No DR site, nor backup gateway are available on this environment.

The TCP ports are different for each Executing Exchange (i.e. a FAST session can only handle the market data of a single E.E.). It will be required to establish multiple connections/sessions in order to retrieve the feed from several exchanges.

Executing Exchange	TCP port	Comment
BM	6001	Market Data for all stocks.
	6002	Market Data for ASEAN Stars.
PSE	6101	Market Data for all stocks.
	6102	Market Data for ASEAN Stars.
SET	6201	Market Data for all stocks.
	6202	Market Data for ASEAN Stars.
SGX	6301	Market Data for all stocks.
	6302	Market Data for ASEAN Stars.

In addition to these exchange hosted FAST Gateways, Neutral Access Points (NAP) are available for participants outside the countries covered by the ASEAN Link.

Primary and backup gateways will be active concurrently.

Hours of Operation

The table below shows the normal hours of operation for the FAST Engine.

Day	Start Time	Stop Time	Client Stop Actions
Monday – Friday	6:00 (MYT, PHT, SGT) 6:00 (ICT)	20:00 (MYT, PHT, SGT) 20:00 (ICT)	Send Logout Message (Optional) Reset Sequence Numbers (Mandatory)
Saturday – Sunday	n/a	n/a	No Action

End of Day Procedures

There is no specific end of day procedure. The sequence number must be reset each time the client disconnects from the ASEAN Link FAST Engine.

Recommended design

It is recommended that the FAST client connects simultaneously to the Primary and Backup ASEAN Link FAST Gateways in order to avoid data loss in case of failure from one of the gateway.

One possible implementation is:

- check if data is received from each gateway over a period of time (e.g. 10s)
- if the gateway currently used for providing data to users has not provided data while the other gateway did, over several periods of time (e.g. 2), then use the data from the other gateway; it is required to use at least 2 periods of time as it may be normal to have such discrepancy on a single period of time in case of a slight delay between both gateways during a time of low activity: the same information is received from one gateway in period N and received from the other gateway in period N+1, during which no other message is received

Note: Sequence numbers cannot be used to select messages between primary and backup gateways. The gateways use different market data sources in order to increase resilience. Therefore, the messages coming from each gateway may not be synchronized.

Session Identification

SenderCompID (49) and TargetCompID (56) are used to identify counterparties between client and ASEAN Link. The values of these fields are assigned by ASEAN Link to each client during the on-boarding process.

Client → ASEAN Link:

- SenderCompID (49) = xxxxnnnn or xxxxnnnnTEST
  xxxx is an uppercase short name of 4 characters assigned to the participants and that is unique accross the ASEAN Link (ex. SNGD for SunGard).
  nnnn is a numerical string of 4 characters used to identify the OMS (important in case the client needs multiple FAST connections).
  “TEST” is suffixed when using the certification or New Release environment.
- TargetCompID (56) = ASEAN-xxxx, ASEAN-xxxxTEST, or ASEAN-xxxxNR
  xxxx is the ISO 10383 MIC code of the Executing Exchange (ex. XKLS).
  The value “ASEAN-xxxx” will be used for production environment, “ASEAN-xxxxTEST” for certification environment and “ASEAN-xxxxNR” for New Release environment (accessible by Exchanges only).

ASEAN Link → Client:

- SenderCompID (49) = ASEAN-xxxx, ASEAN-xxxxTEST or ASEAN-xxxxNR (Details are explained above).

- TargetCompID (56) = xxxx or xxxxTEST

Session Security

ASEAN Link has a logon process for authenticating the client application based on the CompIds as well as a Username and Password.
ASEAN Link allows simultaneous logons on Primary, Backup or DR site.

The session does not support encryption (except for the Logon password); however, transactions are secured by a high level of physical network security.

Password management

The session is protected with a password, tag Password (554), that must be sent inside the Logon message.
The number of days until the password expiry will be sent to the participant in the Logon message, tag DaysToPwdExpiry (20002), in case of successful logon. The password is initially expired.

The password follow these rules:

- The password can be change on the day it expires, or after.
- The password is value for 90 days from the day it is changed.
- The logon will be rejected if the password is expired.
- The new password set by the participant must:
    - be alphanumeric (i.e. contain letters and digits)
    - be between 10 and 15 characters long
    - not have more than 3 repetitive characters (“passwd1**aaaa**” is invalid)
    - not have been used in the past 900 days

If more than 5 logon attempts have been sent with the wrong password, the account will be locked. If so, contact the ASEAN Link support to have it unlocked.

Heartbeats

Heartbeat messages will be sent from the FAST gateway to the logged-on client applications. The heartbeat interval is set to 60 seconds regardless of the traffic. The first heartbeat might be received less than 60 seconds after the logon due to the implementation of the FAST Gateway.

Supported exchanges

Information about PSE should be ignored. Software for this exchange is currently under review and these ROE will be updated in due time.

Variations from FIX standard

VWAP price

The VWAP price provided with MDEntryType (269) = 9 is the trading day VWAP. There is no distinction between the morning/afternoon sessions VWAP even if the exchange support both sessions.

Custom tags

Standard market data information (e.g. bid, offer, last) is sent through standard FIX tags. Additional information is sent through custom tags in the range 10000-19999.

Empty tags

All tags may be provided with an empty value. This indicates the information carried by the tag does not exist. Some of these tags have an explicit indication in the message description tables (e.g. GroupNumber (10037) in Security List).

Sequence numbers

Each message will be assigned a sequence number. However, the following rules will apply to them:

- They'll be reset to 1 each time there is a disconnection between the client and server.
- They cannot be used for retrieving missed messages (messages Resend Request and Sequence Reset are not supported). In case the client application detects a sequence number anomaly (duplicate, gap or out of order), it is recommended to continue message processing while reporting the issue to ASEAN Link for investigation.

Request ID

The values of the tag SecurityReqID (320) sent by the FAST gateway servers are stored on a per SecurityExchange (207), CFICode (461) and SubSegment (18000).
The values of the tag MDReqID (262) sent by the FAST gateway servers are stored on a per SecurityExchange (207), CFICode (461), SubSegment (18000) and Symbol (55).

Tag formats

Timestamps

SendingTime (52) is in format "YYYYMMDD-HH:MM:SS" in UTC.
MaturityDate (541) and DateOfQuotation (10046) is in format "YYYYMMDD" in local time. They are represented in a numerical form (e.g. number 20111219 means a date of 2011-12-19).
MDEntryTime (273), LastACTTransactionTime (10100) and TimeOfQuotationResumption (10056) are in format "HHMMSS" in local time. They are represented in a numerical form (e.g. number 93215 is equivalent to "093215" meaning a time of 09:32:15).

FAST protocol

Implementation

Various development libraries, including open-source and the QuickFAST library, are available to provide FAST encoding support in order to speed up the development of a FAST client.

Templates

The FAST templates required to process the FAST feed is provided alongside this ROE inside a single XML file. The file will not be available for daily download on the ASEAN Link platforms.
Changes to the templates will be communicated in advance in order to allow for users to prepare for it.
The templates compatible with these ROE are version 11.1.1.697616.
The templates version can be seen at the top of the XML file, e.g.:

```
<!--
        Template Version 11.1.1.693669
-->
```

Stream

The FAST stream is using blocks: the field BlockSize will precede the messages of the block.

Field instructions

Each field instruction has a name and a type. See Data types for the list of types supported. The presence attribute is used to indicate optional fields.

Data types

The following data types are used in the FAST templates and in these specifications:

Type	Code	Usage
String	string	Used to represent ASCII values using the FAST stop bit encoding. Unless stated otherwise in the document, the maximum length for String fields is 32 characters.
Unsigned integer 32	uInt32	Used to represent 32-bit unsigned integers using the FAST stop bit encoding. This type can cover integers from 0 to 4,294,967,295 (i.e. 32 bits).
Unsigned integer 64	uInt64	Used to represent 64-bit unsigned integers using the FAST stop bit encoding. This type can cover integers from 0 to 18,446,744,073,709,551,615 (i.e. 64 bits).
Decimal	decimal	Used to represent floating point numbers using the FAST stop bit encoding of its decimal representation. This type can cover decimal numbers with an exponent in the range [-63, 63] and an int64 mantissa.
Length	length	Used to represent the number of entries in a repeating group. Same type as Unsigned integer 32.

The type of each tag is mentioned as the first line in the Comments column of the message definition.

Field Operators

The following field operators are used: constant.

Template reference

Static template references are used in the templates definition.

Tick size

The tick size information is provided through two different ways, depending on the market.

Static tick size

When the tick size on a security for a specific day is static, the tick size will be provided through tag TickSize (10082).

Dynamic tick size

When the tick size on a security for a specific day is dynamic and may change depending on the price, then it is provided through tables.
The ID of table applying to the security is provided through tag TickSizeID (10180). The table content is provided in the **Exchange specifics** section.

Price Depth

Depth available

The price depth provided is dependent on the exchange.

Exchange	Price Depth
BM	5 price levels will be provided.

SGX	20 price levels will be provided. However up to 40 price levels need to be stored by the client application as they may be present during a transitory period.

Out of depth

The price levels getting out of depth should be discarded. For example:

Step	Action	Price Depth
1		Level 1 Buy 100@32 Level 2 Buy 500@31 Level 3 Buy 500@30 Level 4 Buy 800@29 Level 5 Buy 300@28
2	New Level 1 Buy 200@33	Level 1 Buy 200@33 Level 2 Buy 100@32 Level 3 Buy 500@31 Level 4 Buy 500@30 Level 5 Buy 800@29 (Limit 300@28 is discarded)
3	Delete Level 1	Level 1 Buy 100@32 Level 2 Buy 500@31 Level 3 Buy 500@30 Level 4 Buy 800@29
4	New Level 5 Buy 300@28	Level 1 Buy 100@32 Level 2 Buy 500@31 Level 3 Buy 500@30 Level 4 Buy 800@29 Level 5 Buy 300@28

Message header/trailer

Standard message header

Tag	Field Name	Req'd	Comments	Description
8	BeginString	Y	String of 8 characters. Identifies beginning of new message and protocol version. Must be the first field in the message.	Always “FIXT.1.1”.
35	MsgType	Y	String of 1 character. Type of message. Must be the third field in the message.	The value of each message type is provided as part of the definition of the messages.
34	MsgSeqNum	Y	Unsigned integer 32. Integer message sequence number.	
49	SenderCompID	Y	String. Assigned value used to identify firm sending message.	The value will be provided to the participant by the ASEAN Link.
52	SendingTime	Y	String of 17 characters. Time of message transmission.	
56	TargetCompID	Y	String. Assigned value used to identify receiving firm.	The value will be provided to the participant by the ASEAN Link.

Standard message trailer

The trailer is empty.

Administrative messages (FIXT1.1)

Heartbeat (35=0)

Tag	Field Name	Req'd	Comments	Description
	Standard Header	Y		MsgType = 0
	Standard Trailer	Y		

Logon (35=A)

Tag	Field Name	Req'd	Comments	Description
	Standard Header	Y		MsgType = A
98	EncryptMethod	Y	String of 1 character. Method of encryption.	Valid values: 0 = None/other
553	Username	Y	String of up to 16 characters. Username required to logon to the ASEAN Link FAST interface. Required from the participant only.	The value will be provided to the participant by the ASEAN Link.
554	Password	Y	String of up to 32 characters. Blowfish-encrypted password represented with as a case-insensitive hexadecimal string (2 characters per byte in password). Passwords should be encrypted using ECB mode and PKCS#5 padding. Note that if the password is a multiple of block size (8 bytes), an extra block of padding should be added. Required from the participant only.	The value will be provided to the participant by the ASEAN Link.
925	NewPassword	N	Blowfish-encrypted new password the participant wishes to set. See Password management for details. From the participant only.	
1137	DefApplVerID	Y	String of 1 character. The default version of FIX messages used in this session.	Valid values: 9 = FIX50SP2
20002	DaysToPwdExpiry	Y	How many days until the current password expires. Required from the ASEAN Link only.	0 means that the password expires at the end of the day.
	Standard Trailer	Y		

Reject (35=3)

Tag	Field Name	Req'd	Comments	Description
	Standard Header	Y		MsgType = 3
45	RefSeqNum	Y	Unsigned integer 32. MsgSeqNum of rejected message.	

1130	RefApplVerID	N	String of 1 character. Recommended when rejecting an application message that does not explicitly provide ApplVerID (1128) on the message being rejected. In this case the value from the DefaultApplVerID(1137) should be provided.	
373	SessionRejectReason	N	String of 1 character. Code to identify reason for a session-level reject message	Valid values: 0 = Invalid tag number 1 = Required tag missing 3 = Undefined tag 4 = Tag specified without a value 6 = Incorrect data format for value 9 = CompID problem
58	Text	N	String of up to 200 characters. Plain text description of the reject reason, if available.	Sample values: “Invalid TargetCompID” “Invalid SenderCompID”
	Standard Trailer	Y		

Logout (35=5)

Tag	Field Name	Req'd	Comments	Description
	Standard Header	Y		MsgType = 5
58	Text	N	String of up to 200 characters. Optional, plain text message explaining the reason of the Logout message.	Sample values: “Unknown user” “Invalid Username” “Invalid password” “Invalid SenderCompID on Logon” “Invalid TargetCompID on Logon” “Recent password” “Password expired” “Too many bad login attempts” “Password too short” “Not alphanum password” “Repetitive password”
	Standard Trailer	Y		

Whenever the FAST gateway sends a logout as answer to an incorrect logon or to a logout, it will keep the underlying TCP connection opened to allow for the FAST client to issue a logon. The FAST client may decide to close the TCP connection whenever receiving a logout.

Application Messages (FIX5.0) – Market Data messages

Security List Request (35=x)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=x
207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	ISO 10383 MIC code Depends on the exchange – cf. **Exchange specifics**
320	SecurityReqID	Y	String of up to 8 digits. ID of a Security List Request. Uniqueness will not be checked.	
461	CFICode	Y	String of up to 6 characters. Indicates type of security.	ISO 10962 CFI code Depends on the exchange – cf. **Exchange specifics**
559	SecurityListRequestType	Y	Unsigned integer 32. Identifies the type/criteria of Security List Request.	Valid value: 1 = SecurityType and/or CFICode (461).
18000	SubSegment	Y	Unsigned integer 32. Group in which the instrument is segmented.	Valid values: 2 = ASEAN Stars 0 = Not part of a specific group
Standard Trailer		Y		

Security List (35=y)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=y
58	Text	N	String, Free format text string. Required if SecurityRequestResult (560) is 1.	Description of the reason why the corresponding Security List Request did not succeed. Sample values: To be confirmed.
320	SecurityReqID	Y	String. ID of the Security List Request being replied.	
560	SecurityRequestResult	N	String of 1 character. Indicate the result of the Security List Request.	Valid values: 1 = Invalid or unsupported request.
146	NoRelatedSym	N	Length. Number of securities returned in the request.	Will be 0 when there is no corresponding security or to indicate that the corresponding Security List Request has been fully replied to.
Repeating group		N	Required if NoRelatedSym (146) is set and non-null.	
22	SecurityIDSource	N	String of 1 character. Identifies class or source of the SecurityID (48) value. Required if SecurityID is specified.	Valid values: 4 = ISIN
48	SecurityID	N	String of up to 12 characters. Security identifier value of SecurityIDSource (22) type. This tag may be provided with an empty value if the security doesn't have an identifier value.	

Tag	Field Name	Req'd	Comments	Description
→55	Symbol	Y	String of up to 24 characters. Ticker symbol. Common, "human understood" representation of the security.	Depends on the exchange – cf. **Exchange specifics**
→107	SecurityDesc	N	String of up to 22 characters. Descriptive name of the security.	
→207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	ISO 10383 MIC code Depends on the exchange – cf. **Exchange specifics**
→461	CFICode	Y	String of up to 6 characters. Indicates type of security.	ISO 10962 CFI code Depends on the exchange – cf. **Exchange specifics**
→10037	GroupNumber	N	String of up to 5 characters. Indicates the group on which the security is listed. This tag may be provided with an empty value if the security is not part of any group.	BM, SGX and SET only. Depends on the exchange – cf. **Exchange specifics**
→10042	LocalCode	N	String of up to 15 characters. Alternative code that can used to identify the security.	SET only.
→18000	SubSegment	Y	Unsigned integer 32. Group in which the instrument is segmented.	Valid values: 2 = ASEAN Stars 0 = Not part of a specific group
Standard Trailer		Y		

Market Data Request (35=V)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=V
55	Symbol	Y	String of up to 24 characters. Ticker symbol. Common, "human understood" representation of the security.	Depends on the exchange – cf. **Exchange specifics**
207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	ISO 10383 MIC code Depends on the exchange – cf. **Exchange specifics**
262	MDReqID	Y	String of up to 8 digits. Identifier for Market Data Request. Uniqueness will not be checked.	
263	SubscriptionRequestType	Y	Unsigned integer 32. Subscription request type.	Valid values: 0 = Snapshot (doesn't unsubscribe) 1 = Snapshot and subscribe to real-time updates 2 = Unsubscribe to real-time updates
461	CFICode	Y	String of up to 6 characters. Indicates type of security.	ISO 10962 CFI code Depends on the exchange – cf. **Exchange specifics**
1021	MDBookType	N	Unsigned integer 32. Describes the type of book for which the feed is intended.	Valid values: 1 = Top of book, security information (default) 2 = Price depth
18000	SubSegment	Y	Unsigned integer 32. Group in which the instrument is segmented.	Valid values: 2 = ASEAN Stars 0 = Not part of a specific group

Tag	Field Name	Req'd	Comments	Description
Standard Trailer		Y		

Market Data Snapshot Full Refresh (35=W, 1021=1 or not set)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=W
55	Symbol	Y	String of up to 24 characters. Ticker symbol. Common, "human understood" representation of the security.	Cf. 35=V
207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	Cf. 35=V
262	MDReqID	Y	String of up to 8 digits. Identifier for Market Data Request.	
461	CFICode	Y	String of up to 6 characters. Indicates type of security.	Cf. 35=V
1021	MDBookType	N	Unsigned integer 32. Describes the type of book for which the feed is intended.	Valid values: 1 = Top of book, security information (default)
18000	SubSegment	N	Unsigned integer 32. Group in which the instrument is segmented.	Valid values: 2 = ASEAN Stars 0 = Not part of a specific group
268	NoMDEntries	N	Length. Number of entries in Market Data message. Required if the message carry any information that can be reported as a Market Data entry.	
Repeating group		N	Required if NoMDEntries is set and non-null.	
→269	MDEntryType	Y	String of 1 character. Type of Market Data entry.	Valid values: 0 = Bid 1 = Offer 2 = Trade 4 = Opening price 5 = Closing price 6 = Clearing price 7 = High price 8 = Low price 9 = Trading Session VWAP Price B = Trade volume
→270	MDEntryPx	N	Decimal. Price of the Market Data Entry. Required for entries 2, 4, 5, 6, 7, 8 and 9. Required for entries 0 and 1 if the price is numerical.	Bid price if entry 0. Offer price if entry 1. Trade price if entry 2. Opening price if entry 4. Closing price if entry 5. Clearing price if entry 6. High price if entry 7. Low price if entry 8. VWAP price if entry 9.

→271	MDEntrySize	N	Unsigned integer 64. Quantity or volume represented by the Market Data Entry. Required for entries 0, 1, 2 and B.	Bid size if entry 0. Offer size if entry 1. Trade volume if entry 2. Theoretical opening quantity if entry 4. Total quantity traded if entry B.
→273	MDEntryTime	N	Unsigned integer 32.. Time of Market Data Entry. Required for entry 2.	Trade time if entry 2.
→286	OpenCloseSettlFlag	N	String of 1 character. Flag that identifies a market data entry. Required for entry 4 or 5.	Valid values: 0 = Opening price (entry 4) or Closing price (entry 5) 1 = Previous opening price 5 = Theoretical opening price
→10001	AskBidModality	N	String of 1 character. Flag that identifies if the bid or offer is non-numerical. Required for entries 0 and 1 if the price is non-numerical.	Valid values: O = Opening price A = Any price M = Market price
Security information		N	Required in a snapshot if the information is not blank. Required in a refresh if the information is changed.	
15	Currency	N	String of 3 characters. Identifies the currency used for prices.	ISO 4217 Currency code such as MYR, PHP, SGD or THB.
22	SecurityIDSource	N	String of 1 character. Identifies class or source of the SecurityID (48) value. Required if SecurityID is specified.	Valid values: 4 = ISIN
48	SecurityID	N	String of 12 characters. ISIN code of the security.	BM, PSE and SGX only.
107	SecurityDesc	N	String of up to 22 characters. Descriptive name of the security.	
202	StrikePrice	N	Decimal. Strike price of the security.	SGX only. For warrants only.
541	MaturityDate	N	Unsigned integer 32. Date of expiry of the security.	SGX only. For warrants only.
561	RoundLot	N	Unsigned integer 64. The trading lot size of the security.	BM, SET and SGX only.
711	NoUnderlyings	N	Length. Number of underlying legs that make up the security.	Always 0 as derivatives are not supported on the ASEAN Link.
10008	PercentageVariation	N	Decimal. Variation in percent compared to close price. Required for entry 2.	
10013	SuspensionIndicator	N	String of up to 2 characters. Indicates any state of trade suspension.	Depends on the exchange – cf. **Exchange specifics**
10014	VariationSign	N	String of 1 character.	Valid values:

			Trend of the variation. Required for entry 2.	+ = Positive trend. Last price is higher than before = = No change in last price. - = Negative trend. Last price is lower than previous one.
10022	UpperReservationLevel	N	Decimal. Maximum trading price of a security.	
10024	LowerReservationLevel	N	Decimal. Minimum trading price of a security.	
10029	NumberOfTrades	N	Unsigned integer 64. Total number of trades on the security. Required for entry 2.	
10037	GroupNumber	N	String of up to 5 characters. Indicates the group on which the security is listed.	BM, SGX and SET only. Depends on the exchange – cf. **Exchange specifics**
10042	LocalCode	N	String of up to 15 characters. Alternative code that can used to identify the security.	SET only.
10044	AmountExchanged	N	Unsigned integer 64. Total value traded on the security. Required for entry 2.	
10046	DateOfQuotation	N	Unsigned integer 64. Most recent quotation date of the security.	
10056	TimeOfQuotationResumption	N	String of up to 6 characters. Time planned for the reopening after the suspension.	PSE only.
10072	MarketSectorCode	N	String of up to 12 characters. Sector of activity of the security.	BM, SGX and SET only.
10073	TransactionType	N	String of 1 character. Type of trade. Required for entry 2.	Depends on the exchange – cf. **Exchange specifics**
10076	TheoreticalOpeningVariation	N	Decimal. Difference in percentage between the TOP and the closing price	PSE and SGX only.
10082	TickSize	N	Decimal. A minimum upward or downward movement in the price of a security.	BM only. Available on SGX but its value should be ignored. Use 10180 on PSE, SGX and SET.
10085	Indicator1	N	String of 1 character. Indicates information about the security.	BM, SGX and SET only. Depends on the exchange – cf. **Exchange specifics**
10086	LastPriceACT	N	Decimal. Trade price for off-exchange transactions. Required for entry 2 if TransactionType (10073) is C, D, X, H or Y.	

10099	LastQuantityACT	N	Unsigned integer 64. Trade quantity for off-exchange transactions. Required for entry 2 if TransactionType (10073) is C, D, X, H or Y.	
10100	LastACTTransactionTime	N	String of up to 6 characters. Time of the last off-exchange transaction.	SET only.
10104	TypeValue	N	String of 1 character. Type of security.	SGX only. Valid values: f = Call warrant g = Put warrant
10113	CategoryCodeCredit	N	String of up to 6 characters. Credit class of the security.	SGX only. Contains the code of the security. Sample values: D05 for Symbol (55)=D05 D05 for Symbol (55)=D05.L
10136	NominalValue	N	Decimal. Par value of the security.	BM only.
10140	TradingPhase	N	String of up to 8 characters. Current trading phase of the security.	BM, PSE and SGX only. Depends on the exchange – cf. **Exchange specifics**
10145	SessionClosePrice	N	String. This field indicates the traded price of an instrument when the trading session closed.	BM and SET only.
10153	ReferencePrice	N	Decimal.	
			Price used as reference for securities with no last or close price (e.g. IPO).	PSE only.
			Indicate the capital of put through deals.	BM only.
10158	TotalQuantityACT	N	Unsigned integer 64. Total quantity traded in off-exchange transactions. Required for entry 2 if TransactionType (10073) is C, D, X, H or Y.	
10160	VWAP	N	Decimal. VWAP for the security as broadcasted by the exchange. Required for entry 2.	SET only.
10162	FutureLegQuantityBid	N	Decimal. Subscription price of warrants.	SGX only.
10180	TickSizeID	N	Unsigned integer 32. ID of the tick size table applying to the security.	
10193	CorporateFlagNews	N	String of up to 2 characters. This field indicates the latest corporate action impacting a security.	SET and SGX only. Depends on the exchange – cf. **Exchange specifics**
10197	ShortSellFlag	N	String of 1 character. The field indicates if short sell is allowed.	BM and SET only. Depends on the exchange – cf. **Exchange specifics**

10204	SettlementPeriod	N	Unsigned integer 32. Indicates the settlement period that applies to the security.	BM only. Valid values: 1 = Settlement at T+1 (Buying-in) 2 = Settlement at T+2 (Designated) 3 = Settlement at T+3 (Ready) 4 = Settlement at T+2 (Immediate)
Standard Trailer		Y		

Market Data Snapshot Full Refresh (35=W, 1021=2)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=W
55	Symbol	Y	String of up to 24 characters. Ticker symbol. Common, “human understood” representation of the security.	Cf. 35=V
207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	Cf. 35=V
262	MDReqID	Y	String of up to 8 digits. Identifier for Market Data Request.	
461	CFICode	Y	String of up to 6 characters. Indicates type of security.	Cf. 35=V
1021	MDBookType	Y	Unsigned integer 32. Describes the type of book for which the feed is intended.	Valid values: 2 = Price depth
18000	SubSegment	N	Unsigned integer 32. Group in which the instrument is segmented.	Valid values: 2 = ASEAN Stars 0 = Not part of a specific group
268	NoMDEntries	Y	Length. Number of entries in Market Data message.	
Repeating group		Y		
→269	MDEntryType	Y	String of 1 character. Type of Market Data entry.	Valid values: 0 = Bid 1 = Offer
→270	MDEntryPx	N	Decimal. Price of the Market Data Entry. Required for entries 2, 4, 5, 6, 7, 8 and 9. Required for entries 0 and 1 if the price is numerical.	Bid price if entry 0. Offer price if entry 1. Trade price if entry 2. Opening price if entry 4. Closing price if entry 5. Clearing price if entry 6. High price if entry 7. Low price if entry 8. VWAP price if entry 9.
→271	MDEntrySize	N	Unsigned integer 64. Quantity or volume represented by the Market Data Entry. Required for entries 0, 1, 2 and B.	Bid size if entry 0. Offer size if entry 1. Trade volume if entry 2. Theoretical opening quantity if entry 4. Total quantity traded if entry B.
→346	NumberOfOrders	N	Decimal. Number of orders in the market at this specific price level.	BM only.

→1023	MDPriceLevel	Y	Unsigned integer 32. Integer to convey the level of a bid or offer at a given price level.	A price level of 1 represents the best bid or offer. The maximum number of levels on each side is: SGX: 20 levels, but up to 40 limits might be available during a transitory period. BM: 5 levels.
→10001	AskBidModality	N	String of 1 character. Flag that identifies if the bid or offer is non-numerical. Required for entries 0 and 1 if the price is non-numerical.	Valid values: O = Opening price A = Any price M = Market price
Standard Trailer		Y		

Market Data Incremental Refresh (35=X, 1021=1 or not set)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=X
55	Symbol	Y	String of up to 24 characters. Ticker symbol. Common, “human understood” representation of the security.	Cf. 35=V
207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	Cf. 35=V
262	MDReqID	Y	String of up to 8 digits. Identifier for Market Data Request.	
461	CFICode	Y	String of up to 6 characters. Indicates type of security.	Cf. 35=V
1021	MDBookType	N	Unsigned integer 32. Describes the type of book for which the feed is intended.	Valid values: 1 = Top of book, security information (default)
18000	SubSegment	N	Unsigned integer 32. Group in which the instrument is segmented.	Valid values: 2 = ASEAN Stars 0 = Not part of a specific group
The following tags from Market Data Snapshot Full Refresh (35=W, 1021=1) maybe sent: ● NoMDEntries (268) and the corresponding repeating group. ● Security information tags.				
Standard Trailer		Y		

Market Data Incremental Refresh (35=X, 1021=2)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=X
55	Symbol	Y	String of up to 24 characters. Ticker symbol. Common, “human understood” representation of the security.	Cf. 35=V

207	SecurityExchange	Y	String of 4 characters. Market used to help identify a security.	Cf. 35=V
262	MDReqID	Y	String of up to 8 digits. Identifier for Market Data Request.	
461	CFICode	Y	String of up to 6 characters. Indicates type of security.	Cf. 35=V
1021	MDBookType	Y	Unsigned integer 32. Describes the type of book for which the feed is intended.	Valid values: 2 = Price depth
268	NoMDEntries	Y	Length. Number of entries in Market Data message.	
Repeating group		Y		
→269	MDEntryType	Y	String of 1 character. Type of Market Data entry.	Valid values: 0 = Bid 1 = Offer
→270	MDEntryPx	N	Decimal. Price of the Market Data Entry. Required for entries 2, 4, 5, 6, 7, 8 and 9. Required for entries 0 and 1 if the price is numerical.	Bid price if entry 0. Offer price if entry 1. Trade price if entry 2. Opening price if entry 4. Closing price if entry 5. Clearing price if entry 6. High price if entry 7. Low price if entry 8. VWAP price if entry 9.
→271	MDEntrySize	N	Unsigned integer 64. Quantity or volume represented by the Market Data Entry. Required for action 0 and entries 0, 1, 2 and B.	Bid size if entry 0. Offer size if entry 1. Trade volume if entry 2. Theoretical opening quantity if entry 4. Total quantity traded if entry B.
→279	MDUpdateAction	Y	Unsigned integer 32. Type of Market Data update action.	Valid values: 0 = New 1 = Change 2 = Delete
→346	NumberOfOrders	N	Decimal. Number of orders in the market at this specific price level.	BM only.
→1023	MDPriceLevel	Y	Unsigned integer 32. Integer to convey the level of a bid or offer at a given price level.	A price level of 1 represents the best bid or offer. The maximum number of levels on each side is: SGX: 20 levels, but up to 40 limits might be available during a transitory period. BM: 5 levels.
Standard Trailer		Y		

Market Data Request Reject (35=Y)

Tag	Field Name	Req'd	Comments	Description
Standard Header		Y		MsgType=Y

58	Text	Y	String of up to 200 characters. Description of the reject reason.	Sample values: "Unknown StockCode" "Unknown Subsegment" "Unknown MIC Code" "Unknown CFI Code" "Invalid SubscriptionRequestType" "Invalid MDReqID"
262	MDReqID	Y	String of up to 8 digits. Identifier for Market Data Request.	
281	MDReqRejReason	N	String of 1 character. Reason for the rejection of a Market Data request. Required when the reason of the rejection matches one of the valid value for this tag.	Valid values: 0 = Unknown symbol
1021	MDBookType	N	Unsigned integer 32. Describes the type of book for which the feed is intended.	Valid values: 1 = Top of book, security information (default) 2 = Price depth
Standard Trailer		Y		

Exchange specifics

The previous sections described the generic messages/fields.
Specific fields can be added depending on the exchange or final destination of the message.

MY - Bursa Malaysia (BM)

Tags definition

Tag	Field Name	Req'd	Comments	Description
55	Symbol			Stock code [Local code] e.g. “MYN1818” for Bursa Malaysia
207	SecurityExchange			Valid value: XKLS
461	CFICode			Not all the codes listed below may be used. Valid values: E = Equities DB = Bonds RW = Warrants MRI = Indexes
10013	SuspensionIndicator			Valid values: G = Frozen S = Suspended R = Reserved I = Order entry forbidden (for future use) space = No suspension (default)
10037	GroupNumber			Instrument group ID as assigned by BM. Examples: B0, B3, C7, D1, FB, I4, N1, O0, etc.
10073	TransactionType			Valid values: B = Trade matched by exchange trading system.
10085	Indicator1		Shariah indicator.	Valid values: 0 = Non-shariah company 1 = Shariah company
10140	TradingPhase			Valid values: C = Start of consultation P = Pre-opening O = Opening E = Intervention before opening S = Continuous trading R = Trading at last price N = Surveillance intervention F = End of consultation B = Post-session I = Forbidden Z = Interrupted
10197	ShortSellFlag			Valid values: R = RSS (Regulated Short Selling). P = PDT (Prop Day Trading). 2 = RSS and PDT. space= No short selling (default)

Tick size tables

TickSizeID (10180)=12366

From	Until	Tick
0	∞	0.1

TickSizeID (10180)=12592

From	Until	Tick
0	1	0.005
1	10	0.01
10	100	0.02
100	∞	0.1

TickSizeID (10180)=12848

From	Until	Tick
0	∞	0.001

TickSizeID (10180)=13104

From	Until	Tick
0	1	0.001
1	3	0.005
3	∞	0.01

TickSizeID (10180)=13360

From	Until	Tick
0	1	0.005
1	3	0.01
3	5	0.02
5	10	0.05
10	25	0.1
25	100	0.25
100	∞	0.5

TickSizeID (10180)=13616

From	Until	Tick
0	∞	0.01

TickSizeID (10180)=13872

From	Until	Tick
0	∞	0.5

PH – Philippine Stock Exchange (PSE)

Tags definition

Tag	Field Name	Req'd	Comments	Description
55	Symbol			Symbol [Mnemonic] e.g. “PSE” for Philippine Stock Exchange
207	SecurityExchange			Valid value: XPHS
461	CFICode			Not all the codes listed below may be used. Valid values: E = Equities DB = Bonds MRI = Indexes RW = Warrants
10013	SuspensionIndicator			Valid values for first character (trading status): ‘S’ = Suspended ‘R’ = Trading resumed after security was reserved/suspended

Tag	Field Name	Req'd	Comments	Description
				'H' = Reserved, price beyond upper limit 'B' = Reserved, beyond lower limit 'P' = Simple reservation space = No suspension Valid values for second character (action code): 'P' = Programming of a deferred opening time for the instrument 'M' = Reservation or suspension by a manual Market Control command 'C' = Trading on the instrument 'O' = Change to Open state 'R' = Automatic Reservation space = No action (default)
10073	TransactionType			Valid values: A = Trade cancellation B = Normal Transaction / Matched by system, automatically C = Matched outside exchange, different brokers, trade report D = Matched outside exchange, one broker, trade report, crossing H = Off-Exchange trade cancellation N = Pre-open Q = Auction X = Cancelled trade (Cross) Y = Direct (Off-exchange cross)
10140	TradingPhase			Valid values: C = Start of Consultation P = Pre-opening O = Opening E = Intervention before opening S = Continuous trading R = Trading At Last N = Surveillance Intervention F = End of Consultation B = Post-session I = Forbidden Z = Interrupted

Tick size tables

To be confirmed.

SG – Singapore Exchange (SGX)

Tags definition

Tag	Field Name	Req'd	Comments	Description

Tag	Field Name	Req'd	Comments	Description
55	Symbol			Code+market suffix [Mnemonic] This field contains the stock code for the respective message. The code used is the local SGX Security code appended of a suffix used to differentiate each market a stock is traded on. Available markets are: Ready — no suffix Buying-in — ".I" (upper case 'i') Unit share — ".L" Bonds — ".D" Extended settlements — ".S" e.g. "S68" for Singapore Exchange on the Ready market, "S68.I" for Singapore Exchange on the Buying-in market.
207	SecurityExchange			Valid value: XSES
461	CFICode			Not all the codes listed below may be used. Valid values: MMF = Forward E = Equities EM = New market DB = Bonds RW = Warrants O = Stock options F = Futures FFI = Index Futures MRI = Indexes
10013	SuspensionIndicator			Valid values: S = Suspended B = Not yet opened or in pre closure D = Delisting H = Halt J = Adjust L = Pending listing N = Non tradable instrument X = Expired space = No suspension (default)
10037	GroupNumber			Valid values: BNDS = Bonds market RDY = Ready market USH = Unit share market
10073	TransactionType			Valid values: A = Trade cancellation B = Normal Transaction / Matched by system, automatically C = Matched outside exchange, different brokers, trade report D = Matched outside exchange, one broker, trade report, crossing Q = Auction
10085	Indicator1		Indicates the CPF Flag.	Valid values: c = CPF approved investment and scripless securities s = Non-CPF and scripless 4 = ETF, CPF approved investment and scripless securities 5 = ETF, Non-CPF and scripless

Tag	Field Name	Req'd	Comments	Description
10140	TradingPhase		This tag shows the corporation action.	Valid values: C1 = Cum Dividend 2 C2 = Cum Rights 2 C3 = Cum Bonus 2 C4 = Cum Offer 2 C5 = Cum Interest 2 C6 = Cum Entitlement 2 CA = Cum All CB = Cum Bonus CD = Cum Dividend CE = Cum Entitlement CI = Cum Interest CO = Cum Offer CR = Cum Rights CT = Conditional Trading CW = Conditional When Issued WI = When Issued XA = Ex All XB = Ex Bonus XD = Ex Dividend XE = Ex Entitlement XI = Ex Interest XO = Ex Offer XR = Ex Rights
10193	CorporateFlagNews			Reserved for future use.

Tick size tables

TickSizeID (10180)=1

From	Until	Tick
0	0.2	0.001
0.2	2	0.005
2	∞	0.01

TickSizeID (10180)=2

From	Until	Tick
0	0.25	0.001
0.25	0.5	0.005
0.5	10	0.01
10	20	0.02
20	100	0.05
100	200	0.1
200	500	0.2
500	∞	0.5

TickSizeID (10180)=3

From	Until	Tick
0	2	0.001
2	3	0.005
3	30	0.01
30	50	0.05
50	100	0.1
100	∞	1

TickSizeID (10180)=4

From	Until	Tick
0	∞	0.001

TickSizeID (10180)=5

From	Until	Tick
0	∞	0.01

TH – Stock Exchange of Thailand (SET)

Tags definition

Tag	Field Name	Req'd	Comments	Description
55	Symbol			Code+market suffix [Mnemonic] This field contains the stock code for the respective message. The code used is the local SET Security code appended of a suffix used to differentiate each type of stock. Available types are: Main Board no suffix Odd Lot Board ".L" e.g.: KBANK for KASIKORNBANK PCL TOP for THAI OIL PCL TOP.L for THAI OIL PCL, Odd Lot
207	SecurityExchange			Valid value: XBKK
461	CFICode			Not all the codes listed below may be used. Valid values: E = Equities RW = Warrants MRI = Indexes
10013	SuspensionIndicator			Valid values: S = Suspended D = Last day of trading (delisted) SD = Delisted H = Halt HT = Halt due to technical reason HR = Halt due to regulatory reason HC = Halt due to clearing reason HD = Instrument is disabled C = Circuit Breaker W = Price Break space = No suspension (default)
10037	GroupNumber			Valid values: MREG = Regular lot board MODD = Odd lot board FREG = Foreign, regular lot board FODD = Foreign, odd lot board
10073	TransactionType			Valid values: B = Trade matched by exchange trading system. C = Trade report (off-exchange) H = Trade bust (off-exchange)
10085	Indicator1		TTF flag.	Valid values: A = TTF flag is allowed for all. S = TTFflag is allowed for sell orders only space = TTF not allowed (default)
10140	TradingPhase			Valid values: START = System start. Orders cannot

Tag	Field Name	Req'd	Comments	Description
				be entered. No matching. PREO1 = Morning pre-open. Orders can be entered. No matching. OPEN1 = Morning open. Orders can be entered. Matching happens. BI_OP = Buying-in open. INTRS = Intermission period. Only trade update can happen. PREO2 = Afternoon pre-open. Orders can be entered. No matching. OPEN2 = Afternoon open. Orders can be entered. Matching happens. PRECL = Pre-close. Orders can be entered. No matching. OFFHR = Off-hour CLOSE = Market close. Orders cannot be entered. CLOS2 = Market close 2. AFMKT = After market. Non-routine: CBRK = Circuit Breaker. CLEAR = The Clearing facility doesn't allow trading in this instrument. DISAB = The instrument is disabled. HALT = Market Halt IHALT = The instrument is suspended. PBRK = Price break. The system was about to execute a trade outside of the allowed price bands. PREOT = Pre-open for specific security. REGUL = The instrument was halted due to regulatory reasons. SHALT = Segment halt. STOP = The instrument stopped trading. SUSP = Suspension TECH = The instrument was halted due to technical problems.

Tag	Field Name	Req'd	Comments	Description
10193	CorporateFlagNews			Valid values: NP = Non-performing group. NC = Non-compliant. NW = New list. P = Split. A split of par value has been initiated. This flag is cleared at the end of the first trading day after the split. PN = Pending notification. This flag is indicative and has no impact on trading. RN = Notification received. This flag is indicative and has no impact on trading. ST = Stabilization. XA = The security is traded without having the last announced benefit (ex-rights). XD = Same as above. XN = Same as above. XR = Same as above. XS = Same as above. XR = Same as above. XW = Same as above.
10197	ShortSellFlag			Valid values: space= Short sell allowed including on NVDR (default). 4 = Regular short sell allowed. 3 = Short sell not allowed.

Tick size tables

TickSizeID (10180)=10010

From	Until	Tick
0	2	0.01
2	5	0.02
5	10	0.05
10	25	0.1
25	100	0.25
100	200	.5
200	400	1
400	∞	2

TickSizeID (10180)=10011

From	Until	Tick
0	∞	0.000001

TickSizeID (10180)=10012

From	Until	Tick
0	∞	0.01

TickSizeID (10180)=11010

From	Until	Tick
0	∞	0.01