

PAKISTAN STOCK EXCHANGE LIMITED

Financial Information eXchange (FIX) Specification
Version 1.2



PAKISTAN
STOCK EXCHANGE
LIMITED

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Revision History

Date	Version	Changes	Effective From
23/January/2009	1.0	Production Release of FIX Specification.	23/January/2009
07/March/2011	1.1	<ul style="list-style-type: none"> • Removal of 'CFS', 'OTC' market from available market list. • Addition of Leverage Buy Order Specification • Addition of Margin Trading System Markets i.e. 'KMT', 'LMT', 'IMT' • Addition of 'SolicitedFlag' to Execution Report 	14/March/2011
19/Sep/2012	1.2	<ul style="list-style-type: none"> • Addition of Index Option Market (IOM) • Addition of 'ODL' Market • Addition of new tags in New Order Single & Execution Report for 'IOM' Market • Addition of 'FRO' Market 	24/September/2012

Errata

Date	Version	Changes	Effective Area
20/Sep/2012	1.2	Addition of tag ExpireTime(126) for GTD (Good Till Date) orders	<ul style="list-style-type: none"> • New Order Single

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Introduction

The Financial Information Exchange (FIX) Protocol is a message standard developed to facilitate the electronic exchange of information related to securities transactions. It is intended for use between trading partners wishing to automate communications. The message protocol, as defined, will support a variety of business functions. FIX was originally defined for use in supporting US domestic equity trading with message traffic flowing directly between principals. As the protocol evolved, a number of fields were added to support limited cross-border and fixed income trading. Similarly, the protocol was expanded to allow third parties to participate in the delivery of messages between trading partners. As subsequent versions of FIX are released, it is expected that functionality will continue to expand.

This document provides the specifications and necessary information regarding the Pakistan Stock Exchange (PSX) FIX Specifications. The document assumes that the user has a basic understanding of the FIX protocol and is aware of the development, application and operational use of the FIX protocol. The document does not provide an explanation of the FIX protocol but should be used in conjunction with the FIX protocol as available on the website www.fixprotocol.org.

This document is not intended as a guide to constructing a FIX client. Rather, it is a checklist to ensure that a firm's FIX client, constructed according to the FIX 4.2 specifications, will be compatible with the PSX-FIX Host on the ambiguous details of the FIX specification.

The protocol is defined at two levels: session and application. The session level is concerned with the delivery of data while the application level defines business related data content. This document is organized to reflect the distinction. Apart from the FIX messages described later in the document, all other FIX messages not discussed in the document – such as Resend Request messages, Sequence Reset messages, etc. – will follow the default specification of the FIX 4.2 protocol.

Certifications

Certification testing is required and can be arranged through our FIX Connectivity Department. Before a subscriber can go live, it is mandatory to complete approved test scripts to become FIX Certified.

For FIX Certification please contact the Pakistan Stock Exchange (PSX).

FIX Protocol

The Financial Information Exchange (FIX) Protocol is a message standard developed to facilitate the electronic exchange of information related to securities transactions. It is intended for use between trading partners wishing to automate communications.

FIX was written to be independent of any specific communications protocol (X.25, asynch, TCP/IP, etc.) or physical medium (copper, fiber, satellite, etc.) chosen for electronic data delivery. It should be noted that if an “unreliable” or non-stream protocol is used, the Logon, Logout, and ResendRequest message processing is particularly susceptible to unordered delivery and/or message loss.

The protocol is defined at two levels: session and application. The session level is concerned with the delivery of data while the application level defines business related data content. This document is organized to reflect the distinction.

Fix Message Format and Delivery

The following section summarizes general specifications for constructing and transmitting FIX messages.

Message Format

The general format of a FIX message is a standard header followed by the message body fields and terminated with a standard trailer.

Each message is constructed of a stream of <tag>=<value> fields with a field delimiter between fields in the stream. All tags must have a value specified. Optional fields without values should simply not be specified in the FIX message. A Reject message is the appropriate response to a tag with no value if the tag is a required tag.

Except where noted, fields within a message can be defined in any sequence (Relative position of a field within a message is inconsequential.) The exceptions to this rule are:

General message format is composed of the standard header followed by the body followed by the standard trailer.

The first three fields in the standard header are BeginString (tag #8) followed by BodyLength (tag #9) followed by MsgType (tag #35).

The last field in the standard trailer is the CheckSum (tag #10).

Field Delimiter

All fields in a FIX message are terminated by a delimiter character. The non-printing, ASCII "SOH" (#001, hex: 0x01, referred to in this document as <SOH>), is used for field termination. Messages are delimited by the "SOH" character following the CheckSum field. All messages begin with the "8=FIX.x.y<SOH>" string and terminate with "10=nnn<SOH>".

There shall be no embedded delimiter characters within fields except for data type data.

Data Types

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

Data Type	Details
Int	Sequence of digits without commas or decimals and optional sign character (ASCII characters "-" and "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"). Examples: 723 in field 21 would be mapped int as 21=723 . -723 in field 12 would be mapped int as 12=-723
Qty	Float field (see definition of "float" above) capable of storing either a whole number (no decimal places) of " shares" or a decimal value containing decimal places for non-share quantity asset classes.

Data Type	Details
Price	Float field (see definition of “float” above) representing a price. 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).
Boolean	A char field (see definition of “char” above) containing one of two values: 'Y' = True/Yes 'N' = False/No
Data	Free-format text field.
String	Alpha-numeric free format strings can include any character or punctuation except the delimiter. All char fields are case sensitive (i.e. morstatt ≠ Morstatt).
UTCTimestamp	<p>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.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • 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). <p>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 for leap second insertion, but has never utilized these dates. During a leap second insertion, a <u>UTCTimestamp</u> field may read "19981231-23:59:59", "19981231-23:59:60", "19990101-00:00:00".</p>

Sequence Numbers

All FIX messages are identified by a unique sequence number. Sequence numbers are initialized at the start of each FIX session (see Session Protocol section) starting at 1 (one) and increment throughout the session. Monitoring sequence numbers will enable parties to identify and react to missed messages and to gracefully synchronize applications when reconnecting during a FIX session.

Each session will establish an independent incoming and outgoing sequence series; participants will maintain a sequence series to assign to outgoing messages and a separate series to monitor for sequence gaps on incoming messages.

Heartbeats

During periods of message inactivity, FIX applications will generate Heartbeat messages at regular time intervals. The heartbeat monitors the status of the communication link and identifies incoming sequence number gaps. The Heartbeat Interval is declared by the session initiator using the HeartBtInt field in the Logon message. The heartbeat interval timer should be reset after every message is transmitted (not just

heartbeats). The HeartBtInt value should be agreed upon by the two firms and specified by the Logon initiator and echoed back by the Logon acceptor. Note that the same HeartBtInt value is used by both sides, the Logon “initiator” and Logon “acceptor”.

Ordered Message Processing

The FIX protocol assumes complete ordered delivery of messages between parties. Implementers should consider this when designing message gap fill processes. Two options exist for dealing with gaps, either request all messages subsequent to the last message received or ask for the specific message missed while maintaining an ordered list of all newer messages. For example, if the receiver misses the second of five messages, the application could ignore messages 3 through 5 and generate a resend request for messages 2 through 5, or, preferably 2 through 0 (where 0 represents infinity). Another option would involve saving messages 3 through 5 and resending only message 2. In both cases, messages 3 through 5 should not be processed before message 2.

Possible Duplicates

When a FIX engine is unsure if a message was successfully received at its intended destination or when responding to a resend request, a possible duplicate message is generated. The message will be a retransmission (with the same sequence number) of the application data in question with the PossDupFlag included and set to "Y" in the header. It is the receiving application's responsibility to handle the message (i.e. treat as a new message or discard as appropriate). All messages created as the result of a resend request will contain the PossDupFlag field set to “Y”, messages lacking the PossDupFlag field or with the PossDupFlag field set to “N” should be treated as original transmissions. Note: When retransmitting a message with the PossDupFlag set to Y, it is always necessary to recalculate the CheckSum value. The only fields that can change in a possible duplicate message are the CheckSum, OrigSendingTime, SendingTime, BodyLength and PossDupFlag. Fields related to encryption (SecureDataLen and SecureData) may also require recasting.

Possible Resends

Ambiguous application level messages may be resent with the PossResend flag set. This is useful when an order remains unacknowledged for an inordinate length of time and the end-user suspects it had never been sent. The receiving application must recognize this flag and interrogate internal fields (order number, etc.) to determine if this order has been previously received. Note: The possible resend message will contain exactly the same body data but will have the PossResend flag and will have a new sequence number. In addition the CheckSum field will require recalculation and fields related to encryption (SecureDataLen and SecureData) may also require recasting.

Data Integrity

The integrity of message data content can be verified in two ways: verification of message length and a simple checksum of characters.

The message length is indicated in the BodyLength field and is verified by counting the number of characters in the message following the BodyLength field up to, and including, the delimiter immediately preceding the CheckSum tag (“10=”).

The CheckSum integrity check is calculated by summing the binary value of each character from the “8” of “8=” up to and including the <SOH> character immediately preceding the CheckSum tag field and comparing the least significant eight bits of the calculated value to the CheckSum value (see [Appendix B: CheckSum Calculation](#) for a complete description).

Required Fields

Each message within the protocol is comprised of required, optional and conditionally required (fields which are required based on the presence or value of other fields) fields. Systems should be designed to operate when only the required and conditionally required fields are present.

Message Acknowledgment

The FIX session protocol is based on an optimistic model; normal delivery of data is assumed (i.e. no acknowledgment of individual messages) with errors in delivery identified by message sequence number gaps. Each message is identified by a unique sequence number. It is the receiving application's responsibility to monitor incoming sequence numbers to identify message gaps for response with resend request messages.

The FIX protocol does not support individual message acknowledgment. However, a number of application messages require explicit application level acceptance or rejection. Orders, cancel requests, cancel/replace requests and allocation require specific application level response.

Inbound Messages

Inbound messages are referred to those messages that are sent by the third party FIX Engine(s) to the PSX FIX Engine application. These messages include the trade messages – such as new order request, order replace request, order cancel request, and order status request – as well as the session level messages – such as Login Request, Logout Request, and Heartbeats.

Note: Apart from the Heartbeat sent by the third party FIX Engine to the PSX FIX Engine application, all messages are required to have PSX-MemberID, PSX-TraderID and PSX-Market code (when required) in the FIX message header fields.

Outbound Messages

Outbound messages are referred to those messages that are sent by the PSX FIX Engine application to the third party FIX Engine(s). They messages include the exchange trade replies– such as Execution Reports, and Order Cancel Reject message– as well as session level messages – such as Login Reply, Logout Reply, and Heartbeats reply.

FIX Message Header and Trailer

Message Header

Field Name	Required (Y/N)	FIX Tag	Type	Description
BeginString	Y	8	String	FIX 4.2
BodyLength	Y	9	Int	
MsgType	Y	35	String	
MsgSeqNo	Y	34	Int	
SenderCompID	Y	49	String	TraderID (Inbound Messages)
SendingTime	Y	52	UTCTimestamp	
TargetCompID	Y	56	String	TraderID (Outbound Messages)

OnBehalfOfCompID	Y	115	String	Member ID on behalf of whom trades are being submitted (Inbound Messages)
DeliverToCompID		128	String	Member ID on behalf of whom trades were submitted (Outbound Messages)
SenderLocationID		142	String	"Market Code" in which the order is to be placed (Outbound Messages)
TargetLocationID	Y	143	String	"Market Code" in which the order is to be placed (Inbound Messages), Required for MsgType tag ("35") with values 'D', 'F', 'G' & 'H'. Valid values: 'REG' = Regular Market 'FUT' = Future Market 'CSF' = Cash Settled Future Market 'TPO' = Initial Public Offer Market 'SQR' = Square Up Market 'SIF' = Stock Index Futures Market 'KMT' = Karachi Margin Trading Market 'LMT' = Lahore Margin Trading Market 'TMT' = Islamabad Margin Trading Market 'TOM' = Index Option Market 'ODL' = Odd Lot Market 'FRO' = Future Rollover Market
SenderSubID		50	String	Reserved for future use
TargetSubID		57	String	Reserved for future use
OnBehalfOfSubID		116	String	Ignored
OnBehalfOfLocationID		144	String	Ignored
DeliverToSubID		129	String	Ignored
DeliverToLocationID		145	String	Ignored
PossDupFlag		43	Boolean	Always required for retransmitted messages, whether prompted by the sending system or as the result of a resend request.
PossResend		97	Boolean	Required when message may be duplicate of another message sent under a different sequence number.
OrigSendingTime		122	UTCTimestamp	Required for message resend as a result of a "Resend Request". If data is not available, set to same value as SendingTime.

Each administrative and application message is preceded by a standard header. The header identifies the message type, length, destination, sequence number, origination point and time. Two fields help with resending messages. The PossDupFlag is set to Y when resending a message as the result of a session level event (i.e. the retransmission of a message reusing a sequence number). The PossResend is set to Y when reissuing a message with a new sequence number (e.g. resending an order). The receiving application should process these messages as follows:

PossDupFlag : If a message with this sequence number has been previously received, ignore message, if not, process normally.

PossResend : Forward message to application and determine if previously received (i.e. verify order id and parameters).

Note: The FIX header field OnBehalfOfCompID (containing the PSX MemberID) must be sent in all the FIX inbound messages except for the Heartbeat messages.

Message 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.

Field Name	Required (Y/N)	FIX Tag	Type	Description
Checksum	Y	10	String	Three byte, simple checksum

Three byte, simple checksum (see Appendix B: CheckSum Calculation for description). It's always field in the message; i.e. serves, with the trailing <SOH>, as the end-of-message delimiter. Always defined as three characters. (Always unencrypted).

FIX Session Administrative Messages

The administrative messages address the utility needs of the protocol. The following section describes each message and provides the message layout.

Administrative messages will be generated from both sides of the connection.

Heartbeat

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.

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.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: "0"
TestReqID	Y	112	String	Identifier included in Test Request message to be returned in resulting Heartbeat

Logon

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. Upon receipt of a Logon message, the session acceptor will authenticate the party requesting connection and issue a Logon message as acknowledgment that the connection request has been accepted.

Upon receipt of a Logon message, the session acceptor will authenticate the party requesting connection and issue a Logon message as acknowledgment that the connection request has been accepted. The acknowledgment Logon can also be used by the initiator to validate that the connection was established with the correct party.

The session acceptor must be prepared to immediately begin processing messages after receipt of the Logon. The session initiator can choose to begin transmission of FIX messages before receipt of the confirmation Logon, however it is recommended that normal message delivery wait until after the return Logon is received to accommodate encryption key negotiation.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: 'A'
EncryptMethod	Y	98	Int	Method of encryption. Should always be '0'
HeartBtInt	Y	108	Int	Heartbeat interval (seconds)
RawDataLength	Y	95	Int	Number of bytes in raw data field.
RawData	Y	96	Data	Unformatted raw data, can include bitmaps, word processor documents, etc. Trader's "Password" will be submitted in this field.

Logout

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.

Before actually closing the session, the logout initiator should wait for the opposite side to respond with a confirming logout message. This gives the remote end a chance to perform any Gap Fill operations that may be necessary. The session may be terminated if the remote side does not respond in an appropriate timeframe.

The logout initiator should not send any messages after the logout..

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: '5'
Text	Y	58	String	Free format text string Note: this field does not have a specified maximum length

FIX Application Messages

New Order Single

The new order message type is used by brokers wishing to electronically submit securities to exchange for execution.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: "D"
ClOrdID	Y	11	String	Unique identifier for Order as assigned by broker.
HandlInst	Y	21	Char	Should always be '1'
OrdType	Y	40	Char	Order type. Valid values: '1' = Market '2' = Limit '4' = Stop limit 'J' = MIT (Market If Touched)
Side	Y	54	Char	Side of order Valid values: '1' = Buy '2' = Sell '5' = Sell Short '8' = Cross 'G' = Borrow (<i>Leverage Buy in case of "REG"</i>)
Symbol	Y	55	String	Ticker symbol
TransactTime	Y	60	UTCTimestamp	Time of execution/order creation, expressed in UTC (Universal Time Coordinated, also known as "GMT")
OrderQty	Y	38	Qty	Number of shares ordered
Account	Y	1	String	Account mnemonic as agreed between broker and exchange. "Client Code" will be submitted in this field.
TimeInForce	Y	59	Char	Specifies how long the order remains in effect. Valid values: '0'=Day '4' = Fill or Kill (FOK) '6' = Good Till Date (GTD)
Price		44	Price	Price per share Required if Ord Type = '2' or '4'
MaxFloor		111	Qty	Maximum number of shares within an order to be shown on the exchange floor at any given time.
LocateReqd		114	Boolean	Should always be 'N'. Required if Side = '5' (Sell Short)
StopPx		99	Price	Price per share. Required if OrdType = '4' or 'J'

Field Name	Required (Y/N)	FIX Tag	Type	Description
AccountSell		7200	String	Account of the Sell Side of a Cross. Required if Side = '8' "Client Code" will be submitted in this field.
ExpireTime	N	126	UTCTimestamp	Conditionally required if TimeInForce (59) = GTD (Good Till Date)
SymbolSfx	N	65	String	Required when TargetLocationID(143)='IOM' This tag is used to provide base-symbol for index option market, e.g. 'KSE30', 'KSE100' etc.
StrikePrice	N	202	Price	Required when TargetLocationID(143)='IOM' This tag is used to provide base-rate of the option market symbol.
PutOrCall	N	201	Int	Required when TargetLocationID(143)='IOM' The values '0' and '1' in this tag represents PUT and CALL option respectively
OptAttribute	N	206	Char	Required when TargetLocationID(143)='IOM' 'E'=European Style
MaturityMonthYear	N	200	String	Required when TargetLocationID(143)='IOM' Three character Month will be provided in this tag mentioning the contract month. Such as JAN to DEC which is a valid values for this tag.
SecurityType	N	167	String	Required when TargetLocationID(143)='IOM' 'OPT'

To place a HIT order, send the "New Order Single" message with the field Side (FIX tag 54) set to "2" and the field TimeInForce (FIX tag 59) field set to "4".

To place a TAKE order, send the "New Order Single" message with the Side (FIX tag 54) set to "1" and the field TimeInForce (FIX tag 59) field set to "4".

Order Cancel Replace Request

The order cancel/replace request is used to change the parameters of an existing order. Do not use this message to cancel the remaining quantity of an outstanding order, use the Cancel Request message for this purpose. Cancel/Replace will be used to change any valid attribute of an open order (i.e. reduce/increase quantity, change limit price, change instructions, etc.)

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: "G"
ClOrdID	Y	11	String	Unique identifier for Order as assigned by broker.
HandlInst	Y	21	Char	Should always be '1'
OrdType	Y	40	Char	Order type. Valid values: '2' = Limit '4' = Stop limit 'J' = MIT (Market If Touched)
OrigClOrdID	Y	41	String	ClOrdID of the previous order (NOT the initial order of the day) as assigned by the broker, used to identify the previous order in cancel and cancel/replace requests.
Side	Y	54	Char	Side of order Valid values: '1' = Buy '2' = Sell '5' = Sell short 'G' = Borrow (<i>Leverage Buy in case of "REG"</i>)
Symbol	Y	55	String	Ticker symbol
TransactTime	Y	60	UTCTimestamp	Time of execution/order creation, expressed in UTC (Universal Time Coordinated, also known as "GMT")
OrderID	Y	37	String	Unique identifier for Order as assigned by Exchange.
OrderQty	Y	38	Qty	Number of shares ordered
ExecInst		18	Char	Instructions for order handling on exchange trading floor. Valid values: 'S' = Suspend
Account		1	String	Account mnemonic as agreed between broker and exchange. "Client Code" will be submitted in this field. This should be same as the original order.
TimeInForce		59	Char	Specifies how long the order remains in effect. Valid values: '0' = Day '4' = Fill or Kill (FOK)
Price		44	Price	Price per share Required if OrdType = '2' or '4'
MaxFloor		111	Qty	Maximum number of shares within an order to be shown on

Field Name	Required (Y/N)	FIX Tag	Type	Description
LocateReqd		114	Boolean	the exchange floor at any given time. Should always be 'N'. Required if Side = '5' (Sell Short)
StopPx		99	Price	Price per share Required if OrdType = '4' or 'J'
AccountSell		7200	String	Account of the Sell Side of a Cross Required if Side = '8' "Client Code" will be submitted in this field. This should be same as the original order.

To suspend an order, send the Order Cancel/Replace request message with the field ExecInst (FIX tag 18) field set to "S".

To resume a suspended order, send an Order Cancel/Replace request message with the same order parameters but without the ExecInst (FIX tag 18) field.

To modify a suspended order, send the Order Cancel/Request message containing the changed order fields and with the field ExecInst (FIX tag 18) field set to "S".

Order Cancel Request

The order cancel request message requests the cancellation of all of the remaining quantity of an existing order. Note that the Order Cancel/Replace Request should be used to partially cancel (reduce) an order). The request will only be accepted if the order can successfully be pulled back from the exchange without executing.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: "F"
ClOrdID	Y	11	String	Unique identifier for Order as assigned by broker.
OrigClOrdID	Y	41	String	ClOrdID of the previous order (NOT the initial order of the day) as assigned by the broker, used to identify the previous order in cancel and cancel/replace requests.
Side	Y	54	Char	Side of order Valid values: '1' = Buy '2' = Sell '5' = Sell short 'G' = Borrow (<i>Leverage Buy in case of "REG"</i>)
Symbol	Y	55	String	Ticker symbol
TransactTime	Y	60	UTCTimestamp	Time of execution/order creation, expressed in UTC (Universal Time Coordinated, also known as "GMT")
OrderID	Y	37	String	Unique identifier for Order as assigned by Exchange.

Order Status Request

The order status request message is used by the broker to get the current status of the order in the form of Execution Report.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType	Y	35	String	Value: "H"
ClOrdID	Y	11	String	Unique identifier for Order as assigned by broker.
Side	Y	54	Char	Side of order Valid values: '1' = Buy '2' = Sell '5' = Sell short 'G' = Borrow (<i>Leverage Buy in case of "REG"</i>)
Symbol	Y	55	String	Ticker symbol

Execution Report

The execution report message is used to:

1. Confirm the receipt of an order
2. Confirm changes to an existing order (i.e. accept cancel and replace requests)
3. Relay order status information
4. Relay fill information on working orders
5. Reject orders

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType		35	String	Value: "8"
AvgPx		6	Price	Calculated average price of all fills on this order.
CumQty		14	Qty	Total number of shares filled
ExecID		17	String	Unique identifier of execution message as assigned by exchange. Will be '0' for ExecTransType=3 (Status).
ExecTransType		20	Char	Identifies transaction type. Possible Values: '0' = New '3' = Status
ExecType		150	Char	Describes the specific ExecutionRpt Possible Values: '0' = New '1' = Partial fill '2' = Fill '4' = Canceled '5' = Replace '6' = Pending Cancel '8' = Rejected '9' = Suspended 'A' = Pending New 'E' = Pending Replace
LeavesQty		151	Qty	Amount of shares open for further execution.
OrdStatus		39	Char	Identifies current status of order. Possible Values: '0' = New '1' = Partial fill '2' = Fill '4' = Canceled '5' = Replace '6' = Pending Cancel '8' = Rejected '9' = Suspended 'A' = Pending New

Field Name	Required (Y/N)	FIX Tag	Type	Description
				'E' = Pending Replace
OrderID		37	String	Unique identifier for Order as assigned by Exchange.
Symbol		55	String	Same value as present in the Order message
TransactTime		60	UTCTimestamp	Time of execution/order creation, expressed in UTC (Universal Time Coordinated, also known as "GMT")
ClOrdID		11	String	ClOrdID of the order on which the Execution Report applies
LastShares		32	Qty	Quantity of shares bought/sold on this (last) fill
LastPx		31	Price	Price of this (last) fill
SettlmntTyp		63	Char	Indicates order settlement period. Possible Values: '0' = Regular '1' = Cash
Text		58	String	Free format text string Note: This field does not have a specified maximum length.
OrigClOrdID		41	String	ClOrdID of the previous order (NOT the initial order of the day) as assigned by the broker, used to identify the previous order in cancel and cancel/replace requests.
SolicitedFlag		377	Boolean	Indicates whether or not the order operation (Cancel or CancelReplace) was solicited.
OrdType		40	Char	Same value as present in the Order message
OrderQty		38	Qty	Same value as present in the Order message
Price		44	Price	Same value as present in the Order message
StopPx		99	Price	Same value as present in the Order message
TimeInForce		59	Char	Same value as present in the Order message
Account		1	String	Same value as present in the Order message
MaxFloor		111	Qty	Same value as present in the Order message
AccountSell		7200	String	Same value as present in the Order message
Symbol		55	String	Same value as present in the Order message
SymbolSfx		65	String	Same value as present in the Order message
StrikePrice		202	Price	Same value as present in the Order message
PutOrCall		201	Int	Same value as present in the Order message
OptAttribute		206	Char	Same value as present in the Order message
MaturityMonthYear		200	String	Same value as present in the Order message
SecurityType		167	String	Same value as present in the Order message
ContractMultiplier		231	Float	Index Option Contract multiplier
ExpireDate		432	String	'YYYYMMDD', Contract expiry date.

Order Cancel Reject

The order cancel reject message is issued by the exchange upon receipt of a cancel request or cancel/replace request message which cannot be honored. Requests to change price or decrease quantity are executed only when an outstanding quantity exists. Filled orders cannot be changed (i.e. quantity reduced or price change).

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType		35	String	Value: "9"
ClOrdID		11	String	Unique identifier for Order as assigned by broker.
CxlRejResponseTo		434	Char	Identifies the type of request that a Cancel Reject is in response to. Possible Values: '1' - Order Cancel Request '2' - Order Cancel/Replace Request
OrdStatus		39	Char	Identifies current status of order. Possible Values: '0' = New '1' = Partial fill '2' = Fill '4' = Canceled '5' = Replace '6' = Pending Cancel '8' = Rejected '9' = Suspended 'A' = Pending New 'E' = Pending Replace
OrderID		37	String	Unique identifier for Order as assigned by Exchange.
OrigClOrdID		41	String	ClOrdID of the previous order (NOT the initial order of the day) as assigned by the broker, used to identify the previous order in cancel and cancel/replace requests.
TransactTime		60	UTCTimestamp	Time of execution/order creation, expressed in UTC (Universal Time Coordinated, also known as "GMT")
Text		58	String	Free format text string Note: This field does not have a specified maximum length

News

The news message is a general free format message between the broker and exchange. The message contains flags to identify the news item's urgency and to allow sorting by subject company (symbol). The News message will be originated from exchange side.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType		35	String	Value: "B"
Headline		148	String	The headline of a News message.
OrigTime		42	UTCTimestamp	Time of message origination expressed in UTC (Universal Time Coordinated, also known as "GMT")
Urgency		61	Char	Urgency flag. Possible Values: '0' = Normal '1' = Flash '2' = Background
LinesOfText		33	Int	Identifies number of lines of text body. (Default value 1)
Text		58	String	Free format text string. Note: This field does not have a specified maximum length

Trading Session Status

The Trading Session Status provides information on the status of a market. The Trading Session Status message will be originated from the exchange side.

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType		35	String	Value: "h"
TradSesStatus		340	Int	State of the trading session. Possible values: 1 = Halted 2 = Open 3 = Closed 4 = Pre-Open 5 = Pre-Close 100 = Ready 101 = Pre-Opening 102 = Opening 103 = Closing 104 = OpenClose 105 = Dump
TradingSessionID		336	String	Identifier for Trading Session. Possible Values: 'REG' = Regular Market 'FUT' = Future Market 'CSF' = Cash Settled Future Market 'TPO' = Initial Public Offer Market 'SQR' = Square Up Market 'SIF' = Stock Index Futures Market 'KMT' = Karachi Margin Trading Market 'LMT' = Lahore Margin Trading Market 'TMT' = Islamabad Margin Trading Market 'TOM' = Index Option Market 'ODL' = Odd Lot Market 'FRO' = Future Rollover Market
Text		58	String	Free format text string. Note: This field does not have a specified maximum length
UnsolicitedIndicator		325	Boolean	Indicates whether or not message is being sent as a result of a subscription request or not. (Default value Y)

Security Status

The Security Status message provides for the ability to report changes in status to a security.

This message is used to communicate any “Symbol Status Change” to the broker. The SecurityTradingStatus field specifies the new status for the symbol.

When SecurityTradingStatus will be set to 6 (“Trading Range Indication”), this message will be used to communicate “Symbol Circuit Breaker” information to the FIX clients. The LowPx and HighPx in this case will hold the Lower and Upper Circuit Breaker Limits respectively.

The Security Status message will be originated from the exchange side

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType		35	String	Value: "F"
Symbol		55	String	Ticker symbol
TradingSessionID		336	String	Identifier for Trading Session. Possible Values: 'REG' = Regular Market 'FUT' = Future Market 'CSF' = Cash Settled Future Market 'IPO' = Initial Public Offer Market 'SQR' = Square Up Market 'SIF' = Stock Index Futures Market 'KMT' = Karachi Margin Trading Market 'LMT' = Lahore Margin Trading Market 'TMT' = Islamabad Margin Trading Market 'IOM' = Index Option Market 'ODI' = Odd Lot Market 'FRO' = Future Rollover Market
SecurityTradingStatus		326	Int	Identifies the trading status applicable to the transaction. Valid values: 1 = Opening Delay (Opening) 2 = Trading Halt (Suspended) 6 = Trading Range Indication (Specifies Symbol Circuit Breaker Values in HighPx and LowPx) 14 = ITS Pre-Opening (Pre-Opening) 17 = Ready to trade (Ready) 100 = Pre-Open 101 = Open 102 = Pre-Close 103 = Closing 104 = Closed 105 = OpenClose 106 = Dump

Field Name	Required (Y/N)	FIX Tag	Type	Description
TransactTime		60	UTCTimestamp	Time of execution/order creation, expressed in UTC (Universal Time Coordinated, also known as "GMT")
UnsolicitedIndicator		325	Boolean	Indicates whether or not message is being sent as a result of a subscription request or not. (Default value Y)
Text		58	String	Free format text string. Note: This field does not have a specified maximum length
HighPx		332	Price	Represents an indication of the high end of the price range for a security prior to the open or reopen Specifies the Upper circuit breaker limit. (Available if SecurityTradingStatus = 6)
LowPx		333	Price	Represents an indication of the low end of the price range for a security prior to the open or reopen Specifies the Lower circuit breaker limit. (Available if SecurityTradingStatus = 6)

Email

The email message is similar to the format and purpose of the News message. This message will be published to inform the brokers about the “Member Exposure and Position Limit Alerts” messages, generated at the exchange.

The Email message will be originated from the exchange side

Field Name	Required (Y/N)	FIX Tag	Type	Description
MsgType		35	String	Value: "C"
EmailThreadID		164	String	Unique identifier for an email thread (new and chain of replies)
EmailType		94	Char	Email message type. Valid values: '0' = New '1' = Reply '2' = Admin Reply
Subject		147	String	The subject of an Email message
OrigTime		42	UTCTimestamp	Time of message origination expressed in UTC (Universal Time Coordinated, also known as "GMT")
LinesOfText		33	Int	Identifies number of lines of text body. (Default value 1)
Text		58	String	Free format text string. Note: This field does not have a specified maximum length

Appendix "A" Sample Messages

New Order - Single (Limit Leverage Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	G
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
Standard Trailer			

New Order - Single (Limit Leverage Buy Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	G
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
MaxFloor		111	100500
Standard Trailer			

New Order - Single (Limit Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
Standard Trailer			

New Order - Single (Limit Buy Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
MaxFloor		111	100500
Standard Trailer			

Note: If you want to send undisclosed orders, you need to send MaxFloor (tag# 111) that is used as disclosed volume for any order except Hit & Take orders.

New Order - Single (Limit Sell Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
Standard Trailer			

New Order - Single (Limit Sell Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
MaxFloor		111	100500
Standard Trailer			

Note: If you want to send undisclosed orders, you need to send MaxFloor (tag# 111) that is used as disclosed volume for any order except Hit & Take orders.

New Order - Single (Limit Short Sell Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	5
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
LocateReqd		114	N
Standard Trailer			

New Order - Single (Hit Order)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	4
Price		44	120.00
Standard Trailer			

New Order - Single (Take Order)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	4
Price		44	120.00
Standard Trailer			

New Order - Single (Market Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	1
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Standard Trailer			

New Order - Single (Market Buy Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	1
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
MaxFloor	Y	111	100500
Standard Trailer			

New Order - Single (Market Sell Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	1
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Standard Trailer			

New Order - Single (Market Sell Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	1
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
MaxFloor		111	100500
Standard Trailer			

New Order - Single (Stop Loss Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	4
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
StopPx		99	121.00
Standard Trailer			

New Order - Single (Stop Loss Buy Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	4
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
StopPx		99	121.00
MaxFloor		111	100500
Standard Trailer			

New Order - Single (Stop Loss Sell Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	4
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	121.00
StopPx		99	120.00
Standard Trailer			

New Order - Single (Stop Loss Sell Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	4
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	121.00
StopPx		99	120.00
MaxFloor		111	100500
Standard Trailer			

New Order - Single (Market If Touched Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	J
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	121.00
StopPx		99	120.00
Standard Trailer			

New Order - Single (Market If Touched Buy Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	J
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	121.00
StopPx		99	120.00
MaxFloor		111	100500
Standard Trailer			

New Order - Single (Market If Touched Sell Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	J
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
StopPx		99	121.00
Standard Trailer			

New Order - Single (Market If Touched Sell Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = D
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	J
Side	Y	54	2
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	201000
Account	Y	1	XXXXXXXXXX
TimeInForce	Y	59	0
Price		44	120.00
StopPx		99	121.00
MaxFloor		111	100500
Standard Trailer			

Order Cancel / Replace Request (Limit Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = G
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
OrigClOrdID	Y	41	XXXXXXXXXX
Side	Y	54	1
Symbol	Y	55	AHL
OrderID	Y	37	XXXXXXXXXX
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	1000
TimeInForce	Y	59	0
Account	Y	1	XXXXXXXXXX
Price		44	120.00
Standard Trailer			

Note: Fields allowed to be modified: OrderQty and Price.

Order Cancel / Replace Request (Limit Buy Order – Undisclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = G
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
OrigClOrdID	Y	41	XXXXXXXXXX
Side	Y	54	1
Symbol	Y	55	AHL
OrderID	Y	37	XXXXXXXXXX
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	202000
TimeInForce	Y	59	0
Account	Y	1	XXXXXXXXXX
Price		44	120.00
MaxFloor		111	101000
Standard Trailer			

Note: Fields allowed to be modified: OrderQty and Price.

Suspend Order (Limit Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = G
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
OrigClOrdID	Y	41	XXXXXXXXXX
Side	Y	54	1
Symbol	Y	55	AHL
OrderID	Y	37	XXXXXXXXXX
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	100
TimeInForce	Y	59	0
Account		1	XXXXXXXXXX
ExecInst		18	S
Price		44	120.00
Standard Trailer			

A suspend order is used to move an active order to a suspended state.

Resume Order (Limit Buy Order – Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = G
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
HandlInst	Y	21	1
OrdType	Y	40	2
OrigClOrdID	Y	41	XXXXXXXXXX
Side	Y	54	1
Symbol	Y	55	AHL
OrderID	Y	37	XXXXXXXXXX
TransactTime	Y	60	20080101-04:30:00
OrderQty	Y	38	100
TimeInForce	Y	59	0
Account	Y	1	XXXXXXXXXX
Price		44	120.00
Standard Trailer			

A resume order returns the suspended order to the active state.

Order Cancel Request (Limit Buy Order - Disclosed)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = F
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
OrigClOrdID	Y	41	XXXXXXXXXX
Side	Y	54	1
Symbol	Y	55	AHL
TransactTime	Y	60	20080101-04:30:00
Standard Trailer			

A cancel order is used to move an active or suspended order to a cancelled state. Once a cancel order has been issued, the original order cannot be retrieved.

Order Status Request (Buy Order)

Field Name	Required (Y/N)	FIX Tag	Value
Standard Header			MsgType = H
SenderCompID	Y	49	TRD001
OnBehalfOfCompID	Y	115	MEM001
TargetLocationID	Y	143	REG
ClOrdID	Y	11	XXXXXXXXXX
Side	Y	54	1
Symbol	Y	55	AHL
Standard Trailer			

Appendix "B"

Checksum calculation

The checksum of a FIX message is calculated by summing every byte of the message up to but not including the checksum field itself. This checksum is then transformed into a modulo 256 number for transmission and comparison. The checksum is calculated after all encryption is completed, i.e. the message as transmitted between parties is processed.

For transmission, the checksum must be sent as printable characters, so the checksum is transformed into three ASCII digits.

For example, if the checksum has been calculated to be 274 then the modulo 256 value is 18 ($256 + 18 = 274$). This value would be transmitted as `|10=018|` where "10=" is the tag for the checksum field.

A sample code fragment to generate the checksum field is as follows:

```
char *GenerateCheckSum( char *buf, long bufLen )
{
    static char tmpBuf[ 4 ];
    long idx;
    unsigned int cks;

    for( idx = 0L, cks = 0; idx < bufLen; cks += (unsigned int)buf[idx++]);
    sprintf( tmpBuf, "%03d", (unsigned int)( cks % 256 ) );
    return( tmpBuf );
}
```

Appendix "C"

Prohibited Characters

Character	ASCII Codes	Exceptions
;	59	
	124	
,	96	
~	126	
#	35	
^	94	
.	46	Message fields with 'Price' data type can only have a single occurrence of '.' (For e.g. Price, StopPx, AvgPx, LastPx, etc)
!	39	
%	37	
*	42	
,	44	
?	63	

The above list of characters are not allowed in the following FIX message fields

- Account (Tag = 1)
- Symbol (Tag = 55)
- ClOrdID (Tag = 11)
- OrderID (Tag = 37)
- Price Field (Tag = 44)
- StopPx Field (Tag = 99)
- LastPx Field (Tag = 31)

Note: Any message containing fields with prohibited characters (other than exceptions) will be rejected by the FIX Engine.

Beside above mentioned characters, following non printable characters are also prohibited in all tags

- 0, 2, 3,, 31 and 127 (ASCII Codes)

Appendix "D"

Market Types

The following is the list of the different markets in which the FIX client can place an order.

Market Code	Market Name
REG	Regular Market
FUT	Future Market
CSF	Cash Settled Future Market
IPO	Initial Public Offer Market
SQR	Square-Up Market
SIF	Stock Index Future Market
ODL	Odd Lot Market
IOM	Index Option Market
FRO	Future Rollover Market
Margin Trading System Markets	
KMT	Karachi Margin Trading Market
LMT	Lahore Margin Trading Market
IMT	Islamabad Margin Trading Market

Note: In Square-Up Market (SQR), only Sell orders are accepted, Buy orders are entered by the Exchange.

Market States and Order Handling

Within a trading day, these markets move from one trading session to another. These different trading sessions have different requirements for handling the PSX supported order types. The tables below show these different market states and the order types that they can handle.

Accepted Transactions when Market is in Pre-Open State

	REG	FUT	CSF	IPO	SQR	SIF	ODL	MTS	IOM	FRO
Normal Order	✓	✓	✓	✓	✓	✓			✓	

Accepted Transactions when Market is in Open State

	REG	FUT	CSF	IPO	SQR	SIF	ODL	MTS	IOM	FRO
Normal Order	✓	✓	✓	✓		✓	✓	✓	✓	✓
Market Order	✓	✓	✓	✓		✓		✓	✓	✓
Stop Loss	✓	✓	✓	✓		✓			✓	
MIT	✓	✓	✓	✓		✓			✓	
Cross Order	✓	✓	✓	✓		✓			✓	
FOK	✓	✓	✓	✓		✓		✓	✓	
Short Sell FOK		✓								
Short Sell	✓	✓								
Leveraged Buy	✓									
Leveraged Buy Market	✓									
Leveraged Buy Stop Loss	✓									
Leveraged Buy MIT	✓									
Leveraged Buy FOK	✓									
Good-Till Cancel									✓	
Good-Till Week									✓	
Good-Till Month									✓	

KATS Transactions & Tags Selection – Transaction Execution Plan

	TimeInForce (59)	Side (54)	OrdType (40)	LocateReqd (114)	ExpireTime (126)
Normal Order	0 (DAY)	1 (BUY) or 2 (SELL)	2 (LIMIT)	-	-
Market Order	0 (DAY)	1 (BUY) or 2 (SELL)	1 (MARKET)	-	-
Stop Loss	0 (DAY)	1 (BUY) or 2 (SELL)	4 (STOP_LIMIT)	-	-
MIT	0 (DAY)	1 (BUY) or 2 (SELL)	J (MARKET_IF_TOUC HED)	-	-
Cross Order	0 (DAY)	1 (BUY) or 2 (SELL)	8 (CROSS)	-	-
Short Sell	0 (DAY)	5 (SELL_SHORT)	2 (LIMIT)	N (FALSE)	-
Leveraged Buy	0 (DAY)	G (BORROW)	2 (LIMIT)	-	-
Leveraged Buy Market	0 (DAY)	G (BORROW)	1 (MARKET)	-	-
Leveraged Buy Stop Loss	0 (DAY)	G (BORROW)	4 (STOP_LIMIT)	-	-
Leveraged Buy MIT	0 (DAY)	G (BORROW)	J (MARKET_IF_TOUC HED)	-	-
Leveraged Buy FOK	4 (FILL_OR_KILL)	G (BORROW)	2 (LIMIT)	-	-
FOK	4 (FILL_OR_KILL)	1 (BUY) or 2 (SELL)	2 (LIMIT)	-	-
Short Sell FOK	4 (FILL_OR_KILL)	5 (SELL_SHORT)	2 (LIMIT)	N (FALSE)	-
Good-Till Cancel	1 (GOOD_TILL_CANCEL)	1 (BUY) or 2 (SELL)	2 (LIMIT)	-	-
Good-Till Week	6 (GOOD_TILL_DATE)	1 (BUY) or 2 (SELL)	2 (LIMIT)	-	Next Week End Date
Good-Till Month	6 (GOOD_TILL_DATE)	1 (BUY) or 2 (SELL)	2 (LIMIT)	-	Next Month End Date

End of Document