



TQD602 · TECHNICAL SPECIFICATION

Turquoise Derivatives Guide to Certification (FIX)

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1 Introduction

1.1 Purpose

The purpose of this publication is to provide customers with the test cases and details necessary for successfully completing certification for the SOLA trading system.

This FIX Certification Test Cases Guide provides test cases for participants and independent software vendors for the certification of their application in order to interface with SOLA using the Financial Information eXchange (FIX) Protocol.

Section 2 'Certification Instruments' may be filled before the certification date and forwarded to the participant.

Unless specified in the test case, the following market states apply:

- Group of instrument used is in 'Continuous Trading' mode;
- Instruments are in 'Authorized' mode;
- Instruments price limits are 00000.0001- 99999.5000.

1.2 Readership

The target audience for these publications is anyone working at either the business or Information Technology (IT) level of an organisation interested in certification for the SOLA trading platform.

2 Overview

2.1 Certification Instruments

Instruments needed to perform the various certification test cases are identified as INST1, INST2 ... INST24. They must be replaced by valid listed instruments.

Groups or classes are identified as GRP1 and GRP2. GPR3 is a group that identifies a strategy spread. They also need to be replaced by valid groups.

3 Terminology

Term	Definition
Client	Refers to a computer system able to interact with the LSE electronic trading platform and to support the specific range of functionalities required by the firm's trading activities.
Instrument	A specific tradable option or future or strategy. For options, there are two instruments for each underlying, expiry month and strike price combination: one put and one call.
Instrument group	Refers to all instruments with the same underlying.

4 Certification Test Cases

4.1 Administrative Test Cases

Type: Administrative		ID #: ADM-01		Class: Mandatory	
Description: Establishing a FIX session.					
Comments:					
Prerequisites					
None					
Step	Input Specifications	Expected Results			
		Order Entry - FIX		Market Information - HSVF	
1	<u>Client:</u> Establishes a FIX session. <i>Sends a Logon message [MsgType 35=A].</i>	Logon is accepted and session is established. A Logon message is sent to the client [MsgType 35=A].			

Type: Administrative		ID #: ADM-02		Class: Mandatory	
Description: Terminating a FIX session.					
Comments:					
Prerequisites					
<ol style="list-style-type: none"> Successful execution of test case ADM-01. Group for instrument INST1 must be in Pre-Opening or in Continuous Trading mode. The instrument INST1 must be authorized. 					
Step	Input Specifications	Expected Results			
		Order Entry - FIX		Market Information - HSVF	
1	<u>Client:</u> Enters 3 regular orders for instrument INST1 at 1.00\$. <i>Sends 3 New Order Single messages [MsgType 35=D].</i>	The 3 orders are accepted and booked. <i>3 [MsgType 35=8] messages are sent with [OrdStatus 39=0].</i>		Quote or Market Depth sent. <i>Three F/FF or H/HF messages are sent.</i>	
2	<u>Client:</u> Disconnecting from LSE. <i>Sends a Logout message [MsgType 35=5].</i>	Connection terminated. <i>Server responds with a Logout message [MsgType 35=5].</i>			

Type: Administrative	ID #: ADM-03	Class: Mandatory	
Description: Restarting a FIX session in recovery.			
Comments:			
Prerequisites			
Executing test cases ADM-01 and ADM-02.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Re-Connecting to LSE. <i>Sends a Logon message [MsgType 35=A].</i>	Logon is accepted and session is re-established. A Logon message is sent to the client [MsgType 35=A].	
2	<u>Client:</u> Enters 2 regular orders for instrument INST1 at 1.00\$. <i>Sends 2 New Order Single messages [MsgType 35=D].</i>	The 2 orders are accepted and booked. <i>2 Execution Report messages [MsgType 35=8] are sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>Two F/FF or H/HF messages are sent.</i>

Type: Administrative	ID #: ADM-04	Class: Mandatory	
Description: Client sends a HeartBeat message.			
Comments:			
Prerequisites			
Logon done with HeartBtInt set to some reasonable value (30 secs is the lowest value).			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Stops flow of client messages for longer than the HeartBtInt period. <i>One HeartBeat message is sent [MsgType 35=0].</i>	A Heartbeat message is received.	

Type: Administrative	ID #: ADM-05	Class: Mandatory	
Description: Client responds to a Resend Request.			
Comments:			
Prerequisites			
A FIX session must be established. Access to FixFe gateway logs for modifications.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Sends 5 orders to be booked. <i>5 [MsgType 35=D] messages are sent.</i>	Orders are accepted and booked. <i>5 Execution Report messages [MsgType 35=8] are sent with [OrdStatus 39=0].</i>	
2	<u>LSE:</u> Stops the Fix gateway, removes from the log the last 5 messages received from Client and restarts gateway. Save a copy of FixFe log as a backup		
3	<u>Client:</u> Logs on. <i>Sends a [MsgType 35=A] message.</i>	Logon is accepted and session is re-established. <i>A Logon message is sent to the client [MsgType 35=A].</i> Sends a Resend Request. <i>A [MsgType 35=2] message is sent where [BeginSeqNo 7=5 less than the sequence number in the Logon message sent by the client].</i>	
4	<u>Client:</u> Sends a Sequence Reset-message A [MsgType 35=4] message is sent with [GapFillFlag 123=Y]. Or Retransmits the 5 requested messages. Original messages with [PossdupFlag 43=Y].		

Type: Administrative	ID #: ADM-06	Class: Optional	
Description: Client initiates a Resend Request.			
Comments: This test case is recommended.			
Prerequisites			
A FIX session must be established. Access to FixFe gateway logs for modifications.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Sends 6 orders to be booked. <i>6 [MsgType 35=D] messages are sent.</i>	Orders are accepted and booked. <i>6 Execution Report messages [MsgType 35=8] are sent with [OrdStatus 39=0].</i>	
2	<u>Client:</u> logs out or cut off the connection. <i>[MsgType 35=5] message is sent.</i>	<i>A [MsgType 35=5] message is sent back.</i>	
3	<u>Client:</u> Logs on and sends a Resend Request for the 4 last execution reports. <i>A [MsgType 35=A and 2] messages are sent where [BeginSeqNo 7=4 less than the sequence number in the logon response sent to client].</i>	Logon is accepted and session is re-established. <i>A Logon message is sent to the client [MsgType 35=A].</i> Retransmits 4 requested messages. <i>Original messages with [PossdupFlag 43=Y].</i>	

Type: Administrative	ID #: ADM-07	Class: Optional	
Description: Connecting with a SenderCompID and using a defined SenderSubID.			
Comments:			
Prerequisites			
1. The Market for instrument INST1 must be set to 10 [2.00 - 2.50]. 2. Group state is 'Continuous Trading' mode. 3. Client should have a SenderCompID along with one or more SenderSubIDs already defined: SBD1 SBD2 ...			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Establishes a Fix Session. <i>Sends a Logon [MsgType 35=A]. With 49 SenderCompID 49=CMPIDX.</i>	Logon is accepted and session is established. <i>A message [MsgType 35=A] is sent to the Client.</i>	
2	<u>Client:</u> Enters a Sell Market Order for 20 contracts for INST1. <i>Sends a [MsgType 35=D] with [SenderSubID 56=SBD1]. SenderSubID SBDx is defined.</i>	The order is accepted. <i>A [MsgType 35=8, 39=0, 57=SBDx] is sent.</i> The order is partially traded. <i>A [MsgType 35=8] is sent with [OrderStatus 39=1 and TargetSubID 57=SBD1].</i>	Quote or Market Depth sent. <i>A C message is sent.</i>
3	<u>Client:</u> Cancels the previous order. <i>Sends a [MsgType 35=F] with [SenderSubID 56=SBD1].</i>	The remainder of the order is cancelled. <i>A [MsgType 35=8] is sent with [OrderStatus 39=4, LeavesQty 151=0 and TargetSubID 57=SBD1].</i>	Quote or Market Depth sent. <i>An F or H message is sent.</i>

Type: Administrative	ID #: ADM-08	Class: Optional	
Description: Connecting with a SenderCompID and using an undefined SenderSubID.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> The Market for instrument INST1 must be set to 10 [2.00 - 2.50]. Group state is 'Continuous Trading' mode. Client should have a SenderCompID along with one or more SenderSubIDs already defined: SBD1 SBD2 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Establishes a Fix Session. <i>Sends a Logon [MsgType 35=A] With 49 SenderCompID 49=CMPIIDX.</i>	Logon is accepted and session is established. <i>A message [MsgType 35=A] is sent to the Client.</i>	
2	<u>Client:</u> Enters a Sell Market Order for 20 contracts for INST1. <i>Sends a [MsgType 35=D] with [SenderSubID 56=SBDx].</i> SenderSubID SBDx is not defined.	The order is accepted. <i>A [MsgType 35=8, 39=0, 57=SBDx] is sent.</i> The order is partially traded. <i>A [MsgType 35=8] is sent with [OrderStatus 39=1 and TargetSubID 57=SBDx].</i> Default user will be associated with this execution report (SenderCompID=CMPIIDX).	Quote or Market Depth sent. <i>A C/CF message is sent.</i>
3	<u>Client:</u> Cancels the previous order. <i>Sends a [MsgType 35=F] with [SenderSubID 56=SBDx].</i>	The remainder of the order is cancelled. <i>A [MsgType 35=8] is sent with [OrderStatus 39=4, LeavesQty 151=0 and TargetSubID 57=SBDx].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Administrative	ID #: ADM-09	Class: Optional	
Description: Multiple connections with more than one SenderCompID and without SenderSubID.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> The Market for instrument INST1 must be set to 10 [2.00 - 2.50]. Group state is 'Continuous Trading' mode. Client should have two SenderCompIDs along with or without SenderSubIDs already defined. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Establishes 2 Fix Sessions. <i>Sends a Logon [MsgType 35=A] With SenderCompID 49=CMPIDX1. Sends a Logon [MsgType 35=A] With 49 SenderCompID 49=CMPIDX2.</i>	Logons are accepted and sessions are established. <i>A message [MsgType 35=A] is sent to the Client for each logon.</i>	
2	<u>Client:</u> Enters 2 Sell/Buy Market Orders for 20 contracts for INST1 through each session. <i>Sends a [MsgType 35=D] with [SenderCompID 49=CMPIDX1 and 49=CMPIDX2].</i>	Orders are accepted in each session. <i>2 [MsgType 35=8, 39=0, 56= CMPIDX1 and CMPIDX2] are sent.</i> Orders are partially traded. <i>2 [MsgType 35=8] is sent with [OrderStatus 39=1, 56= CMPIDX1 and CMPIDX2].</i>	Quote or Market Depth sent. <i>A C/CF message is sent.</i>
3	<u>Client:</u> Cancels the previous orders. <i>Sends a [MsgType 35=F] with [SenderCompID 49=CMPIDX1 and 49=CMPIDX2].</i>	The remainder of each order is cancelled. <i>A [MsgType 35=8] is sent with [OrderStatus 39=4, LeavesQty 151=0 and 56= CMPIDX1 and CMPIDX2].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

4.2 Order Creation Test Cases

Type: Order Creation	ID #: ORD-01	Class: Optional	
Description: Entering a Market Order Top that gets partially filled; the remaining quantity is booked at a Limit price.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The market for instrument INST1 must be set to [12@2.00 - 10@2.50]; no other orders must be in the Book. 2. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client</u>: Enters a Sell Market Order for 20 contracts for instrument INST1.</p> <p>Sends a [MsgType 35=D] message with [OrdType 40=1].</p>	<p>Order is accepted.</p> <p>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].</p> <p>Trade 12@2.00.</p> <p>A [MsgType 35=8] message is sent with [LastShares 32=12], [LastPx 31=2.00], [LeavesQty 151=8].</p> <p>Remaining 8@2.00 is booked.</p>	<p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent.</p> <p>Trade is sent.</p> <p>A C/CF message is sent.</p>

Type: Order Creation	ID #: ORD-02	Class: Mandatory	
Description: Entering a limit order that gets partially filled; the remaining quantity is booked. The order opens the position.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> The market for instrument INST1 must be set to [12@0.10 - 10@0.20]. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enters a Buy order 15@0.20, Open Position, for instrument INST1.</p> <p><i>Sends a [MsgType 35=D] message with [OrdType 40=2], [OpenClose 77=0].</i></p>	<p>Order is accepted.</p> <p><i>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=15].</i></p> <p>Trade 10@0.20.</p> <p><i>A [MsgType 35=8] message is sent with [LastShares 32=10], [OrdStatus 39=1], [LastPx 31=0.20], [LeavesQty 151=5].</i></p> <p>Remaining 5@0.20 is booked, Buyer Clearing Data=Open Position.</p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent.</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent.</i></p>

Type: Order Creation	ID #: ORD-03	Class: Mandatory	
Description: Entering a limit order that gets totally filled. The order closes the position. The order is good until cancelled by the trader.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The market for instrument INST1 must be set to [12@200.00 - 10@201.50]. 2. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enters a Sell order 12@200.00, Close Position, for instrument INST1.</p> <p><i>Sends a [MsgType 35=D] message with [OrdType 40=2], [OpenClose 77=C].</i></p>	<p>Order is accepted.</p> <p><i>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=12].</i></p> <p>Trade 12@200.00, seller clearing data=Close Position.</p> <p><i>A [MsgType 35=8] is sent with [LastShares 32=12], [LastPx 31=200.00], [OrdStatus 39=2] [LeavesQty 151=0].</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F or H message is sent.</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent.</i></p>

Type: Order Creation	ID #: ORD-04	Class: Optional	
Description: Entering a limit order that gets booked. The order is good until a specific date. This test is to validate that the client application is using the right date format 'YYYYMMDD'.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The market for instrument INST1 must be set to [10@200.00 - 10@201.50]. 2. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enters a Sell order 12@201.40, Good until Date with a date before the instrument expiry with a day number less than 12 (ex.: Dec 10th, June 5th, March 2nd), for instrument INST1.</p> <p><i>Sends a [MsgType 35=D] message with [OrdType 40=2], [TimeInForce 59=6], [ExpireDate 432=YYYYMMDD].</i></p>	<p>Order is accepted and booked at 201.40 and is good until the date chosen.</p> <p><i>A [MsgType 35=8] is sent with [OrdStatus 39=0], [TimeInForce 59=6], [ExpireDate 432=YYYYMMDD].</i></p>	

Type: Order Creation	ID #: ORD-05	Class: Optional	
Description: Entering an 'Immediate or Cancel' order that gets cancelled.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [12@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a Sell 'Immediate or Cancel' order 10@2.50 for instrument INST1. <i>Sends a [MsgType 35=D] message with [OrdType 40=2] and [TimeInForce 59=3].</i>	Order is cancelled. <i>A [MsgType 35=8] is sent with [OrdStatus 39=4].</i>	

Type: Order Creation	ID #: ORD-06	Class: Optional	
Description: Entering an 'Immediate or Cancel' order that gets partially filled.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [12@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a Sell 'Immediate or Cancel' order 15@2.00 for instrument INST1. <i>Sends a [MsgType 35=D] message with [OrdType 40=2] and [TimeInForce 59=3].</i>	Order is accepted. <i>A [MsgType 35=8] is sent with [OrdStatus 39=0].</i> Order is partially filled 12@2.00 and the remaining quantity is cancelled. <i>A [MsgType 35=8] is sent with [LastShares 32=15], [LastPx 31=2.00], [TimeInForce 59=3],[OrdStatus 39=1].</i> Remaining quantity is cancelled. <i>A [MsgType 35=8] is sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Trade sent. <i>A C/CF message is sent.</i> Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Creation	ID #: ORD-07	Class: Optional	
Description: Entering a House limit order.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a limit Order Buy 100@2.40, House, for instrument INST1. <i>Sends a [MsgType 35=D] message with [Rule80A 47=F],[CombinedOrdType 7906=2].</i>	Order is accepted and booked. <i>A [MsgType 35=8] is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Creation	ID #: ORD-8	Class: Optional	
Description: Entering a limit order with an Account.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a limit Order Sell 40@2.25 with an Account Number, for instrument INST1. <i>Sends a [MsgType 35=D] message with [Account 1=123A].</i>	Order is accepted and booked. <i>A [MsgType 35=8] is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Creation	ID #: ORD-9	Class: Optional	
Description: Entering a limit order with a Text.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>Client: Enters a limit Order Sell 40@2.25 with a Memo, for instrument INST1.</p> <p>Sends a [MsgType 35=D] message with [Text 58=HelloLSE].</p>	<p>Order is accepted and booked.</p> <p>A [MsgType 35=8] is sent with [OrdStatus 39=0].</p>	<p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent.</p>

Type: Order Creation	ID #: ORD-10	Class: Optional	
Description: Trading a Strategy (Trade in the strategy book)			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The instrument INST24 is a strategy and contains 2 legs (spread INST22 - INST23) 2. The market for instrument INST24 must be set to [10@2.00 - 10@2.50]. 3. The market for instrument INST22 (1st leg of spread) must be set to [5@3.20 - 10@3.30]. 4. The market for instrument INST23 (2nd leg of spread) must be set to [10@1.00 - 10@1.10]. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enters a limit Order Sell 10@2.00 for instrument INST24.</p> <p>Sends a [MsgType 35=D] message, with [SecurityType 167=STR], [CLOrdID 11=abc].</p>	<p>Order is accepted and booked.</p> <p>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [CLOrdID 11=abc].</p> <p>An execution report for the Strategy is sent.</p> <p>A [MsgType 35=8] message is sent with [OrdStatus 39=2], [CLOrdID 11=abc], [MultipleReportingType 442=3]</p> <p>An Execution report for each Leg is sent:</p> <p>A [MsgType 35=8] message is sent with [OrdStatus 39=2], [CLOrdID 11=abc] , [MultipleReportingType 442=2]</p>	<p>Quote or Market Depth sent. An FS or HS message is sent.</p> <p>Strategy Trade sent. A CS message is sent. (PriceIndicatorMarker = 'P')</p> <p>Leg Trades sent A C/CF message per leg is sent (PriceIndicatorMarker = 'P')</p>

Type: Order Creation		ID #: ORD-11		Class: Optional	
Description: Trading a Strategy against its leg markets (Implied Trade)					
Comments:					
Prerequisites					
1. Instrument INST24 is a strategy (spread INST22 - INST23) with legs INST22 and INST23 2. The market for instrument INST22 must be set to [10@2.00 - 10@2.50]. 3. The market for instrument INST23 must be set to [5@1.00 - 5@1.50]. 4. The market for the spread INST24 must be set to [15@0.60 - 15@1.60]. 5. The implied market on INST24 is [5@0.50 - 5@1.50].					
Step	Input Specifications	Expected Results			
		Order Entry - FIX		Market Information - HSVF	
1	Client: Enters a limit Order Buy 5@1.50 for instrument INST24. Sends a [MsgType 35=D] message, with [SecurityType 167=STR]. [ClOrdID 11=abc].	Order is accepted and traded. A [MsgType 35=8] message is sent with [OrdStatus 39=0], [ClOrdID 11=abc]. An execution report for the Strategy is sent. A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ClOrdID 11=abc], [MultipleReportingType 442=3] An Execution report for each Leg is sent: A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ClOrdID 11=abc], [MultipleReportingType 442=2]		Quote or Market Depth sent. An FS or HS message is sent. Leg Trades are sent A C/CF messages are sent. (PricIndicatorMarker = 'I') NOTE: For the strategy, no CS message is broadcasted.	

Type: Order Creation	ID #: ORD-12	Class: Optional	
Description: Entering a Stop Order and being able to handle it when it gets triggered.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The INST21 needs to allow Stop Order 2. The market for instrument INST21 must be set to [30@2.00 - 10@2.50]. 3. The last Price or the previous day's close on INST21 must be greater than 2.00. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client</u>: Enters a Sell Stop Order 9@2.00 for instrument INST21, trigger price @2.10.</p> <p><i>Sends a [MsgType 35=D] message, with [StopPx 99=2.10] and [OrdType 40=4].</i></p>	<p>Order is accepted and booked.</p> <p><i>A [MsgType 35=8] message is sent with [OrdStatus 39=0] and [OrdType 40=4].</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent.</i></p>
2	<p><u>LSE</u>: Enters an order on INST21 to Sell 25@2.00.</p>	<p>LSE Order is accepted and 25 contracts are traded @2.00 against the booked order. The client order is triggered and traded 5@2.00. The remaining 4 contracts are booked @2.00.</p> <p>For the Stop order being triggered:</p> <p><i>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrdType 40=2].</i></p> <p>For the partial Trade:</p> <p><i>A [MsgType 35=8] message is sent with [OrdStatus 39=1].</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent.</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent.</i></p>

Type: Order Creation	ID #: ORD-13	Class: Optional	
Description: Entering a limit order with a Disclosed quantity.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50]. Min displayed quantity value is consistent in the system rule (configuration manager)			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a limit Order Buy 30@2.10 with a disclosed quantity of 25 for instrument INST1. <i>Sends a [MsgType 35=D] message, with [MaxShow 210=25].</i>	Order is accepted and booked and only 25 contracts are shown. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Creation	ID #: ORD-14	Class: Optional	
Description: Entering a limit order with a Minimum quantity.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50] Min quantity value is consistent in the system rule (configuration manager)			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a limit Order Buy 30@2.10 with a minimum quantity of 10 for instrument INST1. <i>Sends a [MsgType 35=D] message, with [MinQty 110=10].</i>	Order is eliminated because there is no volume to fill it at 2.10. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>	
2	<u>Client:</u> Enters a limit Order Buy 30@2.50 with a minimum quantity of 10 for instrument INST1. <i>Sends a [MsgType 35=D] message, with [MinQty 110=10].</i>	Order is traded for 10 and the remainder is booked for 20@2.50. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=0].</i> <i>A [MsgType 35=8] message is sent with [OrdStatus 39=1].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Trade sent. <i>A C/CF message is sent.</i>

Type: Order Creation	ID #: ORD-015	Class: Mandatory	
Description: Entering a Market Top Order at limit price.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [12@0.0001 - 10@99999.5000]; no other orders must be in the Book. Group for instrument INST1 must be in 'Continuous Trading' mode.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enters a Buy @0.0001 for 20 contracts for instrument INST1. Sends a [MsgType 35=D] message with [OrdType 40=2].</p> <p><u>Client:</u> Enters a Sell market for 12 contracts for instrument INST1. Sends a [MsgType 35=D] message with [OrdType 40=1].</p>	<p>Order is accepted. A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].</p> <p>Trade 12@0.0001. A [MsgType 35=8] message is sent with [LastShares 32=12], [LastPx 31=0.0001], [OrdStatus 39=2]</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent.</p> <p>Trade is sent. A C/CF message is sent.</p>
2	<p><u>Client:</u> Enters a Sell @99999.5000 for 15 contracts for instrument INST1. Sends a [MsgType 35=D] message with [OrdType 40=2].</p> <p><u>Client:</u> Enters a Buy market for 15 contracts for instrument INST1. Sends a [MsgType 35=D] message with [OrdType 40=1].</p>	<p>Order is accepted. A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=15].</p> <p>Trade 15@99999.5000 A [MsgType 35=8] message is sent with [LastShares 32=12], [LastPx 31=99999.5000], [OrdStatus 39=2]</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent.</p> <p>Trade is sent. A C/CF message is sent.</p>

Type: Order Creation	ID #: ORD-016	Class: Mandatory	
Description: Entering a Market any price that gets partially filled; the remaining quantity is booked at a Limit price.			
Comments:			
Prerequisites			
2. The market for instrument INST1 must be set to [12@2.000 - 10@2.50]; Group for instrument INST1 must be in 'Continuous Trading' mode.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>LSE: Enters 1 order Buy 10@1.90 for 10 contracts for instrument INST1. <i>Sends a [MsgType 35=D] message with [OrdType 40=2].</i></p> <p>Client: Enters a Sell market any price for 25 contracts for instrument INST1. <i>Sends a [MsgType 35=D] message with [OrdType 40=V].</i></p>	<p>Order is accepted and booked <i>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].</i></p> <p>2 Trades 12@2.00 and 10@1.90 <i>A [MsgType 35=8] message is sent with [OrdStatus 39=1]. [LastShares 32=12 and 32=10], [LastPx 31=2.00 and 1.9], [LeavesQty 151=13 and 3].</i> Remaining 3@1.9 is booked.</p>	<p>Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i></p> <p>Trade is sent. <i>A C/CF message is sent.</i></p>

Type: Order Creation	ID #: ORD-17	Class: Optional	
Description: Entering a Cross New Order Cross that is accepted and executed.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The market for instrument INST1 must be set to [100@2.00 - 100@3.00]; no other orders must be in the Book. 2. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>Client: Enter a New Cross Order for 20 contracts @ 2.50 for instrument INST1.</p> <p><i>Sends a [MsgType 35=c] message with [price 44=2.50],</i> NoSides 552 = 2],</p> <p><i>and repeating block 2 times:</i></p> <p>Side 54 COrdID 11 Account 1 Account Profile 8001 OpenClose 77 Text 58 Rule 80A</p>	<p>Order is accepted. Trade 20@2.00.</p> <p><i>A [MsgType 35=8] message is sent with [OrdStatus 39=2], [OrderQty 38=20].</i> <i>[LastShares 32=20],</i> <i>[LastPx 31=2.50],</i> <i>[LeavesQty 151=0].</i> [NoSides 552 = 2], [SpecialTradeInd 9459 =D]</p> <p><i>and repeating block 2 times:</i></p> <p>Side 54 COrdID 11 Account 1 Account Profile 8001 OpenClose 77 Text 58 Rule 80A</p>	<p>Quote or Market Depth sent. <i>None.</i></p> <p>Trade is sent. <i>A C/CF message is sent.</i></p>

Type: Order Creation	ID #: ORD-18	Class: Optional	
Description: Entering a Cross New Order Cross that is rejected.			
Comments: A way to obtain the rejection is to have the cross order price outside the bid ask spread.			
Prerequisites			
1. The market for instrument INST1 must be set to [100@2.00 - 100@3.00]; no other orders must be in the Book.			
2. Group for instrument INST1 must be in 'Continuous Trading' mode.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enter a New Cross Order for 20 contracts @ 3.50 for instrument INST1.</p> <p><i>Sends a [MsgType 35=c] message with [price 44=3.50],</i> <i>NoSides 552 = 2],</i></p> <p><i>and repeating block 2 times:</i></p> <p><i>Side 54</i> <i>ClOrdID 11</i> <i>Account 1</i> <i>Account Profile 8001</i> <i>OpenClose 77</i> <i>Text 58</i> <i>Rule 80A</i></p>	<p>Order is Rejected. Trade 20@2.00.</p> <p><i>A [MsgType 35=8] message is sent with [ExexType 150=8],</i> <i>[Text 58 = Cross order is outside bid/ask price spread],</i></p>	<p><i>None.</i></p>

Type: Order Creation	ID #: ORD-19	Class: Optional	
Description: Entering New Committed Orders that are accepted and then executed.			
Comments: A Committed Order must have a counterpart firm with an equal but opposite committed order in the book to trade against, for validation purposes the same firm will enter both sides of the committed transaction.			
Prerequisites			
1. The market for instrument INST1 must be set to [100@2.00 - 100@3.00]; no other orders must be in the Book. 2. Group for instrument INST1 must be in 'Continuous Trading' mode.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enter a New Buy Order for 20 contracts @ 2.50 for instrument INST1. <i>Sends a [MsgType 35=D] message with [OrdType 40 = C], [price 44=2.50], [Contra Trader 337 =TBD*]</i>	Order is accepted. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [ExexType 150=0], [OrderQty 38=20] [Contra Trader 337 = TBD*]</i>	Quote or Market Depth sent. None.
2	<u>Client:</u> Enter a New Sell Order for 20 contracts @ 2.50 for instrument INST1. <i>Sends a [MsgType 35=D] message with [OrdType 40 = C], [price 44=2.50], [Contra Trader 337 =same as step 1*]</i>	Order is accepted. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ExexType 150=2], [OrderQty 38=20] [Contra Trader 337 = same as step 1*]</i>	Quote or Market Depth sent. None. Trade is sent. <i>A C/CF message is sent.</i>

Type: Order Creation	ID #: ORD-20	Class: Optional	
Description: Entering a New Committed Order that is rejected			
Comments: A Committed Order must have a counterpart firm with an equal but opposite committed order in the book to trade against, for creating a rejection, none should be provided.			
Prerequisites			
<ol style="list-style-type: none"> 1. The market for instrument INST1 must be set to [100@2.00 - 100@3.00]; no other orders must be in the Book. 2. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>Client: Enter a New Buy Order for 20 contracts @ 2.50 for instrument INST1.</p> <p><i>Sends a [MsgType 35=D] message with [OrdType 40 = C], [price 44=2.50], [Contra Trader 337 =] (leave tag 337 empty or do not provide it)</i></p>	<p>Order is rejected.</p> <p><i>A [MsgType 35=8] message is sent with [ExexType 150=8], [Text 58 = Opposite firm must be filled for committed order]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>None.</i></p>

Type: Order Cancellation		ID #: CXL-01	Class: Mandatory
Description: Cancelling an order.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Sell Order 10@2.20 for instrument INST1. <i>Sends a [MsgType 35=D] message.</i>	Order is accepted and booked. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
2	<u>Client:</u> Cancels the previous order. <i>Sends a [MsgType 35=F] message.</i>	Order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

4.3 Order Cancellation Test Cases

Type: Order Cancellation		ID #: CXL-02	Class: Mandatory
Description: Cancelling a partially filled order.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 60@2.50 for instrument INST1. <i>Sends a [MsgType 35=D] message.</i>	Order is accepted and booked. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0].</i> Trade 10@2.50. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=1] and [LeavesQty 151=50].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Trade sent. <i>A C/CF message is sent.</i>
2	<u>Client:</u> Cancels the previous order. <i>Sends a [MsgType 35=F] message.</i>	The remainder of the order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4], [OrderQty 38=30] and [LeavesQty 151=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Cancellation		ID #: CXL-03	Class: Mandatory
Description: Order cancellation by the Market Operation Center (MOC).			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 10@2.50].			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 1@2.45 for instruments INST1. <i>Sends a [MsgType 35=D] message.</i>	Order is accepted and booked. The market for instrument INST1 is now [1@2.45 - 10@2.50]. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
2	<u>Client:</u> Enters a regular Sell Order 100@2.50 for instruments INST1. <i>Sends a [MsgType 35=D] message.</i>	Order is accepted and booked. The market for instrument INST1 is now [1@2.45 - 110@2.50]. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
3	<u>LSE:</u> With MBO watch, cancels all orders for instrument INST1 for the participant.	All orders are cancelled. <i>Two (2) [MsgType 35=8] messages are sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

4.4 Order Modification Test Cases

Notice to the Certification Responsible:

Order Modification can be achieved using 2 modes with SOLA. The participant configuration is set in the Config Manager with:

- OriginalQuantityManagement set to “ON”, which allows the participant to modify the quantity with respect to his original order quantity. This is the preferred mode.
 - Use exclusively the cases MOD-01, MOD-05, MOD-07, MOD-08, MOD-09 and MOD-10
- OriginalQuantityManagement set to “OFF”, which changes the quantity in absolute terms, not taking into account the original order quantity. Although SOLA can support this feature, it is rarely used in the market.
 - Use exclusively the cases MOD-01, MOD-02, MOD-03, MOD-04, MOD-05, and MOD-06

Type: Order Modification		ID #: MOD-01		Class: Mandatory	
Description: Modifying the price of an order.					
Comments:					
Prerequisites					
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant configured or not with OriginalQuantityManagement					
Step	Input Specifications	Expected Results			
		Order Entry - FIX		Market Information - HSVF	
1	<u>Client:</u> Enters a regular Sell Order 2000@2.25. <i>Sends a [MsgType 35=D] message [Price 44=2.25].</i>	Order is accepted and booked at 2.25. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [Price 44=2.25].</i>		Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>	
2	<u>Client:</u> Modifies the previous order 2000@2.20. <i>Sends a [MsgType 35=G] message [Price 44=2.20].</i>	Modification is accepted and the price of the order is now 2.20. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=5], [Price 44=2.20].</i>		Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>	
3	<u>Client:</u> Cancels the order. <i>Sends a [MsgType 35=F] message.</i>	Order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>		Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>	

Type: Order Modification		ID #: MOD-02		Class: Mandatory	
Description: Modifying the quantity of an order.					
Comments:					
Prerequisites					
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant non configured with OriginalQuantityManagement					

Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSFV
1	<p><u>Client:</u> Enters a regular Sell Order 1@2.25. Sends a [MsgType 35=D] message [OrderQty 38=1].</p>	<p>Order is accepted and booked at 1@2.25. One [MsgType 35=8] message is sent with [OrdStatus 39=0] and [OrderQty 38=1].</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent.</p>
2	<p><u>Client:</u> Modifies the previous order 20@2.25. Sends a [MsgType 35=G] message [OrderQty 38=20].</p>	<p>Modification is accepted and the quantity is now 20. One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=20].</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent.</p>
3	<p><u>Client:</u> Cancels the order. Sends a [MsgType 35=F] message.</p>	<p>Order is cancelled. One [MsgType 35=8] message is sent with [OrdStatus 39=4].</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent.</p>

Type: Order Modification	ID #: MOD-03	Class: Mandatory	
Description: Modifying the quantity and the price (decreasing) of a partially filled order.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant non configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 21@2.50. <i>Sends a [MsgType 35=D] message [OrderQty 38=21], [Price 44=2.50].</i>	Order is accepted and booked at 21@2.50. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21].</i> Trade 10@2.50. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=1] and [LeavesQty 151=11].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Trade sent. <i>A C/CF message is sent.</i>
2	<u>Client:</u> Modifies the previous order 15@2.25. <i>Sends a [MsgType 35=G] message [OrderQty 38=15], [Price 44=2.25].</i>	Modification is accepted and the order is now booked 15@2.25. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=15], [Price 44=2.25].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
3	<u>Client:</u> Cancels the order. <i>Sends a [MsgType 35=F] message.</i>	Order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An /FFF or H/HF message is sent.</i>

Type: Order Modification	ID #: MOD-04	Class: Mandatory	
Description: Modifying the quantity and the price (increasing) of a partially filled order.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant non configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 21@2.50. <i>Sends a [MsgType 35=D] message [OrderQty 38=21], [Price 44=2.50].</i>	Order is accepted and booked at 21@2.50. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21].</i> Trade 10@2.50. <i>One [MsgType 35=8] message is sent.</i>	Quote or Market Depth sent. <i>An F or H message is sent.</i> Trade sent. <i>A C/CF message is sent.</i>
2	<u>Client:</u> Modifies the previous order 25@2.60. <i>Sends a [MsgType 35=G] message [OrderQty 38=25], [Price 44=2.60].</i>	Modification is accepted and the order is now booked 25@2.60. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=25], [Price 44=2.60].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
3	<u>Client:</u> Cancels the order <i>Sends a [MsgType 35=F] message.</i>	Order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Modification	ID #: MOD-05	Class: Mandatory	
Description: Modifying an order that has been previously modified and partially filled.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant configured or not with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 21@2.50. <i>Sends a [MsgType 35=D] message [OrderQty 38=21], [Price 44=2.50].</i>	Order is accepted and booked at 21@2.50. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21].</i> Trade 10@2.50. <i>One [MsgType 35=8] message is sent.</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Trade sent. <i>A C/CF message is sent.</i>
2	<u>Client:</u> Modifies the previous order 21@2.25. <i>Sends a [MsgType 35=G] message [OrderQty 38=21], [Price 44=2.25].</i>	Modification is accepted and the order is now booked 21@2.25. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=21], [Price 44=2.25].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
3	<u>Client:</u> Modifies the previous order 21@2.40. <i>Sends a [MsgType 35=G] message [OrderQty 38=21], [Price 44=2.40].</i>	Modification is accepted and the order is now booked 21@2.40. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21], [Price 44=2.40].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
4	<u>Client:</u> Cancels the order. <i>Sends one [MsgType 35=F] message.</i>	Order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Modification	ID #: MOD-06	Class: Optional	
Description: Modifying a Market order that has been assigned a limit price.			
Comments:			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 - 12@2.50]; no other orders must be in the book.			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50]			
2. Fix Participant non configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a Buy Market order for 20 contracts <i>Sends a [MsgType 35=D] message with [OrdType 40=1].</i>	Order is accepted. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].</i> Trade 12@2.50 and the remaining 8@2.50 is booked. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=1], [LastShares 32=12], [LastPx 31=2.50], [LeavesQty 151=8].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i> Trade sent. <i>A C/CF message is sent.</i>
2	<u>Client:</u> Modifies the previous order to 9 @2.40. <i>Sends a [MsgType 35=G] message [OrderQty 38=9], [Price 44=2.40].</i>	Modification is accepted and the order is now booked 9@2.40. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=9], [Price 44=2.40].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>
3	<u>Client:</u> Cancels the order. <i>Sends one [MsgType 35=F] message.</i>	Order is cancelled. <i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent.</i>

Type: Order Modification	ID #: MOD-07	Class: Mandatory	
Description: Modifying the quantity and the price (decreasing) of a partially filled order.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant is configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 21@2.50. Sends a [MsgType 35=D] message [OrderQty 38=21], [Price 44=2.50].	Order is accepted and booked at 21@2.50. One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21]. Trade 10@2.50. One [MsgType 35=8] message is sent with [OrdStatus 39=1] and [LeavesQty 151=11].	Quote or Market Depth sent. An F/FF or H/HF message is sent. Trade sent. A C/CF message is sent.
2	<u>Client:</u> Modifies the previous order 15@2.25. Sends a [MsgType 35=G] message [OrderQty 38=15], [Price 44=2.25].	Modification is accepted and the order is now booked 15@2.25. One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=15], [Price 44=2.25] and [LeavesQty 151=5].	Quote or Market Depth sent. An F/FF or H/HF message is sent.
3	<u>Client:</u> Cancels the order. Sends a [MsgType 35=F] message.	Order is cancelled. One [MsgType 35=8] message is sent with [OrdStatus 39=4].	Quote or Market Depth sent. An /FFF or H/HF message is sent.

Type: Order Modification	ID #: MOD-08	Class: Mandatory	
Description: Modifying the quantity and the price (increasing) of a partially filled order.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant is configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a regular Buy Order 21@2.50. Sends a [MsgType 35=D] message [OrderQty 38=21], [Price 44=2.50].	Order is accepted and booked at 21@2.50. One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21]. Trade 10@2.50. One [MsgType 35=8] message is sent with [OrdStatus 39=1] and [LeavesQty 151=11].	Quote or Market Depth sent. An F or H message is sent. Trade sent. A C/CF message is sent.
2	<u>Client:</u> Modifies the previous order 25@2.60 Sends a [MsgType 35=G] message [OrderQty 38=25], [Price 44=2.60].	Modification is accepted and the order is now booked 25@2.60. One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=25], [Price 44=2.60] and [LeavesQty 151=15].	Quote or Market Depth sent. An F/FF or H/HF message is sent.
3	<u>Client:</u> Cancels the order Sends a [MsgType 35=F] message.	Order is cancelled. One [MsgType 35=8] message is sent with [OrdStatus 39=4].	Quote or Market Depth sent. An F/FF or H/HF message is sent.

Type: Order Modification	ID #: MOD-09	Class: Mandatory	
Description: Modifying an order that has been previously modified and partially filled.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 10@2.50] 2. Fix Participant is configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSUF
1	<u>Client:</u> Enters a regular Buy Order 21@2.50. Sends a [MsgType 35=D] message [OrderQty 38=21], [Price 44=2.50].	Order is accepted and booked at 21@2.50. One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21]. Trade 10@2.50. One [MsgType 35=8] message is sent with [OrdStatus 39=1] and [LeavesQty 151=11].	Quote or Market Depth sent. An F/FF or H/HF message is sent. Trade sent. A C/CF message is sent.
2	<u>Client:</u> Modifies the previous order 21@2.25. Sends a [MsgType 35=G] message [OrderQty 38=21], [Price 44=2.25].	Modification is accepted and the order is now booked 21@2.25. One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=21], [Price 44=2.25] and [LeavesQty 151=11].	Quote or Market Depth sent. An F/FF or H/HF message is sent.
3	<u>Client:</u> Modifies the previous order 21@2.40. Sends a [MsgType 35=G] message [OrderQty 38=21], [Price 44=2.40].	Modification is accepted and the order is now booked 21@2.40. One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=21], [Price 44=2.40] and [LeavesQty 151=11].	Quote or Market Depth sent. An F/FF or H/HF message is sent.
4	<u>Client:</u> Cancels the order. Sends one [MsgType 35=F] message.	Order is cancelled. One [MsgType 35=8] message is sent with [OrdStatus 39=4].	Quote or Market Depth sent. An F/FF or H/HF message is sent.

Type: Order Modification	ID #: MOD-10	Class: Optional	
Description: Modifying a Market Top order that has been assigned a limit price.			
Comments:			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 - 12@2.50]; no other orders must be in the book.			
2. Fix Participant is configured with OriginalQuantityManagement			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client:</u> Enters a Buy Market order for 20 contracts</p> <p><i>Sends a [MsgType 35=D] message with [OrdType 40=1].</i></p>	<p>Order is accepted.</p> <p><i>One [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].</i></p> <p>Trade 12@2.50 and the remaining 8@2.50 is booked.</p> <p><i>One [MsgType 35=8] message is sent with [OrdStatus 39=1], [LastShares 32=12], [LastPx 31=2.50], [LeavesQty 151=8].</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent.</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent.</i></p>
2	<p><u>Client:</u> Modifies the previous order to 15 @2.40.</p> <p><i>Sends a [MsgType 35=G] message [OrderQty 38=9], [Price 44=2.40].</i></p>	<p>Modification is accepted and the order is now booked 9@2.40.</p> <p><i>One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=15], [Price 44=2.40] and [LeavesQty 151=3].</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent.</i></p>
3	<p><u>Client:</u> Cancels the order.</p> <p><i>Sends one [MsgType 35=F] message.</i></p>	<p>Order is cancelled.</p> <p><i>One [MsgType 35=8] message is sent with [OrdStatus 39=4].</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent.</i></p>

4.5 Request For Quote Test Cases

Type: Request for Quote	ID #: RFQ-01	Class: Mandatory	
Description: Sending a Quote Request message.			
Comments:			
Prerequisites			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>Client: Enters a Quote Request for the instrument INST1 for any quantity.</p> <p>Sends a [MsgType 35=R] message.</p>	<p>Quote Request message is received and dispatched to external participants.</p> <p>A [MsgType 35=b] message is sent to client.</p>	<p>Request for Quote sent.</p> <p>A D/DF message is sent.</p>

4.6 Trade Management Test Cases

Type: Trade Management	ID #: TRD-01	Class: Mandatory	
Description: Handling many fills for the same order.			
Comments:			
Prerequisites			
<ol style="list-style-type: none"> 1. The market for instrument INST1 must be set to [12@2.00 - 10@2.50]. 2. Group for instrument INST1 must be in 'Continuous Trading' mode. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p><u>Client</u>: Enters an order on instrument INST1 to Sell 75@2.40.</p> <p>Sends a [MsgType 35=D] message.</p>	<p>Order is accepted.</p> <p>A [MsgType 35=8] is sent with [OrdStatus 39=0].</p>	<p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent.</p>
2	<p><u>LSE</u>: With MBO Watch, enters 10 Buy orders for instrument INST1</p> <p>2@MKT , 3@MKT, 4@MKT, 5@MKT</p> <p>6@MKT , 7@MKT, 8@MKT, 9@MKT</p> <p>10@MKT, 11@MKT.</p>	<p>10 Trades:</p> <p>2@2.40, 3@2.40, 4@2.40, 5@2.40,</p> <p>6@2.40, 7@2.40, 8@2.40, 9@2.40,</p> <p>10@2.40, 11@2.40.</p> <p>Ten (10) [MsgType 35=8] messages are sent. The last one with [LeavesQty 151=10].</p> <p>Market for instrument INST1 is now [12@2.00 - 10@2.40].</p>	<p>Trade sent.</p> <p>A C/CF message is sent for each trade.</p>

Type: Trade Management		ID #: TRD-02	Class: Optional
Description: Handling Trade cancellation from Market Operation Center (MOC).			
Comments:			
Prerequisites			
Execution of Test Case TRD-01.			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>LSE</u> : Cancelling the first and the last Trades from Test Case TRD-01 (2@2.40 and 11@2.40).	<p>The 2 trades are cancelled.</p> <p><i>Two (2) [MsgType 35=8] messages are sent with [ExecTransType 20=1], [OrdStatus 39=4], [ExecType 150=4].</i></p>	<p>Trade Cancellation and Summary.</p> <p><i>Two (2) I/IF an N/NF messages are sent.</i></p>

Type: Order Creation	ID #: TRD-03	Class: Optional	
Description: Handling a Trade Cancellation on a Strategy from Market Operation Center (MOC).			
Comments:			
Prerequisites			
The market for instrument INST22 must be set to [10@2.00 - 10@2.50]. Strategy is a spread (2 legs)			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<u>Client:</u> Enters a limit Order Sell 20@2.55 for instrument INST22. <i>Sends a [MsgType 35=D] message, with [SecurityType 167=STR].</i>	Order is accepted and booked. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=0].</i>	Quote or Market Depth sent. <i>An FS or HS message is sent.</i>
2	<u>Client:</u> Enters a limit Order Buy 20@2.55 for instrument INST22. <i>Sends a [MsgType 35=D] message, with [SecurityType 167=STR], [ClOrdID 11=abc].</i>	Order is accepted and booked. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=0], [ClOrdID 11=abc].</i> An execution report for the Strategy trade is sent. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ClOrdID 11=abc] MultipleReportingType 442=3</i> An Execution report for each Leg Trade is sent: <i>A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ClOrdID 11=abc] MultipleReportingType 442=2</i>	Quote or Market Depth sent. <i>An FS or HS message is sent.</i> Strategy Trade sent. <i>A CS message is sent.</i>
3	<u>LSE:</u> Cancelling the previous Trade from Step2 (by cancelling trade on Legs).	The trades are cancelled. An Execution report for each Leg Trade cancellation is sent: <i>A [MsgType 35=8] message is sent with [OrdStatus 39=4], [ClOrdID 11=abc] MultipleReportingType 442=2</i> An execution report for the Strategy Trade cancellation is sent. <i>A [MsgType 35=8] message is sent with [OrdStatus 39=4], [ClOrdID 11=abc] MultipleReportingType 442=3</i>	Trade Cancellation and Summary. <i>Two (2) I/IF an N/NF messages are sent.</i>

4.7 User Flexible Combination (FLEXCO) Creation Request Test Cases

Type: FLEXCO Creation		ID #: FLX-01	Class: Optional	
Description: New FLEXCO Strategy Creation Request Accepted				
Comments:				
Prerequisites				
<ol style="list-style-type: none"> 1. Strategy format (example Price Spread) is configured as a permitted FLEXCO at the exchange. 2. Strategy Group and Leg group are both in a group state of Continuous Trading. 				
Step	Input Specifications	Expected Results		
		Order Entry - FIX		Market Information - HSVF
1	<p><u>Client:</u> Sends ON message specifying the number of legs (must be 2), group, instrument IDs, verb and ratio for each individual leg.</p> <p><i>Sends a [Msg Type 35=c], with [security Type 167="STR", Security Request Type 321 ="1", NoRelatedSym 146 ="2"]</i></p> <p><i>and repeating block:</i></p> <p><i>Strategy Leg Symbol 311</i> <i>Strategy leg Security Type 310</i> <i>Strategy leg Maturity date 313</i> <i>Strategy leg Maturity Day 314</i> <i>Strategy leg Put or Call 315</i> <i>Strategy leg Strike Price 316</i> <i>Strategy leg Ratio 319</i> <i>Side 54]</i></p>	<p>Strategy Creation Request is accepted.</p> <p><i>Sends a [Msg Type 35=d], with [security Response Type = "1", external Symbol 55</i></p> <p><i>and repeating block:</i></p> <p><i>Strategy Leg Symbol 311</i> <i>Strategy leg Security Type 310</i> <i>Strategy leg Maturity date 313</i> <i>Strategy leg Maturity Day 314</i> <i>Strategy leg Put or Call 315</i> <i>Strategy leg Strike Price 316</i> <i>Strategy leg Ratio 319</i> <i>Side 54]</i></p>	<p><i>JS/NS/HS are all broadcasted in consecutive order with the status marker in the HS message = "T".</i></p>	

Type: FLEXCO Creation		ID #: FLX-02	Class: Optional
Description: FLEXCO Strategy Creation Request Accepted with Modification			
Comments: A way to obtain 'accept with modification' is to double the ratio size for each leg so each ratio value can be divided by 2. Example: if a 1/1 Ratio Price Spread is requested, enter in "2" as the ratio size for each individual leg.			
Prerequisites			
<ol style="list-style-type: none"> 1. Strategy format (example Price Spread) is configured as a permitted FLEXCO at the exchange. 2. Strategy Group and Leg group are both in a group state of Continuous Trading. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>Client: Send ON message specifying the number of legs (must be 2), group, instrument IDs, verb and ratio for each individual leg.</p> <p><i>Sends a [Msg Type 35=c], with [security Type 167="STR", Security Request Type 321="1", NoRelatedSym 146="2"]</i></p> <p><i>and repeating block:</i></p> <p><i>Strategy Leg Symbol 311</i> <i>Strategy leg Security Type 310</i> <i>Strategy leg Maturity date 313</i> <i>Strategy leg Maturity Day 314</i> <i>Strategy leg Put or Call 315</i> <i>Strategy leg Strike Price 316</i> <i>Strategy leg Ratio 319 (see above comments)</i> <i>Side 54]</i></p>	<p>Strategy Creation Request is accepted.</p> <p><i>Sends a [Msg Type 35=d], with [security Response Type = "2", external Symbol 55</i></p> <p><i>and repeating block:</i></p> <p><i>Strategy Leg Symbol 311</i> <i>Strategy leg Security Type 310</i> <i>Strategy leg Maturity date 313</i> <i>Strategy leg Maturity Day 314</i> <i>Strategy leg Put or Call 315</i> <i>Strategy leg Strike Price 316</i> <i>Strategy leg Ratio 319</i> <i>Side 54]</i></p>	<p><i>JS/NS/HS are all broadcasted in consecutive order with the status marker in the HS message = "T".</i></p>

Type: FLEXCO Creation		ID #: FLX-03	Class: Optional
Description: New FLEXCO Strategy Creation Request Rejection			
Comments: A way to obtain the rejection is to define the same leg twice in the repeating block.			
Prerequisites			
<ol style="list-style-type: none"> 1. Strategy format (example Price Spread) is configured as a permitted FLEXCO at the exchange. 2. Strategy Group and Leg group are both in a group state of Continuous Trading. 			
Step	Input Specifications	Expected Results	
		Order Entry - FIX	Market Information - HSVF
1	<p>Client: Send ON message specifying the number of legs (must be 2), group, instrument IDs, verb and ratio for each individual leg.</p> <p><i>Sends a [Msg Type 35=c], with [security Type 167="STR", Security Request Type 321 ="1", NoRelatedSym 146 ="2"]</i></p> <p><i>and repeating block: (see comments above)</i></p> <p><i>Strategy Leg Symbol 311</i></p> <p><i>Strategy leg Security Type 310</i></p> <p><i>Strategy leg Maturity date 313</i></p> <p><i>Strategy leg Maturity Day 314</i></p> <p><i>Strategy leg Put or Call 315</i></p> <p><i>Strategy leg Strike Price 316</i></p> <p><i>Strategy leg Ratio 319</i></p> <p><i>Side 54]</i></p>	<p>Strategy Creation Request is accepted.</p> <p><i>Sends a [Msg Type 35=j], with [Business Reject Reason 380 = "2", and Text 58 = "Invalid Leg Information"]</i></p>	<p><i>none</i></p>

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