

BTS2 FIX SPECIFICATION

MARKET DATA



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Document History

VERSION	DATE	SUMMARY OF CHANGES
1.00	2013-01-25	First release of BTS2 FIX Specification: Market Data
1.02	2013-03-11	<ul style="list-style-type: none"> • Section 3.2.2: Expanded • Section 3.2.4: Expanded • Section 3.2.7 Table 12: Added TradingSessionID • Section 3.2.8 Table 13: Description amended & added MDEntryType = '5' and 'u' • Section 3.2.9 Table 14: Description amended & added MDEntryType = 'E', 'F' and 't' • Section 3.3 Table 15: Comments amended • Section 3.5 Table 17: Comments amended and added TrdType (828) • Section 3.6.1 Table 18: Comments amended and added TrdType (828) • Section 3.7: Comments amended • Section 3.8: Expanded. • Section 3.8 Table 20: Comments amended and added TradSesOpenTime (342) and TradSesEndTime (345) • Section 4.5: Expanded • Section 4.5 Table 27: Comments amended • Section 4.7 Table 29: Comments amended • Section B.1 : Expanded • Section B.1 Table 37: SecurityGroup (1151) added. • Appendix C Table 45: Added value 'G' (Trade Correct) for ExecType (150) • Appendix C Table 45: Comment amended for MassActionScope (1374) • Appendix C Table 45: Added value 'E', 'F', 'u' and 't' for MDEntryType (269) • Appendix C Table 45: Added value 'M' for OrderCapacity (528) • Appendix C Table 45: Removed value '5' for OrderRestrictions (529) • Appendix C Table 45: Removed value '1' and '19' for SecurityTradingStatus (326) • Appendix C Table 45: Added value '100' (Crossing Order Trade) for TrdType (828)
1.05	2013-04-26	<ul style="list-style-type: none"> • Removed YieldType (235) value 'TRUE' in Appendix C. • Tag SubscriptionRequestType (236) in Market Definition Request supports 0 – Snapshot only. • Remove Tag Currency (15) from MarketDataRequest message. • Added Tag OrderID (37) in Market Data Snapshot/Full Refresh (W) and Market Data Incremental Refresh (X). • Updated valid values for MarketID (1301) and MarketSegmentID (1300). • Removed YieldRedemptionPrice (697) from YieldData Component Block. • Security Status update is sent only when CorporateAction (292), TradingSessionID (336) or SecurityTradingStatus (326) is changed. • Added tag TotNumReports (911) to Market Data Snapshot Full Refresh (W). • Removed the following from Appendix C :- • 1138 – DisplayQty

VERSION	DATE	SUMMARY OF CHANGES
		<ul style="list-style-type: none"> • 432 ExpireDate • 126 ExpireTime • Added section 2.2 - FIX Session establishment scenarios. • Updated description for Component Block in Security Definition request (c) • Replaced Tag 264 with 290 in Market By Price table • Rename 871=101 from 'Type of Instrument' to 'Security Category' • Rename 871=110 from 'Sub-sector' to 'Industry' • Added Appendix E -Security Category • Added Appendix F -Sectors
1.06	2013-05-22	<ul style="list-style-type: none"> • Removed B6 TriggeringInstruction Component Block; subsequent appendices renumbered automatically (eg B7 → B6 etc) • Added Product Type in Appendix-E, for information • Added notes for Bonds under Appendix-E, for information • Added Section 1.5 FIX Compression. • Changed Tag 1150 to required. • Removed value 3 and 4 from Tag 279 – MDUpdateAction. • Updated description for tag 871 – InstrAttribType. • Added 'CBH' to Tag 336 TradingSessionID. • Changed password maximum length to 12 characters. • Renamed 871=112 from 'Listing Type (eg Shariah) ' to 'Shariah Compliant'
1.07	2013-06-13	<ul style="list-style-type: none"> • Added value 5 to SecurityResponseType (323) in Appendix C. • Added "withdraw on log off" value in ExecInst (18). • Changed Tag 871 =111 to "Delivery Basis". • Added Tag Text (58) in Index Information Returned Tags. • Added "FX" to Tag MarketID (1301). • Added indicative Open index value in Index Information Returned Tags.
1.08	2013-07-15	<ul style="list-style-type: none"> • Added Appendix G - Tick Tables
1.09	2013-09-03	<ul style="list-style-type: none"> • Deleted last incorrect statement in section 2.1.4 - Changing FIX Session Passwords. • Added Tag AccruedInterestAmt (159) to Security List (y) andSecurity List Update Report (BK) messages. • Removed Tag StrikeCurrency (947) from Instrument component block • Removed 'X' 'R' and added 'Y' to Tag 58 (Index indicator for FTSE Bursa Malaysia

VERSION	DATE	SUMMARY OF CHANGES
		<p>indices) in messages X, W</p> <ul style="list-style-type: none"> Removed Tag YieldRedemptionDate (696) from YieldData component. Added 'CLOSE' to Tag 336 TradingSessionID and changed description of 'EOT'
1.10	2014-01-23	<ul style="list-style-type: none"> Changed 'Trading Halt' to 'Trading Suspension' in Tag 326 Added 'OPN2' to Tag 336 TradingSessionID Added Tag UnderlyingSecuritySubType (763) in Table 53 – UnderlyingInstrument Component Block Updated Appendix G Added description for values under Tag 871=109 (RSS/PDT) Added indicative (theoretical) closing price and quantity in <i>Table 14 - Security Statistics Returned Tags</i>. Added comments for Tag 561 – RoundLot and Tag 562 - MinTradeVol Tag 286 - OpenCloseSettleFlag – comments updated in <i>Table 17 – Market Data Snapshot/Full Refresh</i> and <i>Table 18 – Market Data Incremental Refresh</i>. Changed delivery Basis from 1 to 0 for Buying-in (T+0) in Tag 871 InstrAttribType in Appendix C. Added section 3 on reference and market data Removed Total Number of Shares Traded today (3,1020) and Total Value of Security Traded today (B, 270) from Indices. See <i>Table 1 - Index Information Returned Tags</i>.
1.11	2016-12-05	<ul style="list-style-type: none"> Section B.1 Table 37: SecurityGroup (1151) added 'LEAP'. Appendix E : Added description for values under Tag 872=(302/303).
1.12	2017-03-07	<ul style="list-style-type: none"> Added Appendix G – Market Data preventative
1.13	2017-10-06	<ul style="list-style-type: none"> Added SECTOR : LEAP and ETF-COMMODITY
1.14	2018-02-05	<ul style="list-style-type: none"> Added value 'i' for MDEntryType(269) Appendix C : Update description for values under Tag 871=109
1.15	2018-06-29	<ul style="list-style-type: none"> Appendix C : Rename 871=110 from 'Industry' to 'Sub-sector' Appendix F : Bursa Sector and Bursa Sub-sector

VERSION	DATE	SUMMARY OF CHANGES
		<ul style="list-style-type: none">Appendix C : Added Tag 872, when Tag 871=121
1.16	2019-04-22	<ul style="list-style-type: none">Appendix F : New sector and Bursa Sub-Sector for ETF-L&IAppendix C : update Delivery Basic for T+2(effective from 29/04/2019)
1.17	2019-10-10	<ul style="list-style-type: none">Added value "V" for MDEntryType(269)Added value "W" for MDEntryType(269)Added value "Y" for MDEntryType(269)Appendix C : Update description for values under Tag 871=109Appendix C : Update description for values under Tag 871=121
1.18	2024-02-20	<ul style="list-style-type: none">Appendix F: New Sector 0066 and SubSector 9601

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1 FIX Specification for BTS2

This document provides the BTS2 FIX message specification supporting version 5.0 (SP1) of the FIX protocol specification.

1.1 FIX V5.0 (SP1) Supported Messages

The FIX V5.0 (SP1) specific messages are:

- Market Definition Request (BT), Market Definition (BU)
- Trading Session List Update Report (BS)
- Security List Update Report (BK)
- Security Definition Update Report (BP)

It should be noted that some request and/or response messages will contain both FIX V4.4 and V5.0 (SP1) fields. Tag values at 1000 or above are V5.0 (SP1) tags.

FIX V5.0 tag values are all identified within the applicable messages.

1.2 Document Structure

This document is divided into the following chapters:

Chapter 2 – Session and Infrastructure messages.

Chapter 3 – Market Data

Chapter 4 – Reference Data

Appendix A describes the FIX Standard Header and Standard Trailer.

Appendix B describes the various component blocks used throughout this document.

Appendix C describes the enumerations for fields with multiple valid values.

Appendix D describes the FIX data types referred to in the 'format' column of each message description.

1.3 References

The following references are documents related to this specification.

Table 2 – Reference Documents

DOCUMENT	DESCRIPTION
Volume 1 – Introduction to the FIX Protocol V5.0 (SP1)	Provides information on the FIX protocol including common components, data types and usage.
Volume 2 – Fix Protocol Specification V4.4.	Provides information on session level FIX messages
Volume 3 – FIX Protocol Specification V5.0 (SP1)	Provides information on pre-trade FIX messages
Volume 4 – FIX Protocol Specification V5.0 (SP1)	Provides information on order and execution FIX messages
Volume 5 – FIX Protocol Specification V5.0 (SP1)	Provides information on post-trade FIX messages

1.4 FIX Messages Supported

The following table lists the FIX messages that are supported by the FIX Gateway. The messages and securities that can be accessed by FIX connections as configured by the Exchange.

Table 3 – FIX Messages Supported

MESSAGE NAME	MESSAGE TYPE	MESSAGE DIRECTION	MESSAGE FUNCTION
Logon	A	Inbound Outbound	Identifies and authenticates a user/member establishing a connection to the gateway.
Logout	5	Inbound Outbound	Used to terminate a FIX session.
Reject	3	Inbound Outbound	Response message providing notification regarding messages that cannot be processed by the gateway or FIX Client.
Resend Request	2	Inbound Outbound	Initiates a re-transmission of messages from the gateway.
Sequence Reset (Gap Fill)	4	Inbound Outbound	Message has two modes: Sequence Reset - Gap Fill and Sequence Reset-Reset.
Test Request	1	Inbound Outbound	Verifies sequence numbers or communications line status.
Heartbeat	O	Inbound Outbound	Monitors gateway status during periods of inactivity.
Business Message Reject	j	Outbound	Rejects any application message that cannot be processed by the Gateway and cannot be rejected via another message.
Market Data Request	V	Inbound	Requests current best market information in a market for a security.
Market Data Request Reject	Y	Outbound	Rejects market data request messages that cannot be honoured due to business or technical reasons.
Market Data Snapshot / Full Refresh	W	Outbound	Responds to the Market Data Request message with the current best market information for a security.
Market Data Incremental Refresh	X	Outbound	Used for Market Data incremental updates.
Trading Session Status Request	g	Inbound	Request information on the status of a market.
Trading Session Status	h	Outbound	Responds with the current status of a market.

MESSAGE NAME	MESSAGE TYPE	MESSAGE DIRECTION	MESSAGE FUNCTION
Security Status Request	e	Inbound	Requests the status of a security. One or more Security Status message are returned as a result of a Security Status Request.
Security Status	f	Outbound	Responds with the current state of a security that is currently listed. May be filtered by board.
News	B	Outbound	Contains bulletin messages initiated by the Exchange.
Market Definition Request	BT	Inbound	Request for market structure information from the Exchange.
Market Definition	BU	Outbound	Respond to Market Definition Request.
Trading Session List Request	BI	Inbound	Request a list of trading sessions available in a market place and the state of those trading sessions.
Trading Session List	BJ	Outbound	Respond to a Trading Session List Request containing the characteristics of the trading session(s).
Trading Session List Update Report	BS	Outbound	Provides intra-day updates of trading sessions when there are changes to one or more trading sessions.
Security List Request	x	Inbound	Requests a list of securities from the Exchange that match criteria provided in the request.
Security List	y	Outbound	Responds with a list of securities that match the criteria specified in a Security List Request.
Security List Update	BK	Outbound	Responds with updates to the reference database. Updates could be due to Corporate Action or other business events.
Security Definition Request	c	Inbound	Request the definition of a specific security, set of individual securities for a single market segment or all securities.
Security Definition	d	Outbound	Responds to the Security Definition Request.
Security Definition Update	BP	Outbound	Responds with updates to the reference database. Updates could be due to Corporate Action or other business events.

1.5 FIX Compression

X-stream FIX offers optional compression on the FIX session. The compression algorithm used is the well-known and widely used ZLIB compression.

ZLIB implementations are available in a wide range of free, open source and commercial tools (zlib.net).

Programming languages such as Java have built-in ZLIB implementations.

If configured, all messages outbound from the marketplace are compressed. Inbound messages should NOT be compressed.

The following Java code sample illustrates the decompression process:

```
Inflater inflater = new Inflater(); //Inflater for decompress
// compressed input stream
InputStream inputStream = clientSocket.getInputStream();
byte buf[] = new byte[1024]; //buffer for reading compressed bytes
byte decompressed[] = new byte[1024]; //buffer for decompressed bytes

while (clientSocket.isConnected()) {
    while (!inflater.finished()) {
        //output byte array stream for assemble decompressed bytes
        ByteArrayOutputStream baos = new ByteArrayOutputStream();
        if (inflater.needsInput()) {
            len = inputStream.read(buf);
            if (len == -1)
                break; //handle EOF
            inflater.setInput(buf, 0, len);
        }
        int decompressedLen = inflater.inflate(decompressed);
        baos.write(decompressed, 0, decompressedLen);
    }
    //do normal processing
    process(baos.toByteArray());

    int remaining = inflater.getRemaining();
    //reset inflater for next compression unit
    inflater.reset();
    if (remaining > 0) {
        //put the remaining in inflater for next compression unit
        inflater.setInput(buf, len - remaining, remaining);
    }
}
}
```

2 Session and Infrastructure Messages

This section defines the FIX Session and Infrastructure messages. This section also describes the FIX Session establishment actions.

The FIX Session Level messages are:

- Logon
- Logout
- Reject
- Resend Request
- Sequence Reset (Gap Fill)
- Test Request
- Heartbeat

The FIX Infrastructure messages are:

- Business Message Reject

2.1 FIX Session Establishment

2.1.1 Logon and Authentication

A FIX session must be established with BTS2 before the exchange of business messages is allowed. The session is established using the Logon message and part of session establishment processing includes the authentication of the initiator. This requires that a valid SenderCompID (49) which defines the party initiating the session, and a password, is provided in the Logon message which can be used for security authentication purposes. A FIX session will not be established if authentication processing fails.

2.1.2 Logon Failures and Account Locking

All logon failures return a Logout message with an appropriate reason code and may include additional text which provides additional information regarding the failure. If the session initiator fails to authenticate with the BTS2 system within a defined number of attempts, the account will be locked and all subsequent logon attempts will be rejected. If logons are disabled by the marketplace, a failure to logon will not cause the account to be locked but only rejected. Any other causes for authentication failure will cause the account to be locked after a defined number of failed attempts. To unlock the account requires marketplace operations to reset the account and assign a new password.

2.1.3 FIX Session SenderCompID, Username and Passwords

The SenderCompID (49), username (553) and session password are always required for authentication with BTS2 and must be included in the Logon message. Both SenderCompID and Username (553) can have a maximum length of 30 characters. Session password (when in plain text) can have a maximum length of 12 characters.

2.1.4 Changing FIX Session Passwords

Passwords can be changed using the FIX session Login messages and the following will apply:

- Passwords used for BTS2 session authentication must be changed on a periodic basis as they have a limited lifetime. Passwords can be changed programmatically using the Logon message only at session establishment and only while they are valid. If the password has expired or cannot be changed programmatically due to limitations of the Participant's FIX implementation then they must be changed manually by Business or Technical Operations.
- To change the FIX session password at logon time both the current password and the new password must be included in the FIX Logon message. In addition, the SenderCompID (49), UserName (553) and the current password must be valid otherwise authentication will fail.
- The current password is sent using the Password (554) field in the Logon message. It should be noted that the password will transit external and internal BTS2 networks in plain text if encryption is not utilized (refer to Section 2.1.5 regarding encryption).
- Providing the SenderCompID, UserName (553) and current password are valid, the new password is checked against the password policy for compliance. If the new password complies, it is updated in the BTS2 database and becomes the password to be used for the next session logon. If the new password does not comply with the password policy then an error status and message is returned in the Logon confirm message.

2.1.5 Encryption

FIX for BTS2 does not currently support either password or message encryption over FIX sessions. If encryption is required then hardware based encryption must be used.

2.1.6 FIX Session Logon Confirmation and Logout

Upon receipt of a Logon message and after successful authentication, a Logon message is returned as an acknowledgement indicating that a session has been established. If a session logon has failed for any reason a FIX Logout message is returned. Both the FIX Logon and Logout messages include fields which are used to return status and text information pertaining to either a successful or failed session logon.

2.1.6.1 Logon Confirmation (Session Authenticated)

Both the Logon and Logout message contain the Text(58) field which provide additional may be returned in the Logon notification message. For example, the text information returned may indicate the application version in use, why the new password did not comply with password policies, the number of days until the password expires or other information deemed relevant by the marketplace.

2.1.6.2 Logout (Authentication Failure)

Failure to establish a session with BTS2 for any reason will return a Logout message. The Text(58) field in the Logout message may contain additional useful information regarding the reason for the Logout message being returned.

2.2 FIX Session establishment scenarios

There are four types of FIX session establishment scenarios:

1. At the start of the day, a new FIX session should be used to connect to the FIX server.
2. If for any reason a FIX session is disconnected, the FIX session should try reconnect to the same FIX server.

3. If the FIX session cannot be reconnected to the same FIX server, it should fail over to the backup FIX server.
4. If the FIX session cannot be established with the backup FIX server, a new FIX session should be used to connect to the disaster recovery FIX server.

2.2.1 Start of the day

A new FIX session is required at the start of the day, with MsgSeqNum (34) set to 1 in the Logon message. The FIX session should expect MsgSeqNum (34) in the reply message to start from 1. However FIX server might generate execution reports before log on, incrementing the MsgSeqNum (34) to be greater than 1. In this case, Resend Request message can be used to retrieve messages generated before log on from sequence number 1.

2.2.2 Reconnect

When reconnecting to the same FIX server, the Logon message should set MsgSeqNum (34) to the last MsgSeqNum (34) sent plus 1. A FIX session can only be reconnected in the same day.

The FIX session should also expect the MsgSeqNum (34) from the FIX server to be the last MsgSeqNum (34) received plus 1. Resend Request message can be used to retrieve messages missed during disconnection, if a higher than expected MsgSeqNum (34) is received.

FIX message subscriptions submitted before disconnection will still generate messages during disconnection, same as execution reports. These messages can be retrieved using the Resend Request message.

2.2.3 Fail over

Connecting to the backup FIX server is similar to reconnect, except that previously submitted FIX message subscriptions will not be kept. The FIX session should subscribe these messages again.

2.2.4 Disaster recovery

Connecting to the disaster recovery server is the same as connecting at the start of the day, except that the FIX server address is different.

2.3 Logon (A)

The logon message authenticates a user establishing a connection to a remote system. The logon message must be the first message sent by the application requesting to initiate a FIX session.

Table 4 – Logon

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = A	
98	EncryptMethod	Y	(Always unencrypted)	Int
108	HeartBtInt	Y	Note same value used by both sides	Int
141	ResetSeqNumFlag	N	Indicates both sides of a FIX session should reset sequence numbers	Boolean

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
1137	DefaultApplVerID	Y	Specifies the service pack release being applied by default to the message at the session level. The only valid value is '8' = FIX50SP1.	String
553	Username	Y	Specifies a different username or userID to use for authentication	String
554	Password	Y	Note: minimal security exists without transport-level encryption. Maximum length 12 characters.	String
925	NewPassword	N	Specifies a new password when required. Maximum length 12 characters.	String(12)
58	Text	N	Free format text string	String(12)
Standard Trailer		Y		

The FIX gateway accepts HeartBtInt(108) range from 10 to 60. If client HeartBtInt is out of this range, the server will reply with the last valid value, or the default value (60) if it is the first logon of the day.

2.4 Logout (5)

The logout message initiates or confirms the termination of a FIX session. Disconnection without the exchange of logout messages should be interpreted as an abnormal condition.

The logout format is as follows.

Table 5 – Logout

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = 5	
58	Text	N	Free format text string	String
Standard Trailer		Y		

2.5 Reject (3)

The reject message should be issued when a message is received but cannot be properly processed due to a session-level rule violation. An example of when a reject may be appropriate would be the receipt of a message with invalid basic data (e.g. MsgType=&) which successfully passes de-encryption, CheckSum and BodyLength checks. As a rule, messages should be forwarded to the trading application for business level rejections whenever possible.

Rejected messages should be logged and the incoming sequence number incremented.

The reject format is as follows.

Table 6 – Reject

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = 3	
45	RefSeqNum	Y	MsgSeqNum of rejected message	SeqNum

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
371	RefTagID	N	The tag number of the FIX field being referenced.	Int
372	RefMsgType	N	The MsgType of the FIX message being referenced.	String
373	SessionRejectReason	N	Code to identify reason for a session-level Reject message.	Int
58	Text	N	Free format text string	String
Standard Trailer		Y		

2.6 Resend Request (2)

The resend request is sent by the receiving application to initiate the retransmission of messages. This function is utilized if a sequence number gap is detected, if the receiving application lost a message, or as a function of the initialization process.

The resend request can be used to request a single message, a range of messages or all messages subsequent to a particular message.

The resend request format is as follows.

Table 7 – Resend Request

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = 2	
7	BeginSeqNo	Y		SeqNum
16	EndSeqNo	Y		SeqNum
Standard Trailer		Y		

2.7 Sequence Reset (Gap Fill) (4)

The Sequence Reset message has two modes: Gap Fill mode and Reset mode.

Gap Fill mode

Gap Fill mode is used in response to a Resend Request when one or more messages must be skipped over for the following reasons:

During normal resend processing, the sending application may choose not to send a message (e.g. an aged order). During normal resend processing, a number of administrative messages are skipped and not resent (such as Heart Beats, Test Requests). Gap Fill mode is indicated by GapFillFlag (tag 123) field = "Y". If the GapFillFlag field is present (and equal to "Y"), the MsgSeqNum should conform to standard message sequencing rules (i.e. the MsgSeqNum of the Sequence Reset GapFill mode message should represent the beginning MsgSeqNum in the GapFill range because the remote side is expecting that next message sequence number).

Reset mode

Reset mode involves specifying an arbitrarily higher new sequence number to be expected by the receiver of the Sequence Reset-Reset message, and is used to establish a FIX session after an unrecoverable application failure.

Reset mode is indicated by the GapFillFlag (tag 123) field = "N" or if the field is omitted. The Sequence Reset format is as follows.

Table 8 – Sequence Reset

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = 4	
123	GapFillFlag	N		Boolean
36	NewSeqNo	Y		SeqNum
Standard Trailer		Y		

2.8 Test Request (1)

The test request message forces a heartbeat from the opposing application. The test request message checks sequence numbers or verifies communication line status. The opposite application responds to the Test Request with a Heartbeat containing the TestReqID.

The TestReqID verifies that the opposite application is generating the heartbeat as the result of Test Request and not a normal timeout. The opposite application includes the TestReqID in the resulting Heartbeat. Any string can be used as the TestReqID (one suggestion is to use a timestamp string). The test request format is as follows.

Table 9 – Test Request

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = 1	
112	TestReqID	Y		String
Standard Trailer		Y		

2.9 Heartbeat (0)

The Heartbeat monitors the status of the communication link and identifies when the last of a string of messages was not received.

When either end of a FIX connection has not sent any data for [HeartBtInt] seconds, it will transmit a Heartbeat message. When either end of the connection has not received any data for (HeartBtInt + "some reasonable transmission time") seconds, it will transmit a Test Request message. If there is still no heartbeat message received after (HeartBtInt + "some reasonable transmission time") seconds then the connection should be considered lost and corrective action be initiated. If HeartBtInt is set to zero then no regular heartbeat messages will be generated. Note that a test request message can still be sent independent of the value of the HeartBtInt, which will force a Heartbeat message.

Heartbeats issued as the result of Test Request must contain the TestReqID transmitted in the Test Request message. This is useful to verify that the Heartbeat is the result of the Test Request and not as the result of a regular timeout.

The heartbeat format is as follows.

Table 10 – Heartbeat

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
Standard Header		Y	MsgType = 0	
112	TestReqID	N	Required when the heartbeat is the result of a Test Request message.	String
Standard Trailer		Y		

2.10 Business Message Reject (j)

The Business Message Reject message can reject an application-level message which fulfils session-level rules and cannot be rejected via any other means. Note if the message fails a session-level rule (e.g. body length is incorrect), a session-level Reject message should be issued.

Table 11 – Business Message Reject

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = j (lowercase)	
45	RefSeqNum	N	MsgSeqNum of rejected message	SeqNum
372	RefMsgType	Y	The MsgType of the FIX message being referenced.	String
379	BusinessRejectRefID	N	The value of the business-level "ID" field on the message being referenced. Required unless the corresponding ID field (see list above) was not specified.	String
380	BusinessRejectReason	Y	Code to identify reason for a Business Message Reject message. Code to identify reason for a Business Message Reject message.	Int
58	Text	N	Free format text string	String
Standard Trailer		Y		

3 Reference Data & Market Data

The recommended data requests at the start of day are as follows:-

- Market Definition Request
 - ← Market Definition
- Security List Request
 - ← Security List
- Security List Update
 - ← Security Definition Request
- Security Definition
 - ← Security Definition Update
- Trading Session List Request
 - ← Trading Session List
 - ← Trading Session List Update Report

- Trading Session Status Request
 - ← Trading Session Status
- Security Status Request
 - ← Security Status
- Market Data Snapshot/Full Refresh
 - ← Market Data Incremental Refresh

4 Market Data

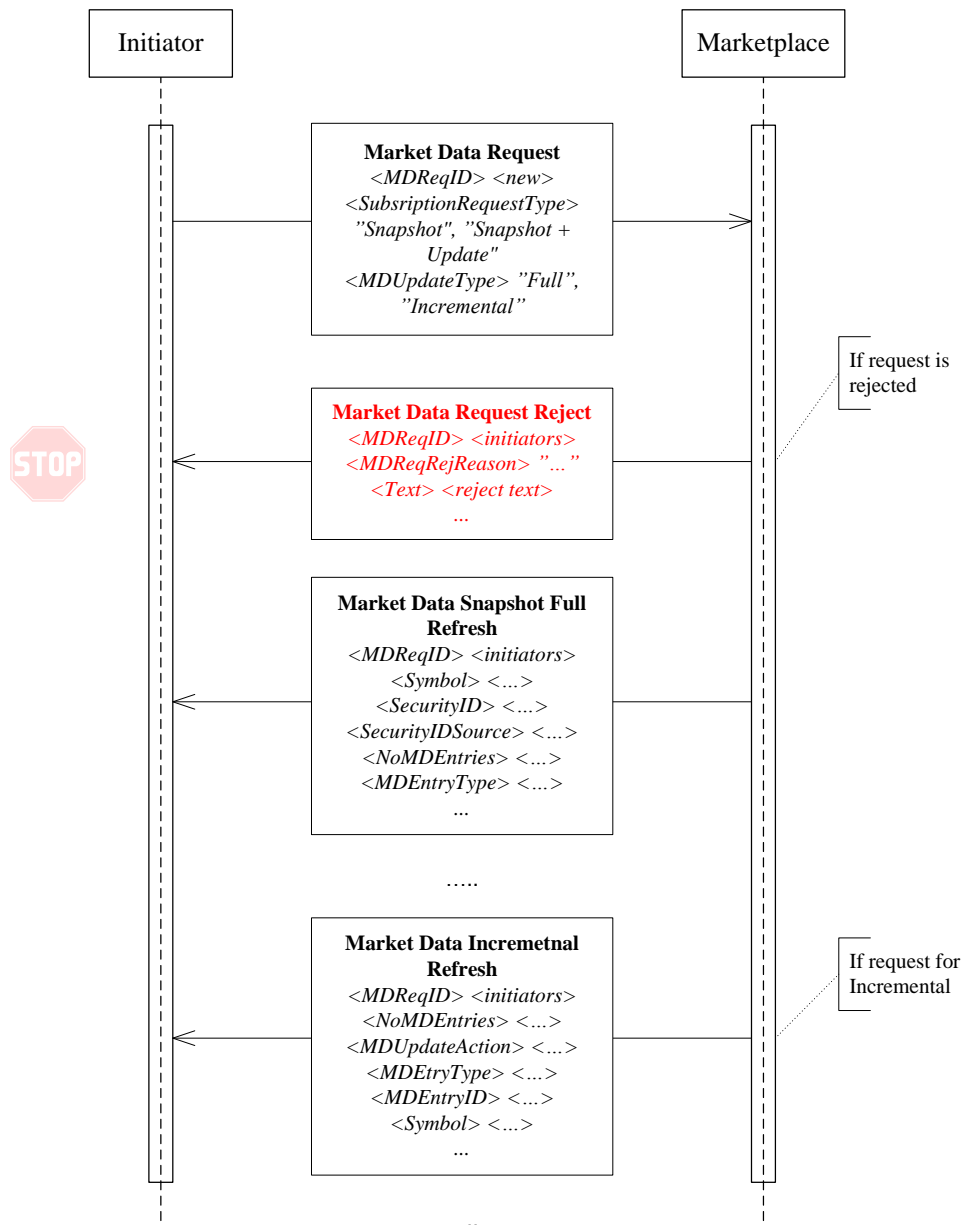
The market category consists of the following messages:

- Market Data Request
- Market Data Request Reject
- Market Data Snapshot/Full Refresh
- Market Data Incremental Refresh
- Trading Session Status Request
- Trading Session Status
- Security Status Request
- Security Status
- News

4.1 Workflows

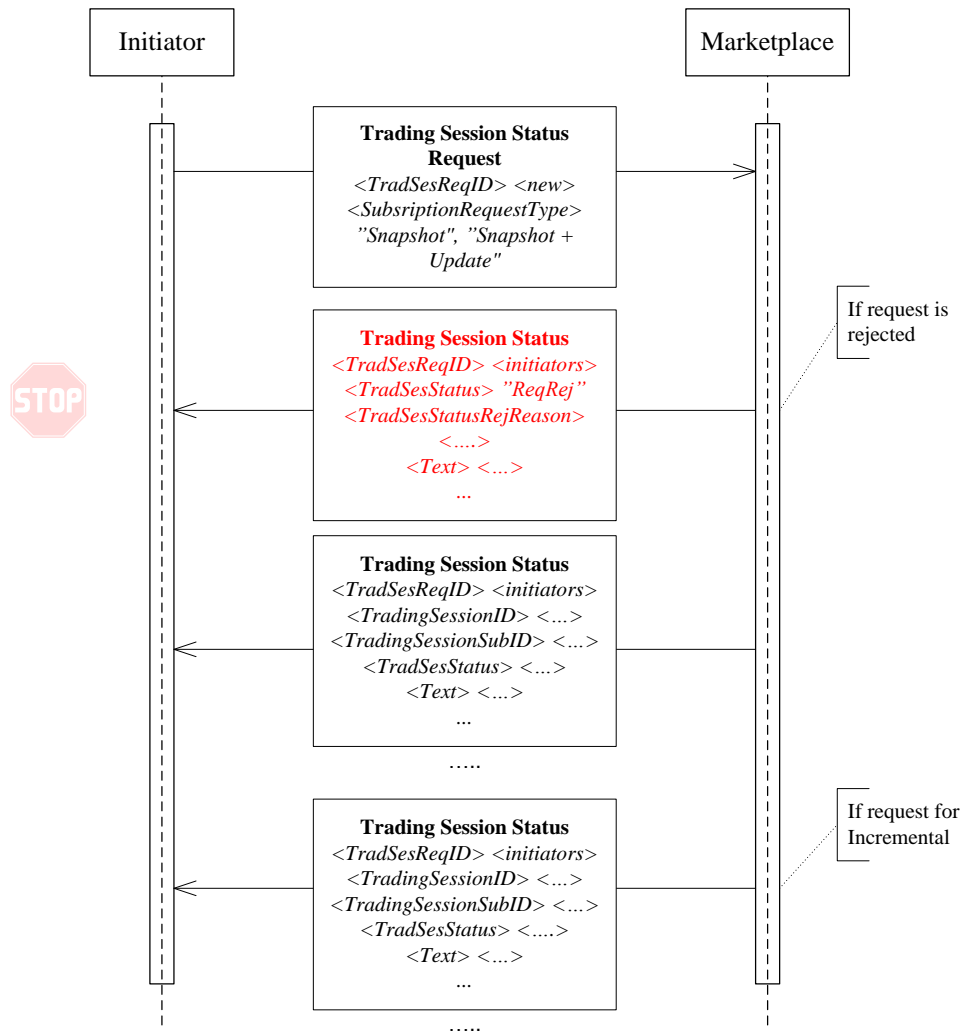
4.1.1 Subscribing to and Receiving Market Data

Figure 1 – Subscribing and Receiving Market Data Workflow



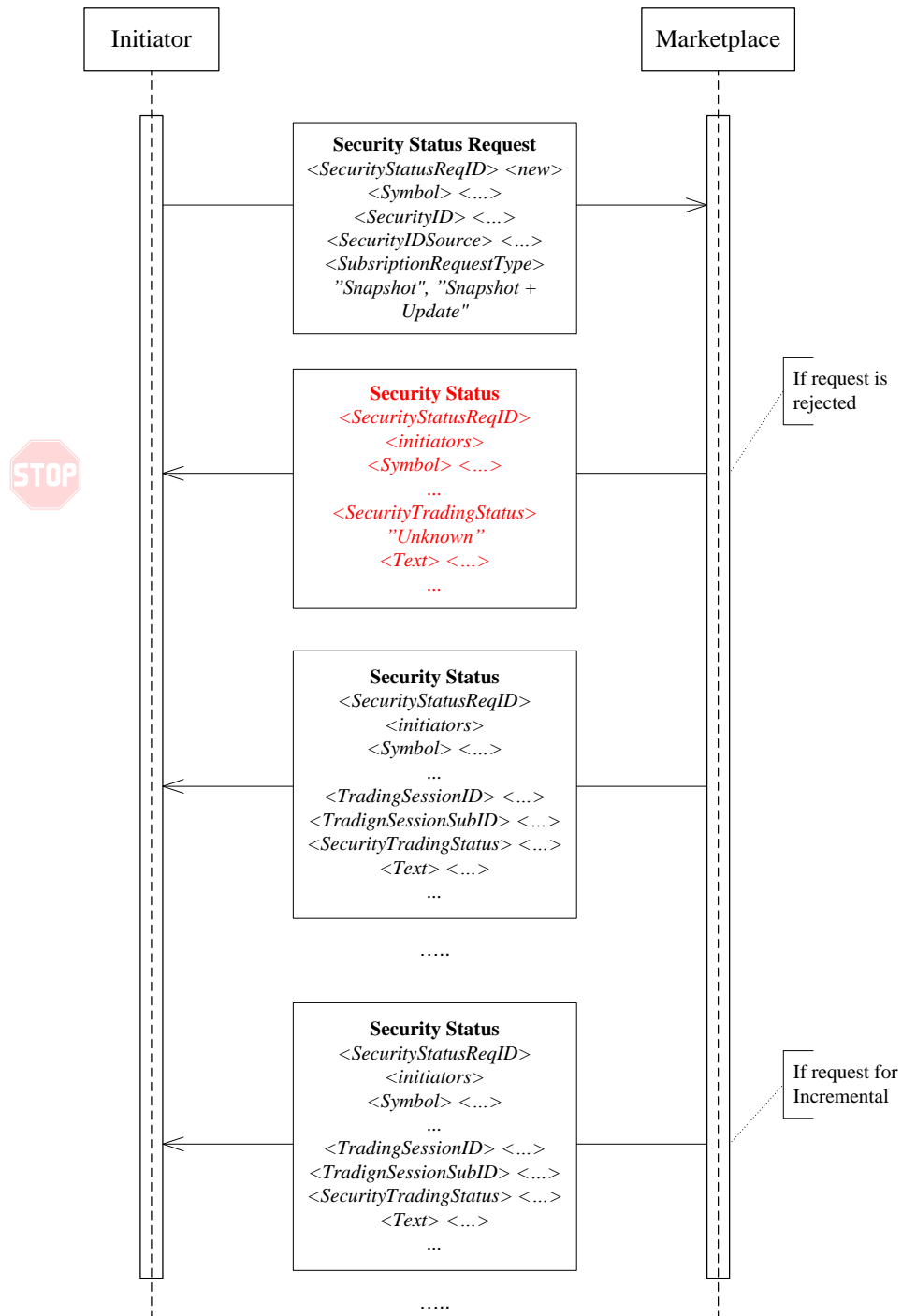
4.1.2 Subscribing to and Receiving Trading Session Status

Figure 2 – Subscribing and Receiving Trading Session Status Workflow



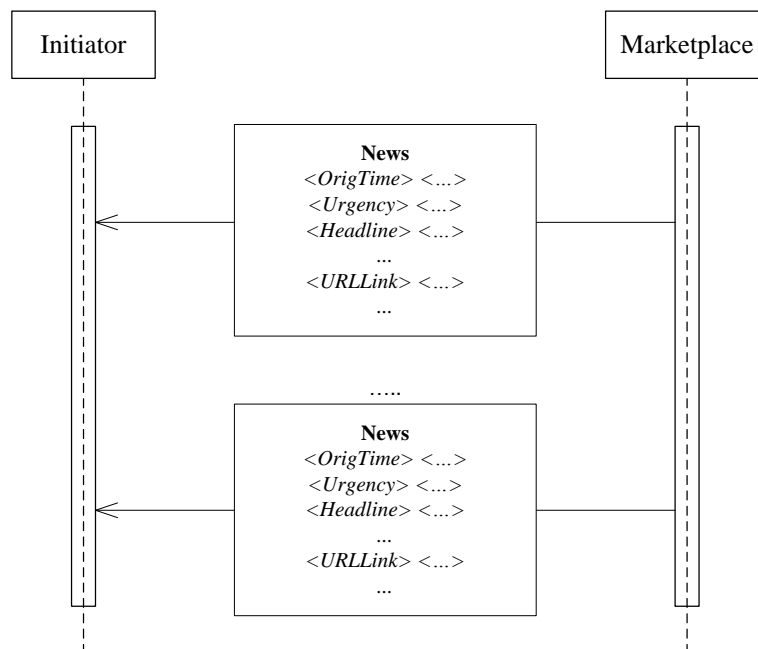
4.1.3 Subscribing to and Receiving Security Status

Figure 3 – Subscribing to and Receiving Security Status Workflow



4.1.4 Receiving News

Figure 4 – Receiving News Workflow



4.2 General Information for Market Data Requests and Responses

4.2.1 Market Data Requests Based on Category

Specific market data requests can be specified for the following major categories using the MDEntryType (269) tag:

- 0 - Order information – requests all order related information in market by order and market by price messages (e.g. bids, offers, etc.).
- 2 - Trade information – returns all market trade information and statistics.
- 3 - Index information – returns all index related information.
- '*' - Security statistics (BTS2 specific) – returns security specific market statistics.

4.2.2 Market Data Snapshot Requests

Specific securities can be specified in repeating MDReqGrp for market data requests with a configurable limit on the maximum number of MDReqGrp. The default limit is configured to five (5) securities. Refer to the FIX Installation Guide for details on this parameter. It should be also noted that the greater the number of securities specified the greater bandwidth and latency will be impacted.

Every MDReqGrp should contain tag SecurityID (48) and SecurityIDSource (22). SecuritySubType (762) and SecurityGroup (1151) are optional. Both SecuritySubType (762) and SecurityGroup (1151) should contain the same value for every MDReqGrp in the same market data request.

4.2.3 Wildcard Security Specification

The '*' symbol is used to specify a market data request for all securities on one or more trading boards and/or markets. The '*' symbol cannot be used within a security specification to request securities starting with, ending with or containing alphanumeric combinations such as 'AB*', '*AB' or 'A*B'.

4.2.4 Scenarios

The following scenarios will help clarify market data requests.

- To get market data on all securities on all boards and all markets specify:
 - NoRelatedSymbols (146) =1
 - SecurityIDSource (22) = '99' and SecurityID (48)='*'
 - SecuritySubType (762) is not specified.
 - SecurityGroup (1151) is not specified.
- To get market data on all securities on a single trading board specify:
 - NoRelatedSymbols (146) =1
 - SecurityIDSource (22) = '99' and SecurityID (48)='*'
 - SecuritySubType (762) = 'NM'
 - SecurityGroup (1151) is not specified.
- To get market data on two selected securities on a single board:
 - NoRelatedSymbols (146) =2
 - SecurityIDSource (22) = '99' and SecurityID (48)='ABC001' and SecuritySubType (762) = 'NM'
 - SecurityIDSource (22) = '99' and SecurityID (48)='DEF888' and SecuritySubType (762) = 'NM'
 - SecurityGroup (1151) is not specified.
- To get market data on all securities on a market (security group):
 - NoRelatedSymbols (146) =1
 - SecurityIDSource (22) = '99' and SecurityID (48)='*'
 - SecuritySubType (762) is not specified.
 - SecurityGroup (1151) = 'MAIN'
- To get market data on all securities on a market (security group) and on a single board:
 - NoRelatedSymbols (146) =1
 - SecurityIDSource (22) = '99' and SecurityID (48)='*'
 - SecuritySubType (762) = 'NM'.
 - SecurityGroup (1151) = 'MAIN'

4.2.5 Response Enumerations Extensions

There are additional BTS2 specific enumerations which have been added for the MDEntryType (269) tag which apply only to market data request responses (not requests) and are used to identify the type of information being returned. Refer to Appendix C and the tables below for details on enumerated values for MDEntryType (269) for market data responses.

4.2.6 Order Information Request and Responses

The following table applies to Market Data requests for Order Information (MDEntryType = '0') and indicates which tags are used to return the requested information.

Table 12 - Order Information Response Tags

Order Information (Request MDEntryType = '0')			
Returned MDEntryType (269)	Returned Tags	Tag Names	Description
Market By Order			
0,1	236	Yield	Bid/Offer Yield (Fixed Income securities only)
0,1	269	MDEntryType	Bid/Offer
0,1	270	MDEntryPx	Bid/Offer Price
0,1	271	MDEntrySize	Bid/Offer Quantity
0,1	272	MDEntryDate	Returned for Order Depth
0,1	273	MDEntryTime	Returned for Order Depth
0,1	290	MDEntryPositionNo	Display position of bid/offer
Market By Price			
0,1	236	Yield	Yield (Fixed Income securities only)
0,1	290	MDEntryPositionNo	Display position of bid/offer
0,1	269	MDEntryType	Bid/Offer
0,1	270	MDEntryPx	Bid/Offer Price
0,1	271	MDEntrySize	Total visible quantity of all orders at this price.
0,1	346	NumberOfOrders	Number of orders in the market

4.2.7 Trade Information Request and Responses

The following table applies to Market Data requests for Trade Information (MDEntryType = '2') and indicates which tags are used to return the requested information.

By default, only the last 10 trades are reported in a Market Data Snapshot/Full Refresh of trades for a security.

Table 13 - Trade Information Returned Tags

Trade Information (Request MDEntryType = '2')			
Returned MDEntryType (269)	Returned Tags	Tag Names	Description
2	31	LastPx	Value of this trade (price*quantity)
2	236	Yield	Yield (Fixed Income securities only)
2	270	MDEntryPx	Trade price
2	273 & 272	MDEntryDate, MDEntryTime	Both MDEntryDate(272) and MDEntryTime(273) are supplied.
2	1020	TradeVolume	Number of shares traded
2	279	MDUpdateAction	Trade Status - Matched, Cancelled, Amended. In IncrementalRefresh MDUpdateAction(279) indicates whether a trade is being matched/cancelled/amended. This tag is not provided on Snapshot/FullRefresh as 'cancelled' marketTrades are not disseminated.
2	336	TradingSessionID	Identifier for the trading session of a trade.

4.2.8 Index Information Request and Responses

The following table applies to Market Data requests for Index Information (MDEntryType = '3') and indicates which tags are used to return the requested information.

Table 14 - Index Information Returned Tags

Index Information (Request MDEntryType = '3')			
Returned MDEntryType (269)	Returned Tags	Tag Names	Description
3	31	LastPx	Last index value
3	58	Text	Last index price type: N - Normal I - Indicative H - Held C - Closed K - Part Calculated Value P - Pre market Y - Previous day close
3	235, 236	YieldType (string = High), Yield	Day high yield*

Index Information (Request MDEntryType = '3')			
3	235, 236	YieldType (string = Low), Yield	Day low yield*
3	235, 236	YieldType (string = Last), Yield	Last index yield*
3	235, 236	YieldType (string = OpenAvg), Yield	Opening Index Yield*
3	235, 236	YieldType (string = Change), Yield	Change from reference yield*
3	332	HighPx	52 week high
3	333	LowPx	52 Week low
3	811	Price Delta	Delta - Change from previous day
3	1020	TradeVolume	Total number of shares traded today
4	270	MDEntryPx	Opening index value, indicative if tag OpenCloseSettleFlag (286) is 5
5	270	MDEntryPx	Closing index value
u	270	MDEntryPx	Unadjusted previous closing index
7	270	MDEntryPx	Day high index value
8	270	MDEntryPx	Day low index value
B	270	MDEntryPx	Total value of security traded today

*Only returned if Yield values are applicable to fixed income securities/index.

4.2.9 Security Statistics Requests and Responses

The following table applies to Market Data requests for Security Statistics Information (MDEntryType = '*') and indicates which tags are used to return the requested information.

Table 15 - Security Statistics Returned Tags

Security Statistics (Request MDEntryType = '*')			
Returned MDEntryType (269)	Returned Tags	Tag Names	Description
4	270	MDEntryPx	Opening Price, indicative if tag OpenCloseSettleFlag (286) is 5
4	271	MDEntrySize	Opening Quantity, indicative if tag OpenCloseSettleFlag (286) is 5
5	270	MDEntryPx	Closing Price, indicative if tag OpenCloseSettleFlag (286) is 5
5	271	MDEntrySize	Indicative Closing Quantity if tag OpenCloseSettleFlag (286) is 5
6	270	MDEntryPx	Settlement Price

Security Statistics (Request MDEntryType = '*')			
7	270	MDEntryPx	Day high price
8	270	MDEntryPx	Day low price
9	270	MDEntryPx	Weighted Average Price
C	271	MDEntrySize	Open Interest
B	270	MDEntryPx	Total value of security traded today
B	271	MDEntrySize	Total number of trades today
B	1020	TradeVolume	Total number of shares traded today
E	270	MDEntryPx	Simulated Sell Price (IOPV Offer Price)
F	270	MDEntryPx	Simulated Buy Price (IOPV Bid Price)
F	31	LastPx	Simulated Last Price (IOPV Last Price)
P	270	MDEntryPx	Previous closing price
P	31	LastPx	Last traded price
P	272	MDEntryDate	Date of last price for instrument
P	64	SettlDate	Specific date of trade settlement
P	274	TickDirection	Movement indicator
P	326	SecurityTradingStatus	Status of security
P	451	NetChgPrevDay	Change from previous day (for Market Data Incremental Refresh)
P	235, 236	YieldType, Yield	Day yields* <u>Valid Return Values:</u> High, Low, Last, WAvg (Weighted Average), OpenAvg (Open Average), Close
p	332	HighPx	52 week high price
P	333	LowPx	52 Week low price
P	811	PriceDelta	Delta - Change from reference price
u	270	MDEntryPx	Unadjusted Previous closing price.
s	270	MDEntryPx	Day short sell value
s	1020	TradeVolume	Day short sell volume
t	270	MDEntryPx	Day Proprietary Day Trading value
t	1020	TradeVolume	Day Proprietary Day Trading volume

Security Statistics (Request MDEntryType = '*')			
i	270	MDEntryPx	IDSS value
i	1020	TradeVolume	IDSS volume
V	270	MDEntryPx	PSS value
V	1020	TradeVolume	PSS volume
W	270	MDEntryPx	PSS + RSS value
W	1020	TradeVolume	PSS + RSS volume
Y	270	MDEntryPx	RSS + IDSS + PDT value
Y	1020	TradeVolume	RSS + IDSS + PDT volume

*Only returned if Yield values are applicable to fixed income securities.

4.3 Market Data Request (V)

A successful Market Data Request returns one or more Market Data messages containing one or more Market Data Entries. Each Market Data Entry is a Bid, an Offer, a Trade associated with a security, the opening, closing, or settlement price of a security, the buyer or seller, the value of an index, the trading session high price, low price, or VWAP, or the trade volume or open interest in a security. Market Data Entries usually have a price and a quantity associated with them. The market data request message format is as follows.

Table 16 – Market Data Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = V	
262	MDReqID	Y	Must be unique, or the ID of previous Market Data Request to disable if SubscriptionRequestType = Disable previous Snapshot + Updates Request (2). Maximum length 20 characters.	String
263	SubscriptionRequestType	Y	SubscriptionRequestType indicates to the other party what type of response is expected. A snapshot request only asks for current information. A subscribe request asks for updates as the status changes. Unsubscribe will cancel any future update messages from the counter party.	Char
264	MarketDepth	Y	Depth of market for Book Snapshot / Incremental updates. Depends on exchange configuration, the actual market depth level returned can be different.	Int
265	MDUpdateType	N	Required if SubscriptionRequestType = Snapshot + Updates (1), ignored otherwise. Specifies the type of Market Data update. Only value 1 – Incremental Refresh is supported.	Int

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT	
266	AggregatedBook	Y	Specifies whether or not book entries should be aggregated. 'Y' = Market by Price (MBP), 'N' = Market by Order (MBO) – default[not supported].	Boolean	
Start of Component block, expanded in line < MDReqGrp >					
267	NoMDEntryTypes	Y	Number of MDEntryType fields requested.	NumInGrp	
→	269	MDEntryType	Y	Must be first field in repeating group. This is a list of all the category of Market Data Entries that the firm requesting the Market Data is interested in receiving.	Char
End of Component block, expanded in line < MDReqGrp >					
Start of Component block, expanded in line < InstrmtMDReqGrp >					
146	NoRelatedSym	Y	Number of securities requested. It must be greater than 0. If the value exceeds maximum securities (default to 5) allowed in a single request then the message will be rejected.	Int	
→	Component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields. All securities should have the same SecuritySubType, if specified.	
End of Component block, expanded in line < InstrmtMDReqGrp >					
StandardTrailer		Y			

4.4 Market Data Request Reject (Y)

The Market Data Request Reject is used when the Exchange cannot honour the Market Data Request, due to business or technical reasons. The Exchange may choose to limit various parameters, such as the size of requests, whether just the top of book or the entire book may be displayed, and whether Full or Incremental updates must be used.

The market data request reject message format is as follows.

Table 17 – Market Data Request Reject

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = Y	
262	MDReqID	Y	Must refer to the MDReqID of the request.	String
281	MDReqRejReason	N	Reason for the rejection of a Market Data request.	Char
58	Text	N	Free format text string	String
StandardTrailer		Y		

4.5 Market Data Snapshot/Full Refresh (W)

The Market Data messages are used as the response to a Market Data Request message. In all cases, one Market Data message refers only to one Market Data Request. Market Data messages sent as the result of a Market Data Request message will specify the appropriate MDReqID.

There are two types of Market Data Refresh messages, Snapshot/Full and Incremental.

The Market Data message format used for a Snapshot, or a Snapshot + Updates where MDUpdateType = Incremental Refresh (1) is as follows:

- Market Data Snapshot/Full Refresh contains the entirety of the data requested for that instrument at the point of Market Data Request. In other words, both sides of the market, or just one side in the case of a request of only bids or offers, for the depth requested, must be sent in one FIX Market Data Snapshot message.
- A Market Data Snapshot message may contain several trades, an index value, opening, closing, settlement, high, low, and/or VWAP price for one instrument, as well as the traded volume and open interest, but only for one instrument per message.
- Messages containing bids and/or offers cannot contain trades, index value, opening, closing, settlement, high, low, and/or VWAP prices, trade volume, or open interest.
- Messages containing Price Depth or Order Depth information for instruments traded in yield, the Yield component block will only contain Yield(236). YieldType(235) will not be sent in messages containing Price Depth or Order Depth information.

Table 18 – Market Data Snapshot/Full Refresh

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = W	
911	TotNumReports	N	Total number of reports returned in response to a request. Only present in the last message in response to a request.	Int
963	MDReportID	N	Unique identifier for Market Data Report	String
1021	MDBookType	N	Describes the type of book for which the feed is intended. Used when multiple feeds are provided over the same connection	Int
264	MarketDepth	N	Market depth requested.	Int
75	TradeDate	N	Used to specify the trading date for which a set of market data applies	LocalMktDate
262	MDReqID	Y/N	Conditionally required if this message is in response to a Market Data Request.	String
Component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields.	
451	NetChgPrevDay	N	Net change from previous day's closing price.	PriceOffset

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
Start of Component block, expanded in line < MDFullGrp >					
268	NoMDEntries		Y	Number of entries following.	NuminGroup
→	269	MDEntryType	Y	Must be first field in repeating group. This is a list of the type of Market Data Entries that the firm is receiving in this market data response message.	Int
→	278	MDEntryID	Y/N	Unique Market Data Entry identifier. Conditionally required when maintaining an order-depth book, that is, when AggregatedBook (266) is "N". This allows subsequent Incremental changes to be applied using MDEntryID.	String
→	Component block <YieldData>		N	Insert here the set of YieldData (yield-related) fields	
→	270	MDEntryPx	Y/N	Price of the Market Data Entry. Conditionally required depending on MDEntryType.	Price
→	271	MDEntrySize	Y/N	Quantity or volume of the market data entry. Conditionally required if MDEntryType = Trade (2). If MDEntryType = 2 (Trade) then TradeVolume (1020) will also be populated.	Qty
→	272	MDEntryDate	N	Date of Market Data Entry.	UTCDateOnly
→	273	MDEntryTime	N	Time of Market Data Entry.	UTCTimeOnly
→	274	TickDirection	N	Direction of the "tick".	Char
→	336	TradingSessionID	N	Identifier for the trading session of a trade. A trading session spans an extended period of time that can also be expressed informally in terms of the trading day. Valid values are: 'EN' – Enquiry 'POP1' – Pre-Opening 'OPN1' – Opening 'CNT1' – Trading 'BRK1' – Break 'POP2' – Second Pre-Opening	

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
				`OPN2` – Second Opening `CNT2` – Second Trading `POC2` – Pre-Closing `CLS2` – Closing `TAL2` – Trading at last `CLOSE` - Close `EOT` – End Of Trading `EOD` – End Of Day `HLT` – Halt `CBH` – Circuit Breaker Halt	
→	326	SecurityTradingStatus	N	Identifies the trading status applicable to the transaction.	Int
→	286	OpenCloseSettlFlag	N	Used if MDEntryType = Opening Price(4) or MDEntryType = Closing Price(5) 5 - Theoretical Price value	MultipleCharValue
→	290	MDEntryPositionNo	N	Display position of a bid or offer, numbered from most competitive to least competitive, per market side beginning with 1.	Int
→	346	NumberOfOrders	N	In an Aggregated Book, used to show how many individual orders make up an MDEntry	Int
→	332	HighPx	N	Highest price paid for the security in the trading session. If MDEntryType = `y` then this value is the 52 week high price.	Price
→	333	LowPx	N	Lowest price paid for the security in the trading session. If MDEntryType = `y` then this value is the 52 week low price.	Price
→	31	LastPx	N	Price of this fill. (Note: The LastPx field first appears in market data messages in FIX V5.0 SP2 but is included in this specification for completeness).	Price
→	1020	TradeVolume	N	Used to report trade volume in association with trade, bid or ask rather than a separate entity. This is a V5.0 tag value.	Int

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
→	64	SettlDate	N	Specific date of trade settlement (Settlement Date) in YYYYMMDD format.	LocalMktDate
→	828	TrdType	N	Type of trade	Int
→	37	OrderID	N	For optional use when this Bid or Offer represents an order	String
→	58	Text	N	Free format text string Index indicator for FTSE Bursa Malaysia indices :- N - Normal I - Indicative H - Held C - Closed K - Part Calculated Value P - Pre market Y - Previous day close	String
End of Component block, expanded in line < MDFullGrp >					
StandardTrailer			Y		

4.6 Market Data Incremental Refresh (X)

The second Market Data message format is used for incremental updates when MDUpdateType (265) is set to 1 – Incremental Referesh in Market Data Request. With the incremental message the Exchange has the responsibility to provide all Market Data entries needed by the client user in order to build an order book copy, populate a Trade Ticker, etc.

The Market Data Incremental Refresh message may contain any combination of new, changed, or deleted Market Data Entries, for one or more instruments, with any combination of trades, imbalances, quotes, index values, open, close, settlement, high, low, and VWAP prices, trade volume and open interest so long as the maximum FIX message size is not exceeded.

Market Data Entries may have an MDEntryID unique among all currently active Market Data Entries so they can be referenced for the purposes of deleting and changing them later. When changing a Market Data Entry, it may keep the same MDEntryID, in which case only MDEntryID would be populated. An MDEntryID can be reused within a day only if it has first been deleted.

4.6.1 Maintaining the Order Book

The following instructions (MDUpdateAction) are used to maintain the order book:

- New – Used to insert a market data entry.
- Delete – Used to remove a market data entry or to remove all entries from the order book

When an order book gets empty during a trading day, a Market Data Incremental Refresh message will be sent to indicate the removal of all entries from the order book as follows:

NoMDEntries(268)=1 MDUpdateAction=2(Delete) and MDEntryType=J(EmptyBook)

- Change – Used to modify a market data entry.

Table 19 – Market Data Incremental Refresh

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
StandardHeader			Y	MsgType = X	
262	MDReqID		Y/N	Conditionally required if this message is in response to a Market Data Request.	String
1021	MDBookType		N	Describes the type of book for which the feed is intended. Used when multiple feeds are provided over the same connection	Int
Start of Component block, expanded in line < MDIncGrp >					
268	NoMDEntries		Y	Number of entries following.	NumInGrp
→	279	MDUpdateAction	Y	Type of update action. Must be first field in this repeating group.	Char
→	264	MarketDepth	N	Market depth requested.	Int
→	269	MDEntryType	N	Must be first field in repeating group. This indicates the type of Market Data Entries that the firm is receiving in this market data response message.	Int
→	278	MDEntryID	Y/N	If specified, must be unique among currently active entries if MDUpdateAction = New (0), must be the same as a previous MDEntryID if MDUpdateAction = Delete (2), and must be the same as a previous MDEntryID if MDUpdateAction = Change (1) . Conditionally required when maintaining an order-depth book, that is, when AggregatedBook (266) is "N". This allows subsequent Incremental changes to be applied using MDEntryID.	String
→	Component block <Instrument>		N	Insert here the set of "Instrument" (symbology) fields.	
→	270	MDEntryPx	Y/N	Price of the Market Data Entry. Conditionally required when MDUpdateAction = New(0) and MDEntryType is not Trade Volume (B). Except Market Order at Pre-closing.	Price
→	Component block <YieldData>		N	Contains Yield information.	

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
→	271	MDEntrySize	Y/N	Quantity or volume represented by the Market Data Entry. Conditionally required when MDUpdateAction = New(0) and MDEntryType Trade(2). If MDEntryType = 2 (Trade) then TradeVolume (1020) will be populated.	Qty
→	272	MDEntryDate	N	Date of Market Data Entry.	UTCDateOnly
→	273	MDEntryTime	N	Time of Market Data Entry.	UTCTimeOnly
→	274	TickDirection	N	Direction of the "tick".	Char
→	336	TradingSessionID	N	<p>Identifier for the trading session of a trade. A trading session spans an extended period of time that can also be expressed informally in terms of the trading day. Valid values are:</p> <p>'EN' – Enquiry</p> <p>'POP1' – Pre-Opening</p> <p>'OPN1' – Opening</p> <p>'CNT1' – Trading</p> <p>'BRK1' – Break</p> <p>'POP2' – Second Pre-Opening</p> <p>'OPN2' – Second Opening</p> <p>'CNT2' – Second Trading</p> <p>'POC2' – Pre-Closing</p> <p>'CLS2' – Closing</p> <p>'TAL2' – Trading at last</p> <p>'CLOSE' - Close</p> <p>'EOT' – End Of Trading</p> <p>'EOD' – End Of Day</p> <p>'HLT' – Halt</p> <p>'CBH' – Circuit Breaker Halt</p>	
→	286	OpenCloseSettlFlag	N	<p>Used if MDEntryType = Opening Price(4) or MDEntryType = Closing Price(5)</p> <p>5 - Theoretical Price value</p>	MultipleCharValue
→	332	HighPx	N	Highest price paid for the security in the trading session. If MDEntryType	Price

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
				= 'y' then this value is the 52 week high price.	
→	333	LowPx	N	Lowest price paid for the security in the trading session. If MDEntryType = 'y' then this value is the 52 week low price.	Price
→	31	LastPx	N	Price of this fill. (Note: The LastPx field first appears in market data messages in FIX V5.0 SP2 but is included in this specification for completeness).	Price
→	451	NetChgPrevDay	N	Net change from previous day's closing price.	PriceOffset
→	1020	TradeVolume	N	Used to report trade volume in association with trade. This is a V5.0 tag value.	Int
→	326	SecurityTradingStatus	N	Identifies the trading status applicable to the transaction.	Int
→	346	NumberOfOrders	N	In an Aggregated Book, used to show how many individual orders make up an MDEntry	Int
→	290	MDEntryPositionNo	N	Display position of a bid or offer, numbered from most competitive to least competitive, per market side, beginning with 1	Int
→	64	SettlDate	N	Specific date of trade settlement (Settlement Date) in YYYYMMDD format.	LocalMktDate
→	828	TrdType	N	Type of trade	Int
→	37	OrderID	N	For optional use when this Bid or Offer represents an order	String
→	58	Text	N	Free format text string Index indicator for FTSE Bursa Malaysia indices :- N - Normal I - Indicative H - Held C - Closed K - Part Calculated Value P - Pre market Y - Previous day close	String
End of Component block, expanded in line < MDIncGrp >					

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
	StandardTrailer	Y		

4.7 Trading Session Status Request (g)

The Trading Session Status Request is used to request information on the status of a market. With the move to multiple sessions occurring for a given trading party (morning and evening sessions for instance) there is a need to be able to provide information on what product is trading on what market.

The Trading Session Status Request message can be used to inquire the trading status of a trading party. The Trading Session Status message can be used to subscribe to updates to the status of a trading session by setting the RequestType field to 1.

If the MarketSegmentID tag (1300) is set to an BTS2 Board ID then only the trading session information for that Board will be returned otherwise trading session information for all Boards will be returned.

Table 20 – Trading Session Status Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
	StandardHeader	Y	MsgType = g (lowercase)	
335	TradSesReqID	Y	Must be unique, or the ID of previous Trading Session Status Request to disable if SubscriptionRequestType = Disable previous Snapshot+Updates Request (2). Maximum length 20 characters.	String
1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Maximum length 12 characters. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID	N	Market Segment for which Trading Session applies. This is a V5.0 tag value. Valid values are: 'NM' – NORMAL 'OD' – ODDLLOT 'BI' – BUYIN 'DB' – DBT 'IN' – INDEX	String
263	SubscriptionRequestType	Y	Subscription type request.	Char
	StandardTrailer	Y		

4.8 Trading Session Status (h)

The Trading Session Status provides information on the status of a market. For markets multiple trading sessions on multiple-markets occurring (morning and evening sessions for instance), this message is able to provide information on what products are trading on what market during what trading session.

Each trading session specifies trading rules applied on a market, a market segment or a security. A trading session can be pre-open of a morning trading session, or halt, or other periods that applies a certain set of trading rules. The trading session status (tag 340) can be pending (100), triggered (101) or deleted (102).

Security level trading session information is only available in Trading Session Status message.

Table 21 – Trading Session Status

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = h (lowercase)	
335	TradSesReqID	N	Provided for a response to a specific Trading Session Status Request message (snapshot).	String
336	TradingSessionID	Y	'EN' – Enquiry 'POP1' – Pre-Opening 'OPN1' – Opening 'CNT1' – Trading 'BRK1' – Break 'POP2' – Second Pre-Opening 'OPN2' – Second Opening 'CNT2' – Second Trading 'POC2' – Pre-Closing 'CLS2' – Closing 'TAL2' – Trading at last 'CLOSE' - Close 'EOT' – End Of Trading 'EOD' – End Of Day 'HLT' – Halt 'CBH' – Circuit Breaker Halt	String
1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX	Exchange

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
			BUYIN FX	
1300	MarketSegmentID	N	Market Segment for which Trading Session applies. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' – INDEX	String
340	TradSesStatus	Y	State of the trading session	Int
567	TradSesStatusRejReason	N	Use with TradSesStatus = "Request Rejected"	Int
341	TradSesStartTime	N	Starting time of trading session	UTCTimeStamp
342	TradSesOpenTime	N	Actual starting time of trading session.	UTCTimeStamp
345	TradSesEndTime	N	Scheduled end time of trading session.	UTCTimeStamp
58	Text	N	Text for request reject reason	String
	Component block <Instrument>	N	Insert here the set of "Instrument" (symbology) fields.	
	StandardTrailer	Y		

4.9 Security Status Request (e)

The Security Status Request message provides for the ability to request the status of a security. One or more Security Status messages are returned as a result of a Security Status Request message.

The Security Status Request message contains a *SubscriptionRequestType* field. This tells the counter party what type of request is being made:

- 0 – indicates that the requestor only wants a snapshot or the current status.
- 1 – indicates that the requestor wants a snapshot (the current status) plus updates as the status changes. This is similar to subscribing for information and can be implemented in applications as a subscription mechanism.
- 2 – indicates that the requestor wishes to cancel any pending snapshots or updates – in essence making this an unsubscribe operation.
- If a component block instrument is sent with the tag 1300 (MarketSegmentID) set to an BTS2 Board ID then the security status information is sent only for the specified symbol from the specified Board.
- If the combination of Board ID and security ID is not found a reject is returned.

- If tag 48 (SecurityID) is set to '*', all security status will be returned. If at the same time tag 1300 (MarketSegmentID) specify the BTS2 board ID then all security status on that board are returned.

Table 22 – Security Status Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = e (lowercase)	
263	SubscriptionRequestType	Y	SubscriptionRequestType indicates to the other party what type of response is expected. A snapshot request only asks for current information. A subscribe request asks for updates as the status changes. Unsubscribe will cancel any future update messages from the counter party. Subscribe or unsubscribe for security status for security specified in request.	Char
324	SecurityStatusReqID	Y	Must be unique, or the ID of previous Security Status Request to disable if SubscriptionRequestType = Disable previous Snapshot + Updates Request (2). Maximum length 20 characters.	String
component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields.	
1300	MarketSegmentID	N	Market Segment where the security trades. It is mapped to X-stream Board Id. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' – INDEX	String
StandardTrailer		Y		

4.10 Security Status (f)

The Security Status message provides for the ability to report changes in status to a security. The Security Status message is used by the Exchange to report changes in the state of a security.

Security Status update is sent only when CorporateAction (292), TradingSessionID (336) or SecurityTradingStatus (326) is changed

Table 23 – Security Status

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = f (lowercase)	
324	SecurityStatusReqID	N	Unique ID of a Security Status Request message.	String

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
	component block <Instrument>	Y	Insert here the set of "Instrument" (symbology) fields.	
15	Currency	N	Identifies the currency used for price. Absence of this field is interpreted as the default for the security as defined in the reference data.	Currency
336	TradingSessionID	Y	Identifier for Trading Session. A trading session spans an extended period of time that can also be expressed informally in terms of the trading day. Valid values are: 'EN' – Enquiry 'POP1' – Pre-Opening 'OPN1' – Opening 'CNT1' – Trading 'BRK1' – Break 'POP2' – Second Pre-Opening 'OPN2' – Second Opening 'CNT2' – Second Trading 'POC2' – Pre-Closing 'CLS2' – Closing 'TAL2' – Trading at last 'CLOSE' – Close 'EOT' – End Of Trading 'EOD' – End Of Day 'HLT' – Halt 'CBH' – Circuit Breaker Halt	String
31	LastPx	N	Represents the last price for that security either on a Consolidated or an individual participant basis at the time it is disseminated. For Fixed Income securities this will be the Last Yield expressed as a percentage value.	Price
60	TransactTime	N	Time of dissemination	UTCTimeStamp
292	CorporateAction	N	Identifies the type of Corporate Action (if applicable). Also referred to as 'Basis of Quotation'.	MultipleCharValue
326	SecurityTradingStatus	Y	Identifies the trading status applicable to the security.	Int

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
333	LowPx	N	Low price. For Fixed Income securities this will be the Low Yield expressed as a percentage value.	Price
332	HighPx	N	High price. For Fixed Income securities this will be the High Yield expressed as a percentage value.	Price
1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID	N	Market Segment where the security trades. It is mapped to X-stream Board Id. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' - INDEX	String
Standard Trailer		Y		

4.11 News (B)

The news message is a general free format message between the participant and Exchange. The message contains flags to identify the news item's urgency and to allow sorting by Subject Company (symbol). The News message can be originated at either the broker or institution side.

Table 24 – News

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = B	
42	OrigTime	N	Time of message origination. Always expressed in UTC time.	UTCTimeStamp
61	Urgency	N	Urgency Flag.	Char
148	Headline	Y	Specifies the headline text	String
358	EncodedHeadlineLen	N	Byte length of encoded (non-ASCII characters) EncodedHeadline (359) field.	Length
359	EncodedHeadline	N	Encoded (non-ASCII characters) representation of the Headline (148) field in the encoded	Data

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
			format specified via the MessageEncoding (347) field. If used, the ASCII (English) representation will also be specified in the Headline field.	
Start of Component block, expanded in line < InstrmtGrp >				
146	NoRelatedSym	N	Specifies the number of repeating symbols (instruments) specified	NumInGroup
→	component block <Instrument>	N	Insert here the set of "Instrument" (symbology)	
End of Component block, expanded in line < InstrmtGrp >				
	component block <LinesOfTextGroup>	Y	Insert here the set of "LinesOfTextGroup" fields.	
149	URLLink	N	A URL (Uniform Resource Locator) link to additional information (i.e. http://www.XYZ.com/research.html)	String
	StandardTrailer	Y		

5 Reference Data

The reference data category consists of the following messages:

- Market Definition Request
- Market Definition
- Trading Session List Request
- Trading Session List
- Trading Session List Update Report
- Security List Request
- Security List
- Security List Update
- Security Definition Request
- Security Definition
- Security Definition Update

The recommended data requests at the start of day :-

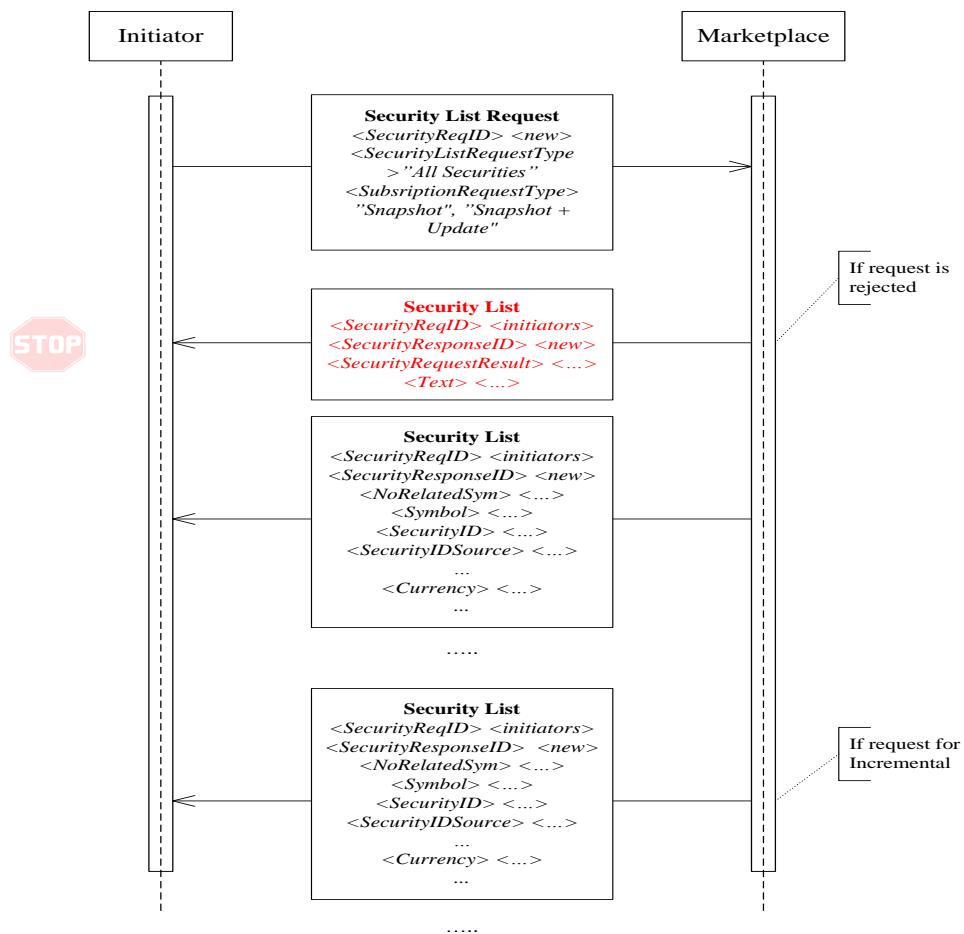
5.1 Workflows

The following is the workflow for

- requesting and receiving a list of securities and
- 'start of day' download of relevant reference data.

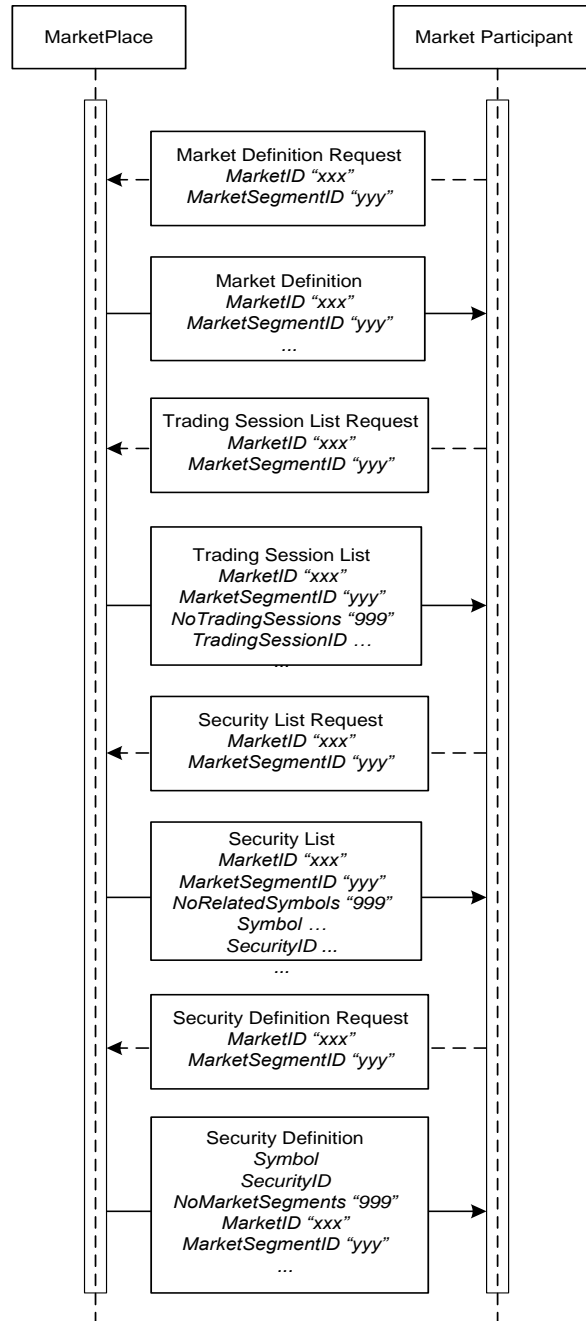
5.1.1 Requesting and Receiving a list of securities workflow

Figure 5 – Requesting and Receiving a List of Securities



5.1.2 'Start of Day' download workflow

Figure 6 – 'Start of Day' Download



5.2 Market Definition Request (BT)

The Market Definition Request message is used to request market structure information from the Exchange. Specified fields will act as “filters” for the request. For example, if MarketID is specified then only the market structure information for that specified market will be sent back if it is available. If the MarketID is not specified then the request is for all available market structure information.

The Market Definition Request can also indicate to the Exchange whether the request is for a snapshot of requested information, subscribe to market structure information, or to unsubscribe to an earlier subscription request. This is done via the SubscriptionRequestType (263) field.

Table 25 – Market Definition Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = BT	
1393	MarketReqID	Y	Must be unique, or the ID of previous Market Segment Request to disable if SubscriptionRequestType = Disable previous Snapshot + Updates Request(2). This is a V5.0 tag value.	String
263	SubscriptionRequestType	Y	Subscribe or unsubscribe for security status to security specified in request. Subscription type request. Only snapshot (0) is supported.	Char
1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Maximum length 12 characters. Valid values are :- CASH INDEX BUYIN FX	String
1300	MarketSegmentID	N	Market Segment. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' – INDEX	String
StandardTrailer		Y		

5.3 Market Definition (BU)

The Market Definition message is used to respond to Market Definition Request. In a subscription, it will be used to provide the initial snapshot of the information requested.

This message is associated with a list of trading sessions applicable for the market segment – the list is published using the Trading Session List message. Refer to the workflow diagram in section 7.1.2.

Table 26 – Market Definition

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = BU	
1301	MarketID	Y	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	String
1300	MarketSegmentID	N	Market Segment within the Market. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' - INDEX	String
1393	MarketReqID	N	Unique ID of the Market Definition Request Message. This is a V5.0 tag value.	String
1394	MarketReportID	Y	Unique identifier for each Market Definition message. This is a V5.0 tag value.	String
1396	MarketSegmentDesc	N	Describes the Market Segment. This is a V5.0 tag value. Not supported.	String
Standard Trailer		Y		

5.4 Trading Session List Request (BI)

The Trading Session List Request is used to request a list of trading sessions available in a market place and the state of those trading sessions.

A successful request will result in a response from the counterparty of a Trading Session List (MsgType=BJ) message that contains a list of zero or more trading sessions.

The TradSesReqID must be used to provide a unique identifier for the request. This value is returned by the Exchange in the Trading Session List messages sent in response to the request.

The Trading Session List Request follows the standard request model in providing the SubscriptionRequestType (tag 263) field which can be used to obtain a snapshot of trading session information, subscribe for a snapshot with subsequent updates, or to unsubscribe from a previous subscription request.

Table 27 – Trading Session List Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = BI	
263	SubscriptionRequestType	Y	Subscription type request.	Char
335	TradSesReqID	Y	Must be unique, or the ID of previous Trading Session Status Request to disable if SubscriptionRequestType = Disable previous Snapshot + Update Request (2).	String
1301	MarketID	N	It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Maximum length 12 characters. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID	N	Market Segment for which Trading Session applies. It is mapped to X-stream Board Id. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLLOT 'BI' – BUYIN 'DB' – DBT 'IN' - INDEX	String
StandardTrailer		Y		

5.5 Trading Session List (BJ)

The Trading Session List message is sent as a response to a Trading Session List Request. The Trading Session List should contain the characteristics of the trading session(s) and the current state of the trading session(s).

The message could be relayed every trading day, or at least when trading sessions are changed. Depending on characteristics of the market, the various Time fields may apply.

The Trading Session List returns the TradSesReqID (tag 335) value from the Trading Session List Request originally sent by a counterparty.

Security level trading sessions are not available in Trading Session List. They are available in Trading Session Status (h).

Table 28 – Trading Session List

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = BJ	
335	TradSesReqID	N	Provided for a response to a specific Trading Session List Request	String

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
				message (snapshot).	
Start of Component block, expanded in line < TrdSessLstGrp >					
386	NoTradingSessions		Y	Number of TradingSessionIDs (336) in repeating group.	NumInGrp
→	336	TradingSessionID	Y	<p>Identifier for Trading Session. A trading session is a period of time that has unique trading rules applied to the whole market, a specific market segment (board), or security. Valid values are:</p> <p>'EN' – Enquiry</p> <p>'POP1' – Pre-Opening</p> <p>'OPN1' – Opening</p> <p>'CNT1' – Trading</p> <p>'BRK1' – Break</p> <p>'POP2' – Second Pre-Opening</p> <p>'OPN2' – Second Opening</p> <p>'CNT2' – Second Trading</p> <p>'POC2' – Pre-Closing</p> <p>'CLS2' – Closing</p> <p>'TAL2' – Trading at last</p> <p>'CLOSE' – Close</p> <p>'EOT' – End Of Trading</p> <p>'EOD' – End Of Day</p> <p>'HLT' – Halt</p> <p>'CBH' – Circuit Breaker Halt</p>	String
→	340	TradSesStatus	Y	State of trading session.	Int
→	341	TradSesStartTime	N	Starting time of trading session	UTCTimeStamp
→	342	TradSesOpenTime	N	Time of the opening of trading session	UTCTimeStamp
→	345	TradSesEndTime	N	Time of the opening of trading session	UTCTimeStamp
→	567	TradSesStatusRejReason	N	Used with TradSesStatus = "Request Rejected".	Int
→	1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream	Exchange

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
				Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	
→	1300	MarketSegmentID	N	Market Segment for which Trading Session applies. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' - INDEX	String
End of Component block, expanded in line < TrdSessLstGrp >					
StandardTrailer			Y		

5.6 Trading Session List Update Report (BS)

The Trading Session List Update Report is used by marketplaces to provide intra-day updates of trading sessions when there are changes to one or more trading sessions.

Table 29 – Trading Session List Update Report

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
StandardHeader			Y	MsgType = BS	
335	TradSesReqID		N	Provided for a response to a specific Trading Session List Request message (snapshot).	String
1327	TradSesUpdateAction		N	Specifies the action taken for the specified trading sessions. This is a V5.0 tag value.	Char
Start of Component block, expanded in line < TrdSessLstGrp >					
386	NoTradingSessions		Y	Number of TradingSessionIDs (336) in repeating group.	NumInGrp
→	336	TradingSessionID	Y	Identifier for Trading Session. A trading session spans an extended period of time that can also be expressed informally in terms of the trading day. Valid values are: 'EN' – Enquiry	String

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
				'POP1' – Pre-Opening 'OPN1' – Opening 'CNT1' – Trading 'BRK1' – Break 'POP2' – Second Pre-Opening 'OPN2' – Second Opening 'CNT2' – Second Trading 'POC2' – Pre-Closing 'CLS2' – Closing 'TAL2' – Trading at last 'CLOSE' - Close 'EOT' – End Of Trading 'EOD' – End Of Day 'HLT' – Halt 'CBH' – Circuit Breaker Halt	
→	340	TradSesStatus	Y	State of trading session.	Int
→	341	TradSesStartTime	N	Starting time of trading session	UTCTimeStamp
→	342	TradSesOpenTime	N	Time of the opening of trading session	UTCTimeStamp
→	345	TradSesEndTime	N	End time of trading session.	UTCTimeStamp
→	567	TradSesStatusRejReason	N	Used with TradSesStatus = "Request Rejected"	Int
→	1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	Exchange
→	1300	MarketSegmentID	N	Market Segment for which Trading Session applies. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLLOT 'BI' – BUYIN	String

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
			'DB' - DBT 'IN' - INDEX	
End of Component block, expanded in line < TrdSessLstGrp >				
StandardTrailer		Y		

5.7 Security List Request (x)

The Security List Request message is used to return a list of securities from the Exchange that match criteria provided on the request. The SecurityListRequestType[559] tag specifies the criteria of the request.

Subscription request for security status can be optionally specified by including the SubscriptionRequestType[263] field on the message.

Table 30 – Security List Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = x (lowercase X)	
263	SubscriptionRequestType	N	Subscribe or unsubscribe for security status to security specified in request. Subscribe or unsubscribe for security status to security specified in request.	Char
320	SecurityReqID	Y	Unique ID for Security List Request	String
559	SecurityListRequestType	Y	Type of Security List Request being made	Int
1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Maximum length 12 characters. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID	N	Market Segment where the security is traded. It is mapped to X-stream Board Id. This is a V5.0 tag value. Must be specified if <Instrument> block is entered. Valid values are : 'NM' - NORMAL 'OD' - ODDLOT 'BI' - BUYIN 'DB' - DBT 'IN' - INDEX	String
Component block <Instrument>		Y/N	Insert here the set of "Instrument" (symbology) fields. Required if only a single security is	

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
			requested.	
	Standard Trailer	Y		

5.8 Security List (y)

The Security List message is used to return a list of securities that matches the criteria specified in a Security List Request (x).

The instrument component block in Security List will contain the following additional fields to provided non-English symbol and descriptions:

- EncodedSecurityDescLen(350)
- EncodedSecurityDesc(351)

If the tick rules do not change during the trading day, the NoTickRule block will not be included in the message.

Table 31 – Security List

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = y (lowercase Y)	
320	SecurityReqID	Y	Unique Id for the Security Definition Request.	String
322	SecurityResponseID	Y	Identifier for the Security List message	String
393	TotNoRelatedSym	N	Used to indicate the total number of securities being returned for this request. Used in the event that message fragmentation is required.	Int
560	SecurityRequestResult	Y	Result of the Security Request identified by the SecurityReqID.	Int
964	SecurityReportID	N	Unique identifier for the Security Report	String
1301	MarketID	N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID	N	Market Segment where the security is traded. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' - INDEX	String
893	LastFragment	N	Indicates whether this is the last fragment in a sequence of message fragments. When set this indicates the last of the message group.	Boolean
Start of Component block, expanded in line < SecListGrp >				

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT	
146	NoRelatedSym		Y/N	Specifies the number of repeating symbols (instruments) specified. Required if SecurityRequestResult (560) = 0 (Valid request)	NumInGrp	
→	Component block <Instrument>		Y/N	Insert here the set of "Instrument" (symbology) fields. Required if SecurityRequestResult (560) = 0 (Valid request)		
→	15	Currency	N	Identifies the currency used for price. Absence of this field is interpreted as the default for the security as defined in the reference data.	Currency	
→	1306	PriceLimitType	N	Describes the how the price limits are expressed 0 = Price	Int	
→	1148	LowLimitPrice	N	Allowable low limit price for the trading day. A key parameter in validating order price. Used as the lower band for validating order prices. Orders submitted with prices below the lower limit will be rejected.	Price	
→	1149	HighLimitPrice	N	Allowable high limit price for the trading day. A key parameter in validating order price. Used as the upper band for validating order prices. Orders submitted with prices above the upper limit will be rejected.	Price	
→	1150	TradingReferencePrice	Y	Reference price of the security	Price	
→	1205	NoTickRules	N	Number of TickRules	NumInGroup	
→	→	1206	StartTickPriceRange	N	Starting price range for specified tick increment	Price
→	→	1207	EndTickPriceRange	N	Ending price range for the specified tick increment	Price
→	→	1208	TickIncrement	N	Tick increment for stated price range. Specifies the valid price increments at which a security can be quoted and traded	Price
→	562	MinTradeVol	N	The minimum trading volume for a security. Also indicates quantity step (traditionally known as lot size as used by Bursa)	Qty	
→	1140	MaxTradeVol	N	The maximum order quantity that can be submitted for a security.	Qty	
→	561	RoundLot	N	Trading lot size of security - number of shares or dollar value represented by each trading unit.	Qty	

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
→	159	AccruedInterestAmt	N	Amount of Accrued Interest for convertible bonds and fixed income	Amt
→	Component block <YieldData>		N	Returns Yield information for Fixed Income securities.	
End of Component block, expanded in line < SecListGrp >					
StandardTrailer			Y		

5.9 Security List Update Report (BK)

The Security List Update Report is used for reporting updates to reference database. Updates could be due to Corporate Actions or other business events. Update may include additions, modifications and deletions.

Table 32 – Security List Update Report

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
StandardHeader			Y	MsgType = BK	
320	SecurityReqID		Y	Unique Id for the Security Definition Request.	String
322	SecurityResponseID		Y	Identifier for the Security Definition message.	String
393	TotNoRelatedSym		N	Used to indicate the total number of securities being returned for this request. Used in the event that message fragmentation is required.	Int
560	SecurityRequestResult		N	Result of the Security Request identified by the SecurityReqID. The results returned to a Security Request message.	Int
964	SecurityReportID		N	Identifier for the Security List Update message in a bulk transfer environment.	String
1301	MarketID		N	MarketID for which orders are to be affected. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID		N	Market Segment where the security	String

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
				is traded. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' – INDEX	
893	LastFragment		N	Indicates whether this is the last fragment in a sequence of message fragments. When set this indicates the last of the message group.	Boolean
292	CorporateAction		N	Identifies the type of Corporate Action that triggered the update (if applicable). Also referred to as 'Basis of Quotation'.	MultipleCharValue
Start of Component block, expanded in line < SecLstUpdRelSymGrp >					
146	NoRelatedSym		Y	Specifies the number of repeating symbols (instruments) specified.	NumInGrp
→	1324	ListUpdateAction	N	If provided then the Instrument occurrence has explicitly changed. This is a V5.0 tag value.	Char
→	Component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields.	
→	15	Currency	N	Identifies the currency used for price. Absence of this field is interpreted as the default for the security as defined in the reference data.	Currency
→	1306	PriceLimitType	N	Describes the how the price limits are expressed. 0 = Price	Int
→	1148	LowLimitPrice	N	Allowable low limit price for the trading day. A key parameter in validating order price. Used as the lower band for validating order prices. Orders submitted with prices below the lower limit will be rejected.	Price
→	1149	HighLimitPrice	N	Allowable high limit price for the trading day. A key parameter in validating order price. Used as the upper band for validating order prices. Orders submitted with prices	Price

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT	
				above the upper limit will be rejected.		
→	1150	TradingReferencePrice	Y	Reference price of the security	Price	
→	1205	NoTickRules	N	TickRules		
→	→	1206	StartTickPriceRange	N	Starting price range for specified tick increment	Price
→	→	1207	EndTickPriceRange	N	Ending price range for the specified tick increment	Price
→	→	1208	TickIncrement	N	Tick increment for stated price range. Specifies the valid price increments at which a security can be quoted and traded	Price
→	562	MinTradeVol	N	The minimum trading volume for a security. Also indicates quantity step (traditionally known as lot size as used by Bursa)	Qty	
→	1140	MaxTradeVol	N	The maximum order quantity that can be submitted for a security.	Qty	
→	561	RoundLot	N	Trading lot size of security - number of shares or dollar value represented by each trading unit.	Qty	
→	159	AccruedInterestAmt	N	Amount of Accrued Interest for convertible bonds and fixed income	Amt	
→	Component block <YieldData>		N	Insert here the set of "YieldData" fields.		
End of Component block, expanded in line < SecLstUpdRelSymGrp >						
StandardTrailer			Y			

5.10 Security Definition Request (c)

The Security Definition Request message is used for the following:

- Request the definition of a specific security.
- Request the definitions for a set of individual securities for a single market segment.
- Request the definitions of all securities, independent of market segment.

Subscription for security status can be optionally specified by including the SubscriptionRequestType[263] field on the message.

Table 33 – Security Definition Request

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = c (lowercase)	
320	SecurityReqID	Y	Unique ID of a Security Definition Request	String

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
321	SecurityRequestType	Y	Type of Security Definition Request	Int
263	SubscriptionRequestType	N	Subscribe or unsubscribe for security status to security specified in request.	Char
1301	MarketID	Y/N	Identifies the market for which the security definition request is being made. Required if SecurityRequestType (321) = 9 (MarketID). It is mapped to BTS2 Board Group Id. This is a V5.0 tag value. Maximum length 12 characters. Valid values are: CASH INDEX BUYIN FX	Exchange
1300	MarketSegmentID	N	Market Segment where the security is traded. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' - INDEX	String
Component block <Instrument>		Y/N	Insert here the set of "Instrument" (symbology) fields. Required if SecurityRequestType (321) = 4 (Symbol).	
Standard Trailer		Y		

5.11 Security Definition (d)

The Security Definition message is used for the following:

- Respond to a request for a within a specified market segment.
- Convey a comprehensive security definition for all market segments that the security participates in.

The instrument component block in Security Definition will contain the following additional fields to provided non-English symbol and descriptions:

- EncodedSecurityDescLen(350)
- EncodedSecurityDesc(351)

The UndInstrmentGrp will contain the underlying instrument security ID for derivatives, or index member security IDs for index securities.

Table 34 – Security Definition

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = d (lowercase)	

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
320	SecurityReqID	Y	Unique ID for the Security Definition	String
322	SecurityResponseID	Y	Identifier for the Security Definition message	String
323	SecurityResponseType	Y	Type of Security Definition response.	Int
292	CorporateAction	N	Identifies the type of Corporate Action that may be associated with the security. Also referred to as 'Basis of Quotation'.	MultipleCharacterValue
Component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields.	
Component block <InstrumentExtension>		N	Insert here the set of "InstrumentExtension" fields defined in Appendix B.2	
Start of Component block, expanded in line < UndInstrmtGrp >				
711	NoUnderLyings	N	Number of Underlyings	NumInGrp
→	Component block <UnderlyingInstrument>		Must be provided if Number of underlyings > 0	
End of Component block, expanded in line < UndInstrmtGrp >				
15	Currency	N	Identifies the currency used for price. Absence of this field is interpreted as the default for the security as defined in the reference data master file.	Currency
Component block <YieldData>		N	Insert here the set of "YieldData" fields. Contains Yield information for Fixed Income securities.	
Start of Component block, expanded in line < MarketSegmentGrp >				
1310	NoMarketSegments	N	Number of Market Segments on which a security may trade. This is a V5.0 tag value.	NumInGrp
→	1301	MarketID	Identifies the market which lists and trades the instrument. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	Exchange
→	1300	MarketSegmentID	Market Segment where the security is traded. This is a V5.0 tag value. Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN	String

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
			'DB' - DBT 'IN' - INDEX	
End of Component block, expanded in line < MarketSegmentGrp >				
StandardTrailer		Y		

5.12 Security Definition Update Report (BP)

This message is used for reporting updates to the reference database. Updates could be the result of corporate actions or other business events. Updates may include additions, modifications or deletions. Only a single security is reported in each update message.

Table 35 - Security Definition Update Report

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
StandardHeader		Y	MsgType = BP	
320	SecurityReqID	Y	Unique ID for the Security Definition	String
322	SecurityResponseID	Y	Identifier for the Security Definition message.	String
980	SecurityUpdateAction	Y	Type of action.	Char
292	CorporateAction	N	Identifies the type of Corporate Action that triggered the update (if applicable). Also referred to as 'Basis of Quotation'.	MultipleCharV alue
Component block <Instrument>		Y	Insert here the set of "Instrument" (symbology) fields.	
Component block <InstrumentExtension>		N	Insert here the set of "InstrumentExtension" fields defined in Appendix B.2	
Start of Component block, expanded in line < UndInstrmtGrp >				
711	NoUnderLyings	N	Number of Underlyings	NumInGrp
→	Component block <UnderlyingInstrument>	N	Must be provided if Number of underlyings > 0	
End of Component block, expanded in line < UndInstrmtGrp >				
15	Currency	N	Identifies the currency used for price. Absence of this field is interpreted as the default for the security as defined in the reference data.	Currency
Component block <YieldData>		N	Insert here the set of "YieldData" fields.	
Start of Component block, expanded in line < MarketSegmentGrp >				

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
1310	NoMarketSegments		N	Number of Market Segments on which a security may trade. This is a V5.0 tag value.	NumInGrp
→	1301	MarketID	N	Identifies the market which lists and trades the instrument. It is mapped to X-stream Board Group Id. This is a V5.0 tag value. Valid values are: CASH INDEX BUYIN FX	Exchange
→	1300	MarketSegmentID	N	Market Segment where the security is traded. This is a V5.0 tag value. Valid values are : 'NM' - NORMAL 'OD' - ODDLLOT 'BI' - BUYIN 'DB' - DBT 'IN' - INDEX	String
End of Component block, expanded in line < MarketSegmentGrp >					
StandardTrailer			Y		

Appendix A - Standard Header and Trailer

A.1 Standard Header

The standard message header format is as follows.

Table 36 – Standard Message Header

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
8	BeginString	Y	FIXT.1.1 (always unencrypted, must be first field in message)	String
9	BodyLength	Y	(Always unencrypted, must be second field in message)	Length
35	MsgType	Y	(Always unencrypted, must be third field in message)	String
1128	AppVerID	N	Specifies the service pack release being applied at the message level. The only valid value is '8' = FIX50SP1	String
49	SenderCompID	Y	(Always unencrypted). Identifies the firm sending the message.	String
56	TargetCompID	Y	(Always unencrypted). Identifies the firm receiving the message.	String
115	OnBehalfOfCompID	N	Trading partner company ID used when sending messages via a third party (Can be embedded within encrypted data section). Not supported.	String
116	OnBehalfOfSubID	N	Trading partner SubID used when delivering messages via a third party (Can be embedded within encrypted data section). Not supported.	String
144	OnBehalfOfLocationID	N	Trading partner LocationID (i.e. geographic location and/or desk) used when delivering messages via a third party. (Can be embedded within encrypted data section). Not supported.	String
128	DeliverToCompID	N	Trading partner company ID used when sending messages via a third party (Can be embedded within encrypted data section). Not supported	String
34	MsgSeqNum	Y	(Can be embedded within encrypted data section.)	SeqNum
50	SenderSubID	N	Assigned value used to identify specific message originator (e.g. desk, trader, etc.)	String

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
142	SenderLocationID	N	Sender's LocationID (i.e. geographic location and/or desk) (Can be embedded within encrypted data section.)	String
57	TargetSubID	N	"ADMIN" reserved for administrative messages not intended for a specific user. Assigned value used to identify specific individual or unit intended to receive the message.	String
143	TargetLocationID	N	Trading partner LocationID (i.e. geographic location and/or desk) (Can be embedded within encrypted data section.)	String
129	DeliverToSubID	N	Trading partner SubID used when delivering messages via a third party. (Can be embedded within encrypted data section). Not supported.	String
145	DeliverToLocationID	N	Trading partner LocationID (i.e. geographic location and/or desk) used when delivering messages via a third party. (Can be embedded within encrypted data section). Not supported.	String
43	PossDupFlag	N	Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request. (Can be embedded within encrypted data section.)	Boolean
97	PossResend	N	Required when message may be duplicate of another message sent under a different sequence number. (Can be embedded within encrypted data section.)	Boolean
52	SendingTime	Y	Can be embedded within encrypted data section.	UTCTimeStamp
122	OrigSendingTime	N	Required for message resent as a result of a ResendRequest. If data is not available set to same value as SendingTime (can be embedded within encrypted data section.)	UTCTimeStamp
347	MessageEncoding	N	Type of message encoding (non-ASCII (non-English) characters) used in a message's "Encoded" fields.	String
369	LastMsgSeqNumProcessed	N	Not supported	SeqNum

A.2 Standard Trailer

Each message, administrative or application is terminated by a standard trailer. The trailer is used to segregate messages and contains the three digit character representation of the Checksum value.

The standard message trailer format is as follows.

Table 37 – Standard Message Trailer

TAG	FIELD NAME	REQ'D	COMMENTS	FORMAT
10	Checksum	Y	(Always unencrypted, always last field in message)	String

Appendix B - Component Blocks

B.1 Instrument (symbology) Component Block

The Instrument component block contains all the fields commonly used to describe a security or instrument. Typically the data elements in this component block are considered the static data of a security which may be commonly found in a security master database (reference database). The Instrument component block can be used to describe any asset type supported by FIX.

The Instrument component, when part of a transaction that is inbound to the Exchange can only contain the following fields:

- SecurityID (48)
- SecurityIDSource (22)
- SecuritySubType (762)
- SecurityGroup (1151) for Market Data Request (V) only

The SecurityStatus, SecurityList and SecurityDefinition responses will return the following tags: 22, 48, 55, 106, 107, 223, 224, 225, 762 and 1227. SecurityList and SecurityDefinition will additionally return the following: 201, 202, 454, 455, 456, 470, 541, 350, 351 and 1151.

TradeCaptureReport will return the following tags: 22, 48, 541 and 762.

All other messages referencing security information will contain fields 22, 48 and 762 only.

Table 38 – Instrument Component Block

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
22	SecurityIDSource	N	Identifies class or source of the SecurityID (48) value. Required if SecurityID is specified.	String
48	SecurityID	N	Unique marketplace assigned identifier number for an order book. Required for inbound transactions to the Exchange except for OrderCancelReplaceRequest(G), OrderCancelRequest(F) and Order Status Request(H).	String
55	Symbol	N	Ticker symbol or human readable representation of the security. In BTS2, this is the SecShortName.	String
454	NoSecurityAltID	N	Number of alternate Security Identifies. Always 1 if presented	NumInGroup
455	SecurityAltID	N	ISIN Code	String
456	SecurityAltIDSource	N	4 – ISIN number	String
1151	SecurityGroup	N	Indicates the market classification. For Bursa Malaysia, these values (markets) are valid: MAIN ACE	String

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
			ETF STRW BOND LEAP	
762	SecuritySubType	N	In X-stream, this field is used to specify board on which SecurityID is listed. This field is equivalent to MarketSegmentID (1300) in Security List (y) and Security Definition (d). Valid values are : 'NM' – NORMAL 'OD' – ODDLOT 'BI' – BUYIN 'DB' – DBT 'IN' – INDEX	String
106	Issuer	N	Issuer of security	String
107	SecurityDesc	N	Optional textual description of the security.	String
223	CouponRate	N	For Fixed Income.	Percentage
224	CouponPaymentDate	N	Date interest is to be paid. Used in identifying Corporate Bond issues.	LocalMktDate
225	IssueDate	N	The date when a bond or stock offering is issued.	LocalMktDate
470	CountryOfIssue	N	ISO Country code of instrument issue (e.g. the country portion typically used in ISIN). Can be used in conjunction with non-ISIN SecurityID (e.g. CUSIP for Municipal Bonds without ISIN) to provide uniqueness.	Country
541	MaturityDate	N	Specifies the maturity date or expiry date of a option.	LocalMktDate
202	StrikePrice	N	Strike Price for an Option.	Price
201	PutOrCall	N	Indicates whether an option contract is a put or call	Int
350	EncodedSecurityDescLen	N	Must be set if EncodedSecurityDesc field is specified and must immediately precede it.	Length
351	EncodedSecurityDesc	N	Encoded (non-ASCII characters) representation of the SecurityDesc field in the encoded format specified via the MessageEncoding field.	Data
1227	ProductComplex	N	Identifier for sector (Appendix F)	String

B.2 InstrumentExtension Component Block

The InstrumentExtension Block contains AttrbGrp repeating group to provide additional instrument attributes. Please refer Appendix C for valid values in InstrAttribType (871).

Table 39 – InstrumentExtension Component Block

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT	
Start of Component block, expanded in line < AttrbGrp >					
870	NoInstrAttrib	Y	Number of repeating InstrAttrib group entries.	NumInGrp	
→	871	InstrAttribType	Y	Code to represent the type of instrument attribute	int
→	872	InstrAttribValue	N	Attribute value appropriate to the InstrAttribType (871) field.	String
End of Component block, expanded in line < AttrbGrp >					

B.3 UnderlyingInstrument Component Block

The UnderlyingInstrument component block, like the Instrument component block, contains all the fields commonly used to describe a security or instrument.

In the case of the UnderlyingInstrument component block it describes an instrument which underlies the primary instrument. Refer to the Instrument component block comments as this component block mirrors Instrument, except for the noted fields.

In the case of an Index, the UnderlyingInstrument component block contains the constituent securities of the Index.

Table 40 - UnderlyingInstrument Component Block

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
309	UnderlyingSecurityID	N	Underlying security's security ID.	String
305	UnderlyingSecurityIDSource	N	Underlying security's SecurityIDSource.	String
763	UnderlyingSecuritySubType	N	Underlying security's SecuritySubType. See SecuritySubType (762) field for description	String

B.4 Parties Component Block

The Parties component is used to provide identifiers for parties involved in the transaction (e.g. firm, trader, Exchange, etc.).

The Parties component block is used to identify and convey information on the entities both central and peripheral to the financial transaction represented by the FIX message containing the Parties Block. The Parties block allows many different types of entities to be expressed through use of the PartyRole field and identifies the source of the PartyID through the PartyIDSource. Entities can encompass:

- EnteringTrader (36) - Corresponding PartyID (448) tag has a maximum length of 30 characters
- EnteringFirm (7) - Corresponding PartyID (448) tag has a maximum length of 30 characters
- ContraTrader (37) - Corresponding PartyID (448) tag has a maximum length of 30 characters

- ContraFirm (17) - Corresponding PartyID (448) tag has a maximum length of 30 characters
- ExecutingTrader (12) - Corresponding PartyID (448) tag has a maximum length of 30 characters
- ExecutingFirm (1) - Corresponding PartyID (448) tag has a maximum length of 30 characters
- OrderEntryOperatorID (44) - Corresponding PartyID (448) tag has a maximum length of 30 characters
- OrderOriginationTrader (11) – Dealer ID (OMS Id that identifies trader, Corresponding PartyID (448) tag has a maximum length of 20 characters)
- ClientID (3) – Free text (Corresponding PartyID (448) tag has a maximum length of 255 characters)
- ClearingFirm (4) - Corresponding PartyID (448) tag has a maximum length of 30 characters

Table 41 –Parties Component Block

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT	
453	NoPartyIDs	N	Repeating group below should contain unique combinations of PartyID, PartyIDSource, and PartyRole	NumInGrp	
→	448	PartyID	N	Used to identify source of PartyID. Required if PartyIDSource is specified. Required if NoPartyIDs > 0.	String
→	447	PartyIDSource	N	Used to identify class source of PartyID value. Required if PartyID is specified. Required if NoPartyIDs > 0.	Char
→	452	PartyRole	N	Identifies the type of PartyID (e.g. Executing Broker). Required if NoPartyIDs > 0.	Int

B.4.1 Examples

Firm and individual User for whom the transaction applies:

- Broker Firm (for outbound messages)
 - PartyID = “...” – the identifier of the firm
 - PartyIDSource = “...” – the type of identifier used
 - PartyRole = “1” – Executing Firm
- User (for outbound messages)
 - PartyID = “...” – the identifier of the user
 - PartyIDSource = “...” – the type of identifier used
 - PartyRole = “12” – Executing Trader
- DealerID (for inbound and outbound messages)
 - PartyID = “...” – the dealer ID
 - PartyIDSource = “...” – the type of identifier used
 - PartyRole = “11” – Dealer ID

In cases the transaction is entered on behalf of the real owner and the marketplace validates authorization in those cases:

- Broker Firm (For outbound messages)
 - PartyID = "...” – the identifier of the firm on behalf of the real owner
 - PartyIDSource = "...” – the type of identifier used
 - PartyRole = "7” – Entering Firm
- User (for outbound messages)
 - PartyID = "...” – the identifier of the user on behalf of the real owner
 - PartyIDSource = "...” – the type of identifier used
 - PartyRole = "36” – Entering Trader

B.5 YieldData Component Block

The YieldData component block conveys yield information for a given Fixed Income security.

Table 42 – YieldData Component Block

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT
235	YieldType	N	Type of yield.	String
236	Yield	N	Yield percentage	Percentage

B.6 LinesOfTextGroup Component Block

The LinesOfTextGroup component block is used to provide arbitrary text and non-printable information.

Table 43 – LinesOfTextGroup Component Block

TAG	FIELDNAME	REQ'D	COMMENTS	FORMAT	
Start of Component block, expanded in line < LinesOfTextGroup >					
33	NoLinesOfText	Y	Specifies the number of repeating lines of text.	NumInGrp	
→	58	Text	Y	Free format text string	String
→	354	EncodedTextLen	N	Must be set if EncodedText field is specified and must immediately precede it. Byte Length of encoded (non-ASCII) characters.	Length
→	355	EncodedText	N	Encoded (non-ASCII characters) representation of the Text field in the encoded format specified via the MessageEncoding.	Data
End of Component block, expanded in line < LinesOfTextGroup >					

B.7 SideCrossOrdModGrp Component Block

The SideCrossOrdModGrp component block is used to submit orders on both sides of a crossing order.

Table 44 - SideCrossOrdModGrp Component Block

TAG	FIELDNAME		REQ'D	COMMENTS	FORMAT
Start of Component block, expanded in line < SideCrossOrdModGrp >					
552	NoSides		Y	Must be 2	NumInGrp
→	54	Side	Y	Side of order	Char
→	11	ClOrdID	Y	Unique identifier of the order as assigned by institution or by the intermediary with closest association with the investor.	Length
→	Component block <Parties>		N	Insert here the set of "Parties" (firm identification) fields	
→	1	Account	Y	Specifies Investor account.	String
→	38	OrderQty	Y	Quantity ordered. This value represents the number of shares for equities or par, face or nominal value for Fixed Income instruments.	Qty
→	528	OrderCapacity	N	Designates the capacity of the firm placing the order	Char
→	529	OrderRestrictions	N	For order tagging purpose and/or indicate market maker order.	MultipleCharValue
→	58	Text	N	Free format text string	String
End of Component block, expanded in line < SideCrossOrdModGrp >					

Appendix C - Field Enumerations Sorted By Tag Name

Table 45 – Field Enumerations Sorted By Tag Name

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
266	AggregatedBook	N	Specifies whether or not book entries should be aggregated. Valid values: Y – book entries to be aggregated N – book entries should not be aggregated	Boolean
105 7	AggressorIndicator	N	Used to identify whether the order initiator is an aggressor or not in the trade. Valid values: Y – Order initiator is aggressor N – Order initiator is passive	Boolean
380	BusinessRejectReason	Y	Valid values: 0 – Other 1 – Unknown ID 2 – Unknown Security 3 – Unknown Message Type 4 – Application not available 5 – Conditionally required field missing 6 – Not Authorized	Int
292	CorporateAction	N	Identifies the type of Corporate Action that triggered the update. Also referred to as 'Basis of Quotation'. Valid values: A – Ex-Dividend B – Ex-Distribution C – Ex-Rights D – New E – Ex-Interest F – Cash Dividend G – Stock Dividend (Cum Divided) H – Stock Split I – Reverse Stock Split L – Liquidation Reorganization M – Merger Reorganization N – Rights Offering (Cum Rights) P – Spinoff R – Warrant S – Special Action *** BTS2 Specific *** a – Cum Bonus b – Cum Demerge c – Cum Interest d – Cum Listing e – Cum Right of Conversion	MultipleCharV alue

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			f – Call Paid g – Cum Delisting h – Offer Closing i – Unlisted j – Ex Bonus k – Ex Demerge l – Ex Listing m – Ex Merge n – Ex Right of Conversion o – Ex Split p – Ex Delisting	
102	CxlRejReason	N	Identifies the reason for the cancel rejection. Valid values: 1 – Unknown order 6 – Duplicate order (e.g. duplicate CLOrdID) '99' – Other. Refer to returned Text (58) field for exact reason for rejection.	Int
434	CxlRejResponseTo	Y	Identifies the type of request that a Cancel Reject is in response to. Valid values are: 1 – Order Cancel Request 2 – Order Cancel/Replace Request	Char
127	DKReason	Y	Reason for execution rejection. Valid values: A – Unknown Symbol B – Wrong Side C – Quantity Exceeds Order D – No Matching Order E – Price Exceeds Limit F – Calculation Difference Z – Other	Char
18	ExecInst	N	Instructions for order handling. Valid values: 'G' – All or None 'o' – Withdraw on log off	Char
150	ExecType	Y	Type of Execution being reported. Describes the specific ExecutionRpt (i.e. Pending Cancel) while OrdStatus (39) will always identify the current order status (i.e. Partially Filled) Valid values: 0 – New 3 – Done for day 4 – Cancelled 5 – Replaced 6 – Pending Cancel 7 – Stopped 8 – Rejected 9 – Suspended	Char

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT																																	
			C - Expired F - Trade (partial fill or fill) G - Trade Correct H - Trade Cancel I - Order Status U - Order is Unplaced																																		
871	InstrAttribType	N	Specifies the type of instrument attribute. Valid values are: *** BMB Specific ***																																		
			<table border="1"> <thead> <tr> <th>VALUE</th> <th>DESCRIPTION</th> <th>TAG 872</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>Security Category</td> <td>String</td> </tr> <tr> <td>102</td> <td>Par Value</td> <td>Price</td> </tr> <tr> <td>103</td> <td>Currency code for par value of instrument</td> <td>String</td> </tr> <tr> <td>104</td> <td>30 character AFC name for issuing company</td> <td>String</td> </tr> <tr> <td>105</td> <td>Currency code for issue price of bond or warrant</td> <td>String</td> </tr> <tr> <td>106</td> <td>Issue price for an instrument (bond, new issue, right, or warrant)</td> <td>Price</td> </tr> <tr> <td>107</td> <td>Code (ISO3A norm) for the country of listing</td> <td>String</td> </tr> <tr> <td>109</td> <td> Short Sell Indicator R=RSS allowed P=PDT allowed I=IDSS allowed V=PSS allowed PI=PDT & IDSS allowed RP=RSS & PDT allowed RI=RSS & IDSS allowed RPI=RSS & PDT & IDSS allowed PV=PDT & PSS allowed RV=RSS & PSS allowed IV=IDSS & PSS allowed RPV=RSS & PDT & PSS allowed RIV=RSS & IDSS & PSS allowed PIV=PDT & IDSS & PSS allowed RPIV=RSS & PDT & IDSS & PSS allowed </td> <td>String</td> </tr> <tr> <td>110</td> <td>Sub-sector</td> <td>String</td> </tr> <tr> <td>111</td> <td> Delivery Basis 0=Buying-in (T+0) 2=Designated Basis (T+1) </td> <td>Int</td> </tr> </tbody> </table>	VALUE	DESCRIPTION	TAG 872	101	Security Category	String	102	Par Value	Price	103	Currency code for par value of instrument	String	104	30 character AFC name for issuing company	String	105	Currency code for issue price of bond or warrant	String	106	Issue price for an instrument (bond, new issue, right, or warrant)	Price	107	Code (ISO3A norm) for the country of listing	String	109	Short Sell Indicator R=RSS allowed P=PDT allowed I=IDSS allowed V=PSS allowed PI=PDT & IDSS allowed RP=RSS & PDT allowed RI=RSS & IDSS allowed RPI=RSS & PDT & IDSS allowed PV=PDT & PSS allowed RV=RSS & PSS allowed IV=IDSS & PSS allowed RPV=RSS & PDT & PSS allowed RIV=RSS & IDSS & PSS allowed PIV=PDT & IDSS & PSS allowed RPIV=RSS & PDT & IDSS & PSS allowed	String	110	Sub-sector	String	111	Delivery Basis 0=Buying-in (T+0) 2=Designated Basis (T+1)	Int	
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TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			<p>3=Ready Basis (T+2) 4=Immediate Basis (T+1)</p> <p>112 Shariah Compliant 113 Practice note 114 Date of first day of trading instrument 115 Issued Quantity 118 Maximum RSS traded percentage authorized for the trading day 120 Foreign Limitiation Indicator</p> <p>121 Short Sell Suspended Indicator R=RSS Suspended P=PDT Suspended I=IDSS Suspended V=PSS Suspended</p> <p>PI=PDT & IDSS Suspended RP=RSS & PDT Suspended RI=RSS & IDSS Suspended RPI=RSS & PDT & IDSS Suspended</p> <p>PV=PDT & PSS Suspended RV=RSS & PSS Suspended IV=IDSS & PSS Suspended RPV=RSS & PDT & PSS Suspended RIV=RSS & IDSS & PSS Suspended PIV=PDT & IDSS & PSS Suspended RPIV=RSS & PDT & IDSS & PSS Suspended</p>	<p>"Y" String LocalMktDate</p> <p>Qty Int</p> <p>"Y"</p> <p>String</p>
1324	ListUpdateAction	N	<p>Specifies the action for a security list. If provided then the Instrument occurrence has explicitly changed: Valid values are:</p> <p>A - Add D - Delete M - Modify</p>	Char
264	MarketDepth	Y	<p>Depth of market for Book Snapshot / Incremental updates.</p> <p>Valid values:</p> <p>0 — full book depth 1 - top of book 2 and above - book depth (number of levels)</p> <p>Note: For market by price (MBP) this is limited to a depth of five(5) or ten(10-additional pricing). For market by order (MBO) or non aggregated book this is limited to ten (10):</p>	Int
139	MarketUpdateAction	N	Specifies the action taken for the specified	Char

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
5			MarketID(1301) + MarketSegmentID(1300). Valid values are: A = Add D = Delete M =Modify	
1369	MassActionReportID	Y	Unique Identifier for the Order Mass Action Report. This is a V5.0 tag value.	String
1373	MassActionType	Y	Specifies the type of mass action requested. Valid values: 3 - Cancel orders *** BTS2 Specific *** 100 - Order Status	Int
1374	MassActionScope	Y	Specifies scope of Order Mass Action Request. Valid values: 1 - All orders for a security 7 - All orders 9 - All orders for a Market Segment	Int
1375	MassActionResponse	Y	Indicates the action taken by the counterparty order handling system as a result of the Action Request 0 - Request rejected. 1 - Accepted	Int
1376	MassActionRejectReason	N	Indicates why Order Mass Action Request was rejected. Required if MassActionResponse = 0. Valid values: 0 - Mass Action Not Supported 1 - Invalid or unknown security 8 - Invalid or unknown Market Segment 7 - Invalid or unknown Market 99 - Other	Int
574	MatchType	N	The point in the matching process at which this trade was matched. Valid values: 1 - One-Party Trade Report (privately negotiated trade) 2 - Two-Party Trade Report (privately negotiated trade) 4 - Auto-match	String
269	MDEntryType	Y	Must be first field in repeating group. This is a list of all the types of Market Data Entries that the firm requesting the Market Data is interested in receiving.	Char

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			<p>For market data <u>requests</u> the following are valid values:</p> <p>0 - Order information – requests all order related information in market by order and market by price messages (e.g. bids, offers, price, quantity, depth, etc.).</p> <p>2 - Trade information – returns all trade information and statistics.</p> <p>3 - Index information – returns all index related information.</p> <p>`*` - Security Statistics (BTS2 specific) – returns security specific market statistics.</p> <p>For <u>responses to market data requests</u> the following are valid values:</p> <p>Valid values:</p> <p>0 – Bid 1 – Offer 2 – Trade 3 – Index Value 4 – Opening Price 5 – Closing Price 6 – Settlement Price 7 – Trading Session High Price 8 – Trading Session Low Price 9 – Trading Session VWAP Price B – Trade Volume C – Open Interest E – Simulated Sell Price F – Simulated Buy Price P – Early Prices J – Empty Book j - No Trades Exist</p> <p>For 2, 3, 4, 5, 7, 8 the MarketDepth (264) must be set to `1` = `Top of Book`.</p> <p>*** BTS2 Extensions ***</p> <p>u – Unadjusted previous closing price s – Day’s Short Sell(RSS) t – Days’ Proprietary Day Trading (PDT) i – Day’s IDSS V – Day’s PSS W – Day’s PSS and RSS Y – Day’s PSS, IDSS and PDT</p>	
281	MDReqRejReason	N	<p>Reason for the rejection of a Market Data request.</p> <p>Valid values:</p> <p>0 – Unknown symbol 1 – Duplicate MDReqID 2 – Insufficient Bandwidth</p>	Char

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			3 – Insufficient Permissions 4 – Unsupported Subscription Request Type 5 – Unsupported MarketDepth 6 – Unsupported MDUpdateType 8 – Unsupported MDEntryType 9 – Unsupported TradingSessionID	
279	MDUpdateAction	Y	Must be first field in this repeating group. Valid values: 0 – New 1 – Change 2 – Delete	Char
265	MDUpdateType	N	Required if SubscriptionRequestType = Snapshot + Updates (1). Specifies the type of Market Data update. Valid values: 1 – Incremental refresh	Int
528	OrderCapacity	N	Designates the capacity of the firm placing the order. Valid values are: A – Agency M – Market Maker P – Principal R – Riskless Principal	Char
529	OrderRestrictions	Y	Restrictions associated with an order. If more than one restriction is applicable to an order, this field can contain multiple instructions separated by space. Valid values are: 9 – ASEAN Link E – Algorithmic *** BMB Extensions *** I – Internet M – DMA R – Broker Assisted	MultipleCharV alue
103	OrdRejReason	N	For optional use with ExecType = 8 (Rejected). Code to identify reason for order rejection. Valid values are: 5 = Unknown order 6 – Duplicate order (e.g. duplicate CLOrdID) 99 – Other. Refer to returned Text (58) field for exact reason for rejection.	Int
39	OrdStatus	Y	Describes the current state of an order. Valid values are: 0 – New 1 – Partially filled	Char

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			2 – Filled 4 – Cancelled 5 – Replaced 8 – Rejected 9 – Suspended C – Expired *** BTS2 Defined *** U – Order is Unplaced X – Order with trigger in the book but not active (e.g. Order has not been triggered). Z – Private Order	
40	OrdType	Y	Indicates the type of order. Valid values are: 1 – Market – The Price (44) field is not used, the order executes against the best prices order on the opposite side. 2 – Limit – The Price (44) field is specified and the order will execute at this price or better. 3 – Stop/Stop Loss – A type of market order that is entered into the book when the defined stop price is reached (i.e. a last trade is at or better than that price). The Price (44) field is not specified, but the TriggerPrice (1102) is. The order will be activated as a Market order when the TriggerPrice is reached. 4 – Stop Limit – A type of limit order that is entered into the book when the defined stop price is reached (i.e. a last trade is at or better than that price). Specifies both the Price (44) and the TriggerPrice (1102) field. The order will be activated as a Limit order (using the specified Price as the limit price) when the TriggerPrice is reached. *** BMB Defined *** Z – Market at best	Char
447	PartyIDSource	N	Used to identify class source of PartyID value. Required if PartyID is specified. Required if NoPartyIDs > 0. Valid values are: C – Participant identifier	Char
452	PartyRole	N	Identifies the type of PartyID (e.g. Executing Broker). Required if NoPartyIDs > 0. Valid values are: 1 – Executing Firm	Int

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			3 - Client ID 4 - Clearing Firm 7 - Entering Firm 11 - Order origination trader 12 - Executing Trader 13 - Order origination firm 17 - Contra Firm 36 - Entering trader 37 - Contra trader 44 - Order Entry Operator ID	
22	SecurityIDSource	N	Identifies class or source of the SecurityID (48) value. Valid values: 99 - Marketplace assigned identifier	String
559	SecurityListRequestType	N	Specifies the criteria of the request: 0 - Symbol 4 - All Securities 5 - MarketID (Specific Market)	Int
560	SecurityRequestResult	N	Result of the Security Request identified by the SecurityReqID. Valid values: 0 - Valid request 1 - Invalid or unsupported request 2 - No instruments found that match selection criteria 3 - Not authorized to retrieve instrument data 4 - Instrument data temporarily unavailable 5 - Request for instrument data not supported *** 100+ BTS2 Specific*** 100 - Invalid MarketID	Int
321	SecurityRequestType	N	Type of Security Definition Request. Valid values: 4 - Symbol (security ID in BTS2) 8 - All Securities 9 - MarketID	Int
323	SecurityResponseType	N	Type of Security Definition response. Valid values: 4 - List of securities returned per request 5 - Reject security proposal 6 - Cannot match selection criteria	Int
326	SecurityTradingStatus	N	Identifies the trading status applicable to the transaction. Valid values: 2 - Trading Suspension 17 - Ready to trade 18 - Not available for trading	Int

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			20 – Unknown or Invalid	
980	SecurityUpdateAction	N	Specifies the update action for the security. Valid values: A – Add D – Delete M – Modify	Char
54	Side	Y	Optional qualifier used to indicate the side of the market. Valid values are: 1 – Buy 2 – Sell 5 – Short Sell 6 – Sell short exempt (Proprietary Day Trading)	Char
263	SubscriptionRequestType	N	Used to subscribe for Quote Status Report messages. Subscribe or unsubscribe for security status to security specified in request. Subscription type request. Valid values are: 0 – Snapshot 1 – Snapshot+Updates (Subscribe) 2 – Disable previous Snapshot+Update Request (unsubscribe)	Char
274	TickDirection	N	Direction of the "tick". Valid values: 0 – Plus Tick 1 – Zero-Plus Tick 2 – Minus Tick 3 – Zero-Minus Tick	Char
59	TimeInForce	N	Indicates time in force techniques that are valid for the specified market segment. Valid values are: 0 – Day (or session) 1 – Good till cancelled (Not in used) 3 – Immediate or Cancel (IOC) 4 – Fill or Kill (FoK) 6 – Good till date (Not in used)	Char
751	TradeReportRejectReason	N	Reason for Rejection of Trade Report Valid Values: 99 = other	int
487	TradeReportTransType	N	Identifies Trade Report message transaction type 0 = New 1 = Cancel	Int

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			2 = Replace	
856	TradeReportType	N	Type of Trade Report 0 = Submit 1 = Alleged 2 = Accept 3 = Decline 6 = Trade Report Cancel 10 = Pended	Int
749	TradeRequestResult	Y	Result of Trade Request. Valid Values: 0 = Successful 8 = TradeRequestType not supported 99 = Other	Int
750	TradeRequestStatus	Y	Status of Trade Request. Valid Values: 0 = Accepted 1 = Completed 2 = Rejected	Int
569	TradeRequestType	Y	Type of Trade Capture Report. Valid values: 0 - All Trades	Int
336	TradingSessionID	Y	Identifier for Trading Session. A trading session spans an extended period of time that can also be expressed informally in terms of the trading day. Valid values are: 'EN' – Enquiry 'POP1' – Pre-Opening 'OPN1' – Opening 'CNT1' – Trading 'BRK1' – Break 'POP2' – Second Pre-Opening 'OPN2' – Second Opening 'CNT2' – Second Trading 'POC2' – Pre-Closing 'CLS2' – Closing 'TAL2' – Trading at last	String

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			`CLOSE` - Close `EOT` - End Of Trading `EOD` - End Of Day `HLT` - Halt `CBH` - Circuit Breaker Halt	
340	TradSesStatus	Y	State of trading session. Valid values are: 6 - Request rejected *** BTS2 Specific *** 100 - Pending - Indicates that trading session has not been started 101 - Triggered - Indicates trading session has either occurred or is the current session 102 - Deleted - This trading session has been removed from the trading schedule.	Int
567	TradSesStatusRejReason	N	Used with TradSesStatus = "Request Rejected". Valid values are: 1 - Unknown trading session id	Int
132 7	TradSesUpdateAction	N	Specifies the action taken for the specified trading sessions. Valid values: A - Add D - Delete M - Modify	Char
939	TrdRptStatus	N	Status of Trade Report 0 = Accepted 1 = Rejected	int
828	TrdType	N	Type of Trade. 0 = Regular Trade 22 = Privately Negotiated Trades *** BMB Extensions *** 100 = Crossing Order Trade	Int
61	Urgency	N	Urgency Flag. Valid values are: 0 - Normal 1 - Flash 2 - Background	Char
236	Yield	Y/N	Yield percentage - This is the yield equivalent of the price. Price (44) and Yield (236) are mutually exclusive. Currently not in use.	Percentage
235	YieldType	N	Supported values are: OPENAVG - Open Average Yield CLOSE - Closing Yield High - Trading session high yield	String

TAG	FIELDNAME	REQ 'D	COMMENTS	FORMAT
			Low – Trading session low yield Last – Last yield WAvg – Weighted Average Change – Change from reference yield.	

Appendix D - FIX Data Types

Data types (with the exception of those of type "data") are mapped to ASCII strings as follows.

int	<p>Sequence of digits without commas or decimals and optional sign character (ASCII characters "-", "0" - "9"). The sign character utilizes one byte (i.e. positive int is "99999" while negative int is "-99999"). Note that int values may contain leading zeros (e.g. "00023" = "23").</p> <p>Examples:</p> <p>723 in field 21 would be mapped int as 21=723 .</p> <p>-723 in field 12 would be mapped int as 12=-723 </p> <p>The following data types are based on int.</p>	
	Length	int field representing the length in bytes. Value must be positive.
	TagNum	int field representing a field's tag number when using FIX "Tag=Value" syntax. Value must be positive and may not contain leading zeros.
	SeqNum	int field representing a message sequence number. Value must be positive.
	NumInGroup	int field representing the number of entries in a repeating group. Value must be positive.
	DayOfMonth	int field representing a day during a particular month (values 1 to 31).
float	<p>Sequence of digits with optional decimal point and sign character (ASCII characters "-", "0" - "9" and "."); the absence of the decimal point within the string will be interpreted as the float representation of an integer value. All float fields must accommodate up to fifteen significant digits. The number of decimal places used should be a factor of business/market needs and mutual agreement between counterparties. Note that float values may contain leading zeros (e.g. "00023.23" = "23.23") and may contain or omit trailing zeros after the decimal point (e.g. "23.0" = "23.0000" = "23" = "23.").</p> <p>Note that fields which are derived from float may contain negative values unless explicitly specified otherwise. The following data types are based on float.</p>	
	Qty	float field capable of storing either a whole number (no decimal places) of "shares" (securities denominated in whole units) or a decimal value containing decimal places for non-share quantity asset classes (securities denominated in fractional units).
	Price	float field representing a price. Note the number of decimal places may vary. For certain asset classes, prices may be negative values. For example, prices for options strategies can be negative under certain market conditions (see FIX Specifications Volume 7: FIX Usage by Product for asset classes that support negative price values).
	PriceOffset	float field representing a price offset, which can be mathematically added to a "Price". Note the number of decimal places may vary and some fields such as LastForwardPoints may be negative.
	Amt	float field typically representing a Price times a Qty
	Percentage	float field representing a percentage (e.g. 0.05 represents 5% and 0.9525 represents 95.25%). Note the number of decimal places may vary.

char	Single character value, can include any alphanumeric character or punctuation except the delimiter. All char fields are case sensitive (i.e. m != M). The following fields are based on char.	
	Boolean	char field containing one of two values: 'Y' = True/Yes 'N' = False/No
String	Alpha-numeric free format strings, can include any character or punctuation except the delimiter. All String fields are case sensitive (i.e. morstatt != Morstatt).	
	MultipleCharValue	string field containing one or more space delimited single character values (e.g. 18=2 A F).
	MultipleStringValue	string field containing one or more space delimited multiple character values (e.g. 277=AV AN A).
	Country	string field representing a country using ISO 3166 Country code (2 character) values (see FIX Specifications Volume 6 - Appendix 6-B).
	Currency	string field representing a currency type using ISO 4217 Currency code (3 character) values (see FIX Specifications Volume 6 - Appendix 6-A).
	Exchange	string field representing a market or exchange using ISO 10383 Market Identifier Code (MIC) values (see FIX Specifications Volume 6 - Appendix 6-C).
	MonthYear	string field representing month of a year. An optional day of the month can be appended or an optional week code. Valid formats: YYYYMM YYYYMMDD YYYYMMWW Valid values: YYYY = 0000-9999; MM = 01-12; DD = 01-31; WW = w1, w2, w3, w4, w5.
UTCTimestamp	string field representing Time/date combination represented in UTC (Universal Time Coordinated, also known as "GMT") in either YYYYMMDD-HH:MM:SS (whole seconds) or YYYYMMDD-HH:MM:SS.sss (milliseconds) format, colons, dash, and period required. Valid values: * YYYY = 0000-9999, MM = 01-12, DD = 01-31, HH = 00-23, MM = 00-59, SS = 00-60 (60 only if UTC leap second) (without milliseconds). * YYYY = 0000-9999, MM = 01-12, DD = 01-31, HH = 00-23, MM = 00-59, SS = 00-60 (60 only if UTC leap second), sss=000-999 (indicating milliseconds). Leap Seconds: Note that UTC includes corrections for leap seconds, which are inserted to account for slowing of the rotation of the earth. Leap second insertion is declared by the International Earth Rotation Service (IERS) and has, since 1972, only occurred on the night of Dec. 31 or Jun 30. The IERS considers March 31 and September 30 as secondary dates	

	<p>for leap second insertion, but has never utilized these dates. During a leap second insertion, a UTCTimestamp field may read "19981231-23:59:59", "19981231-23:59:60", "19990101-00:00:00". (see http://tycho.usno.navy.mil/leapsec.html)</p>
UTCTimeOnly	<p>string field representing Time-only represented in UTC (Universal Time Coordinated, also known as "GMT") in either HH:MM:SS (whole seconds) or HH:MM:SS.sss (milliseconds) format, colons, and period required. This special-purpose field is paired with UTCDateOnly to form a proper UTCTimestamp for bandwidth-sensitive messages.</p> <p>Valid values:</p> <p style="padding-left: 40px;">HH = 00-23, MM = 00-60 (60 only if UTC leap second), SS = 00-59. (without milliseconds)</p> <p style="padding-left: 40px;">HH = 00-23, MM = 00-59, SS = 00-60 (60 only if UTC leap second), sss=000-999 (indicating milliseconds).</p>
UTCDateOnly	<p>string field representing Date represented in UTC (Universal Time Coordinated, also known as "GMT") in YYYYMMDD format. This special-purpose field is paired with UTCTimeOnly to form a proper UTCTimestamp for bandwidth-sensitive messages.</p> <p>Valid values:</p> <p style="padding-left: 40px;">YYYY = 0000-9999, MM = 01-12, DD = 01-31.</p>
LocalMktDate	<p>string field representing a Date of Local Market (as opposed to UTC) in YYYYMMDD format. This is the "normal" date field used by the FIX Protocol.</p> <p>Valid values:</p> <p style="padding-left: 40px;">YYYY = 0000-9999, MM = 01-12, DD = 01-31.</p>
data	<p>string field containing raw data with no format or content restrictions. Data fields are always immediately preceded by a length field. The length field should specify the number of bytes of the value of the data field (up to but not including the terminating SOH).</p> <p>Caution: The value of one of these fields may contain the delimiter (SOH) character. Note that the value specified for this field should be followed by the delimiter (SOH) character as all fields are terminated with an "SOH".</p>

Appendix E - Security Category

SECURITY CATEGORY CODE (Value in 872 when 871=101)	PRODUCT TYPE	DESCRIPTION
048	BOND	BONDS
071		CONVENTIONAL-MGS
072		CONVENTIONAL-GG
073		CONVENTIONAL-PDS
074		ISLAMIC-GII
075		ISLAMIC-GG
076		ISLAMIC-PDS
045	CALL WARRANT	CALL WARRANT-LOCAL
056		CALL WARRANT-FOREIGN
052	CBBC CALL	CBBC CALL (LOCAL)
054		CBBC CALL (FOREIGN)
053	CBBC PUT	CBBC PUT (LOCAL)
055		CBBC PUT (FOREIGN)
044	CLOSE END FUND	CLOSE END FUND
049	DEBENTURES	1ST DEBENTURES
263	ETF	ETF
068	INDEX	INDEX
047	LOAN NOTES	LOAN NOTES
046	LOAN STOCKS	LOAN STOCKS
041	ORDINARY STOCK	LOCAL A-SHARE
058		FOREIGN A-SHARE

SECURITY CATEGORY CODE (Value in 872 when 871=101)	PRODUCT TYPE	DESCRIPTION
057		RIGHTS COUNTER-LOCAL
059		RIGHTS COUNTER-FOREIGN
300		ORDINARY SHARE
301		ORDINARY SHARE - FOREIGN
302		LEAP MARKET ORDINARY SHARE
303		LEAP MARKET ORDINARY SHARE - FOREIGN
042	PREFERENCE SHARES	PREFERENCE SHARES
050	PUT WARRANT	PUT WARRANT-LOCAL
060		PUT WARRANT-FOREIGN
043	REITS	REITS
248	WARRANTS	WARRANT/TSR
069	BASKET CALL WARRANT	BASKET CALL WARRANT
070	BASKET PUT WARRANT	BASKET PUT WARRANT

Notes :

<i>071 CONVENTIONAL-MGS</i>	(ETBS Conventional Bond-Malaysian Government Securities)
<i>072 CONVENTIONAL-GG</i>	(ETBS Conventional Bond - Government-Guaranteed Bond)
<i>073 CONVENTIONAL-PDS</i>	(ETBS Conventional Bond - Private Debts Securites)
<i>074 ISLAMIC-GII</i>	(ETBS Islamic Bond - Government Investment Issue)
<i>075 ISLAMIC-GG</i>	(ETBS Islamic Bond - Government-Guaranteed Bond)
<i>076 ISLAMIC-PDS</i>	(ETBS Islamic Bond - Private Debts Securites)

Appendix F - Bursa Sectors & Bursa Sub-sectors

SECTOR CODE	SECTOR NAME	NEW SECTOR NAME
0001	CONSUMER	CONSUMER PRODUCTS & SERVICES
0002	IND-PROD	INDUSTRIAL PRODUCTS & SERVICES
0003	CONSTRUCTN	CONSTRUCTION
0004	TRAD/SERV	N/A
0005	TECHNOLOGY	TECHNOLOGY
0007	IPC	N/A
0008	SPAC	SPECIAL PURPOSE ACQUISITION COMPANY
0010	FINANCE	FINANCIAL SERVICES
0015	HOTELS	N/A
0020	PROPERTIES	PROPERTY
0025	PLANTATION	PLANTATION
0030	MINING	N/A
0040	LEAP	N/A
0050	REITS	REAL ESTATE INVESTMENT TRUSTS
0053	ETF-L&I	ETF-LEVERAGED AND INVERSE
0054	ETF-COMMODITY	EXCHANGE TRADED FUND-COMMODITY
0055	CLOSED/FUND	CLOSED END FUND
0056	ETF-EQUITY	EXCHANGE TRADED FUND-EQUITY
0057	ETF-BOND	EXCHANGE TRADED FUND-BOND
0058	STRCWARROTH	STRUCTURED WARRANTS
0059	BONDCONVTNL	BOND CONVENTIONAL
0060	BONDISLAMIC	BOND ISLAMIC
0061	-	ENERGY

0062	-	HEALTH CARE
0063	-	TELECOMMUNICATIONS & MEDIA
0064	-	TRANSPORTATION & LOGISTICS
0065	-	UTILITIES
0066	-	BUSINESS TRUST

SECTOR CODE	SUB-SECTOR CODE	SUB-SECTOR NAME
0001	8101	AGRICULTURAL PRODUCTS
	8102	AUTOMOTIVE
	8103	CONSUMER SERVICES
	8104	FOOD& BEVERAGES
	8105	HOUSEHOLD GOODS
	8106	PERSONAL GOODS
	8107	RETAILERS
	8108	TRAVEL, LEISURE & HOSPITALITY
0002	8201	AUTO PARTS
	8202	BUILDING MATERIALS
	8203	CHEMICALS
	8204	DIVERSIFIED INDUSTRIALS
	8205	INDUSTRIAL ENGINEERING
	8206	INDUSTRIAL MATERIALS, COMPONENTS & EQUIPMENT
	8207	INDUSTRIAL SERVICES
	8208	METALS
	8209	PACKAGING MATERIALS
	8210	WOOD & WOOD PRODUCTS
0003	8301	CONSTRUCTION
0005	8501	DIGITAL SERVICES
	8502	SEMICONDUCTORS
	8503	SOFTWARE
	8504	TECHNOLOGY EQUIPMENT
0008	9401	SPECIAL PURPOSE ACQUISITION COMPANY

0010	9001	BANKING
	9002	INSURANCE
	9003	OTHER FINANCIALS
0020	8401	PROPERTY
0025	8601	PLANTATION
0050	9201	REAL ESTATE INVESTMENT TRUSTS
0053	4304	LEVERAGED AND INVERSE FUND
0054	4303	COMMODITY FUND
0055	9501	CLOSED END FUND
0056	4302	EQUITY FUND
0057	4301	BOND FUND
0058	6000	STRUCTURED WARRANTS
0059	4401	CONVENTIONAL-MGS
	4402	CONVENTIONAL-GG
	4403	CONVENTIONAL-PDS
0060	4501	ISLAMIC-GII
	4502	ISLAMIC-GG
	4503	ISLAMIC-PDS
0061	8901	ENERGY INFRASTRUCTURE, EQUIPMENT & SERVICES
	8902	OIL & GAS PRODUCERS
	8903	OTHER ENERGY RESOURCES
0062	9101	HEALTH CARE EQUIPMENT & SERVICES
	9102	HEALTH CARE PROVIDERS
	9103	PHARMACEUTICALS
0063	8701	MEDIA
	8702	TELECOMMUNICATIONS EQUIPMENT
	8703	TELECOMMUNICATIONS SERVICE PROVIDERS
0064	8801	TRANSPORTATION & LOGISTICS SERVICES
	8802	TRANSPORTATION EQUIPMENT
0065	9301	ELECTRICITY

	9302	GAS, WATER & MULTI-UTILITIES
0066	9601	BUSINESS TRUST

Appendix G - Tick Tables

The information below is summarised from the way Bursa will apply tick sizes.
Note however, that each table is sent for each security in the security list.

Table 1 – Equities Tick Sizes

Applicable to all equity boards except BI & DB

PRICE RANGE	TICK SIZE
Below 1.00	0.005
1.00 to 9.99	0.01
10.00 to 99.98	0.02
100 to ~	0.10

Table 2 – Buying-in Tick Sizes

Applicable to Buying-in board

PRICE RANGE	TICK SIZE
Below 1.00	0.005
1.00 to 2.99	0.01
3.00 to 4.98	0.02
5.00 to 9.95	0.05
10.00 to 24.90	0.10
25.00 to 99.75	0.25
100 to ~	0.50

Table 3 – ETF Equities Tick Sizes

Applicable to all equity ETF Security (Security Category=263. Refer Appendix E)

PRICE RANGE	TICK SIZE
Below 1.00	0.001
1.00 to 2.995	0.005
3.00 to ~	0.01

Table 4 – ETF Bond ABFMY1 Tick Size

Applicable to Bond Index Security (Security Category=263. Refer Appendix E)

PRICE RANGE	TICK SIZE
Any price	0.001

Table 5 – ETBS Tick Size

Applicable to Exchange Traded Bonds (Security Category=71 to 76. Refer Appendix E)

PRICE RANGE	TICK SIZE
Any price	0.01

Appendix H - Market Data preventative

FIX Market Data preventative is to prevent FIX client connectors from swarming Market Data with repeated subscription request.

As this is a preventive improvement, there is no impact to existing unsubscription mechanism. The above may have impact to your subscription mechanism when additional subscription is performed on top of the existing subscription, which should be disabled before the submission of the additional subscription.

The following are the changes in FIX Market Data Subscription:

- 1. Automatically unsubscribe duplicate market data subscriptions:**
If a connector subscribes a market data type on a security, and there's already an existing subscription for the same market data type on the same security, the duplicate/existing subscription will be automatically unsubscribed.
- 2. For other subscriptions (SecurityList, SecurityStatus, TradingSessionList, etc.):**
If there's an existing subscription with exactly the same criteria as a new subscription, the duplicate/existing subscription will be automatically unsubscribed.
- 3. Automatically unsubscribe all type of subscriptions on session reset:**
If a FIX connection logs on with the reset sequence number flag set(141=Y), then all previous subscriptions from the same connection will be automatically dropped. FIX connector need to subscribe the new subscriptions.