SOLA Derivatives

Guide to Certification (FIX)

Certification Guide

Issue 1.7

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Disclaimer

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Contents

1.0 Introduction

1.1 Purposes

The purpose of this document is to provide customers with a detailed overview of the Certification service across the eligible London Stock Exchange Group venues London Stock Exchange and Borsa Italiana.

The 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 FIX SOLA Access Information Language Protocol

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.

1.3 Document History

This document has been through the following iterations:

Issue	Date	Description
1.0	30/09/2013	Initial Issue
1.1	08/07/2015	
1.2	16/03/2016	Annual Certification procedure and contacts
1.3	23/01/2017	Certification Test Scenarios: 4.7.3; 4.8.6; 4.8.7; 4.10.4; 4.14; 4.15; 4.16.
1.5	30/08/2017	Review Certification Test Scenarios New Test cases: ORD-19, TRD04, TRD-05 Certification policy updated New Passport policy
1.6	05/08/2017	Certification policy updated Review Certification Test Scenarios New Test cases: ORD-20, ORD-21
1.7	06/03/2018	New test cases: ORD-22, ORD-23 and BO-04

In subsequent issues, where amendments have been made to the previous version, these changes will be identified using a series of side bars as illustrated opposite.

1.4 Contacts

Please contact Market Access Italy if you have any functional questions about the IDEM Sola Exchange services outlined in this document.

- Phone: 0039 02 72426668

- Email: market-access@borsaitaliana.it

2.0 Certification Programme

The Certification Programme is based on regulatory compliance supporting interoperability against the three eligible London Stock Exchange Group (LSEG) venues. The current eligible venues are London Stock Exchange and Borsa Italiana.

The following Certification Programme applies to anyone connecting a software application to an LSEG *Live Service*. A Live service is any production Trading or Information Services environment across LSEG.

Under EU and national regulatory requirements (including the ESMA Guidelines on Systems and Controls in a Highly Automated Trading Environment) the eligible LSEG venues are required to have procedures and arrangements to ensure fair and orderly trading. This includes requirements for physical and electronic security to protect systems from misuse or unauthorised access and to ensure the integrity of the data that is part of or passes through the systems. The eligible venues are required to undertake standardised certification testing to ensure that members and participants systems used to access the venues have a minimum level of functionality that is compatible with fair and orderly trading on those venues.

Customer non-compliance with this certification programme may constitute a breach of the eligible venue terms and conditions or rules.

2.1 Access to the Live Service

Access to the LSEG Live Services is permitted only when a customer's software application has been certified as being fit for purpose.

2.2 Software Identification

All customer software must be identifiable by a software name and version number. Software applications that do not have both a name and version number will not be certified. Certification is limited to a single version of the named software.

2.3 Mandatory Certification Requirements

Customer confirms that the certified trading application is fully conformant to all aspects of the Technical Specifications. Customer also confirms that its application has in place the following controls:

- ✓ limits on transaction per second sent by Trading sessions

- ✓ limits on order quantity and order countervalue

- ✓ order and trade price limits against static and dynamic controls prices

2.4 Certification Policy

Customers are required to certify or re-certify their applications under the following conditions:

- ✓ Prior to use the application in the live environment (for new applications);

- ✓ The customer modifies the software in any way that directly impacts LSEG interfaces. This includes but is not limited to updates to Gateways, Order Management, Execution Management and Quote Management Software;

- ✓ The Exchange upgrades its production environment to a later version of software;

- ✓ The customer is requested to re-certify their application by the relevant venue

If no certifications have been performed during a solar year (because any of the previous conditions occurred), the customer will be asked to self-certify (by sending an email to the relevant Trading Venue team that look after certifications) that no changes have been applied to the application since the last certification

2.5 Test Scenario Exception Policy

Customers only need to complete the test cases relating to the functionality that they will use on the Live Services. If a customer's application does not support the functionality described in a particular test scenario and they do not intend to complete the scenario during the test, this must be agreed before the start of the certification test.

2.6 Passport across LSEG Venues

The Group is pleased to confirm that upon successful certification against one of the venues IDEM, LSEDM Equity Derivatives or LSEDM Interest Rate Derivatives (CurveGlobal products) , the certified application will be permitted to access all SOLA Production systems – London and Milan, according with the membership agreement currently in place.

However, please be aware that in order for the passport to be applicable, the certified functionalities must be the same across all the venues where the customer wishes to connect to with the same application software.

2.7 Non-Conformant Behaviour on the Live Service

Any non-conformant behaviour by a customer's software application on the Live Services may lead to the software application being disconnected and not re-connected until it has been re-certified and the non-conformant behaviour corrected.

2.8 Self Certification Email

If no certifications have been performed during a solar year (because any of the conditions reported in §2.4 occurred), the customer will be asked to self-certify (by sending an email) that no changes have been applied to the application since the last certification.

Email confirmation should be sent to Market-access@borsaitaliana.it

2.9 Test Charges

The published venue specific Certification charges apply to all certification testing regardless of the test being assisted or not.

3.0 Certification Process

The Certification Process is an integral part of the Certification Programme

Mandatory testing will be required for all applications that wish to connect to the production environment and mandatory functions will need to be tested in order to confirm conformant behavior.

Customers should consider their software application's 'production ready' before attempting the test. Customers should also read and familiarize themselves with this document and the Market and Product Specific Testing documents. These documents contain important guidance that must be read before completing the certification process. When ready to take the test, customers should complete the following steps:

- Customers should contact **Market Access Italy** to provide the software name and version

- The Market Access team will then confirm whether a Full Certification Test or a Self Certification email is required and forward the relevant Certification Test Report to the customer.

Before Taking the Test

The Market Access team for Milan markets will be available to assist participants in completing part of their certification test by performing both mandatory and optional functions.

Customers must identify the venue and the test scenarios supported by their application, by ticking the relevant boxes on the Certification Test Report. The report form must then be sent to: Market-access@borsaitaliana.it

This is a formal record of the software application that is being certified.

Customers should save a copy of the test report as they will be required to use it during the test to record their test results.

During the Test

Customers should complete the full set of uncoordinated test cycles described in Section 4 and inform Market Access Italy when this has been completed. If required some limited support can be provided during this phase.

Customers should record the test results on the Full Certification Test Report using the test procedure shown at the start of section 4. Customers are required to complete all test scenarios previously marked on the Full Certification Test Report within a trading day. If a customer does not complete a pre-agreed test scenario, the test will fail.

When all of the uncoordinated test scenarios have been completed, the customer must then complete a set of coordinated test scenarios, assisted by a tester.

The customer can repeat this part as many times as necessary, however additional test sessions may have to be booked if the testing exceeds two hours.

When all test scenarios have been completed, the customer should email the completed Certification Test Report to the tester. The email should be addressed to Market-access@borsaitaliana.it

After the Test

After the test the tester will check the details on the completed Full Certification Test Report and review the log files for the completed test scenarios. A report is generated detailing how the customer's application has performed during the test. If no re-testing is required, he report will be sent to the customer to sign off the application as fit for purpose and ready for production access.
The following items are checked:

- The functional behaviour and message sequencing in each scenario

- If the session was maintained for the entire period or if it dropped

- If any errors were produced over the time period

If multiple interfaces were included in the test, the results are concatenated into a single report.
The report will be run specifying a time ranged limited to a single day.
If the customer is required to repeat any of the testing they should do so within 24 hours of the original test.

By returning the signed copy of the Full Certification Test Report the customer is confirming that their application is fully conformant to all aspects of the SOLA Platform Technical Specifications and technically behaves as described in the guidance given in the technical specification.

4.0 Certification Test Scenarios

4.1 Test Procedure

Before proceeding with the certification test, customers must send the Certification Report to market-access@borsaitaliana.it and ask for an available date to schedule the conformance test session.

The certification report must contain the following information:

- Software name, version and gateway interfaces

- which functionalities are supported by the software

- the Venue where the test will be run and the Venue(s) the software connects to

Customers must perform all of the steps in each of the test scenarios reported in this document and record the results in the relevant sections of the Test Report.

A Certification report will be run after the customer has confirmed a successful run of their application on the CDS.

The report will extract all the relevant functions performed by the application and presented them in a format to be reviewed by the testing team to confirm a pass or fail.

Prior to the report being run the customer will be required to confirm the **venue**, the **gateway interfaces** they are certifying and the **userIDs** they are using for each gateway. This will be detailed in the supporting certification report (detailed below) submitted by the customer. The reporting tool will use this information to extract all behaviour for a given time period.

Considerations for the report are listed below.

1. The report will be run against any of the interfaces at once or against each separate interface individually depending on the customer application.

2. The report will be run specifying a time range limited to a single day.

3. The report will extract all message interface behaviour and represent this in a readable format in order to identify a successful set of functional testing.

4. The report will identify if the session was maintained for the entire period or if it dropped.

5. The report will check for any and all errors produced over the time period.

6. The report will be sent to the customer to sign off the application as fit for purpose and ready for production access.

7. The customer is responsible for any information declared on the signed-off Certification Test Report.

4.2 Submitting execution report and notifying result

The Customer has to run the Self Certification tests (not coordinated), the Certification Report tests (coordinated) in coordination with the testing team and mark the result of test cases on Certification Report.

At the end of the Self Certification and Certification Session the Customer should consolidate the Certification Report and send a copy of it to the testing team at Market-access@borsaitaliana.it

The testing team will verify the reports within 1 -3 business days.

The testing team will then send back the result of test (PASS or FAIL) and the Certification Report for final customer sign-off.

Final sign off by the customer should be sent to Market-access@borsaitaliana.it.

4.3 Certification Instruments

Instruments involved in the various certification test cases are identified as INST1 to INST22. These symbols may refer to any instrument available in the London Stock Exchange test environment. According to the client requirements, the list of instruments to be used may either be formally defined prior to the certification or "on the fly" as the certification goes.

Symbols GRP1 and GRP2 may refer to any instrument group available in the London Stock Exchange test environment. Symbol GRP1 may refer to any strategy instrument group. As for instruments, the list of groups to be used may either be formally defined prior to the certification or "on the fly" as the certification goes, in accordance with the client's requirements

The price and quantity specified in the test case description are indicative.

Customer must follow the prices and quantities accepted for the instrument on which it operates

4.4 Terminology

Term	Definition
Client	Refers to a computer system able to interact with the SOLA 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.

4.5 Administrative Test Cases

4.5.1 Establishing a FIX session

ID #: ADM-01	Type: Administrative	Class: Mandatory	LSEG Assisted: N
Description: Establishing a FIX session.			
Comments:			
Prerequisites			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client:</u> Establishes a FIX session. *Sends a Logon message [MsgType 35=A].*	Logon is accepted and session is established. *A Logon message is sent to the client [MsgType 35=A].*	

4.5.2 Terminating a FIX session

ID #: ADM-02	Type: Administrative	Class: Mandatory	LSEG Assisted: N
Description: Terminating a FIX session.			
Comments:.			
Prerequisites			
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.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client:</u> Enters 3 regular orders for instrument INST1 at 1.00$. *Sends 3 New Order Single messages [MsgType 35=D].*	The 3 orders are accepted and booked. *3 [MsgType 35=8] messages are sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *Three F/FF or H/HF messages are sent.*
2	<u>Client:</u> Disconnecting from BIT. *Sends a Logout message [MsgType 35=5].*	Connection terminated. *Server responds with a Logout message [MsgType 35=5].*	

4.5.3 Restarting a FIX session

ID #: ADM-03	Type: Administrative	Class: Mandatory	LSEG Assisted: N
Description: Restarting a FIX session in recovery.			
Comments:			
Prerequisites			
Executing test cases ADM-01 and ADM-02.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client:</u> Re-Connecting to BIT. *Sends a Logon message [MsgType 35=A].*	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$. *Sends 2 New Order Single messages [MsgType 35=D].*	The 2 orders are accepted and booked. *2 Execution Report messages [MsgType 35=8] are sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *Two F/FF or H/HF messages are sent.*

4.5.4 Heartbeat Exchange

ID #: ADM-04	Type: Administrative	Class: Mandatory	LSEG Assisted: N
Description: Client sends a HeartBeat message.			
Comments: None.			
Prerequisites			
Logon done with HeartBtInt set to some reasonable value (30 secs is the lowest value).			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client:</u> Stops flow of client messages for longer than the HeartBtInt period. *One HeartBeat message is sent [MsgType 35=0].*	A Heartbeat message is received.	

4.5.5 Sending Resend Request

ID #: ADM-05	Type: Administrative	Class: Mandatory	LSEG Assisted: N
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.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Sends 6 orders to be booked. *6 [MsgType 35=D] messages are sent.*	Orders are accepted and booked. *6 Execution Report messages [MsgType 35=8] are sent with [OrdStatus 39=0].*	
2	Client: logs out or cut off the connection. *[MsgType 35=5] message is sent.*	*A [MsgType 35=5] message is sent back.*	
3	Client: Logs on and sends a Resend Request for the 4 last execution reports. *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].*	Logon is accepted and session is re-established. *A Logon message is sent to the client [MsgType 35=A].* *Retransmits 4 requested messages.* *Original messages with [PossdupFlag 43=Y].*	

4.5.6 Sending Defined SenderSubID

ID #: ADM-06	Type: Administrative	Class: Optional	LSEG Assisted: N

Description: Connecting with a SenderCompID and using a defined SenderSubID.

Comments: None.

Prerequisites
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 …

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: Establishes a Fix Session. *Sends a Logon [MsgType 35=A].* *With 49 SenderCompID 49=CMPIDX.*	Logon is accepted and session is established. *A message [MsgType 35=A] is sent to the Client.*	
2	Client: Enters a Sell Market Order for 20 contracts for INST1. *Sends a [MsgType 35=D] with [SenderSubID 56=SBD1].* SenderSubID SBDx is defined.	The order is accepted. *A [MsgType 35=8,* *39=0,* *57=SBDx] is sent.* The order is partially traded. *A [MsgType 35=8] is sent with* *[OrderStatus 39=1 and* *TargetSubID 57=SBD1].*	Quote or Market Depth sent. *A C message is sent.*
3	Client: Cancels the previous order. *Sends a [MsgType 35=F] with [SenderSubID 56=SBD1].*	The remainder of the order is cancelled. *A [MsgType 35=8] is sent with* *[OrderStatus 39=4,* *LeavesQty 151=0 and* *TargetSubID 57=SBD1].*	Quote or Market Depth sent. *An F or H message is sent.*

4.5.7 Sending Undefined SenderSubID

ID #: ADM-07	Type: Administrative	Class: Optional	LSEG Assisted: N
Description: Connecting with a SenderCompID and using an undefined SenderSubID.			
Comments:			
Prerequisites			
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 ….			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Establishes a Fix Session. *Sends a Logon [MsgType 35=A]* *With 49 SenderCompID 49=CMPIDX.*	Logon is accepted and session is established. *A message [MsgType 35=A] is sent to the Client.*	
2	Client: Enters a Sell Market Order for 20 contracts for INST1. *Sends a [MsgType 35=D] with [SenderSubID 56=SBDx].* SenderSubID SBDx is not defined.	The order is accepted. *A [MsgType 35=8,* *39=0,* *57=SBDx] is sent.* The order is partially traded. *A [MsgType 35=8] is sent with* *[OrderStatus 39=1 and* *TargetSubID 57=SBDx].* Default user will be associated with this execution report (SenderCompID=CMPIDX).	Quote or Market Depth sent. *A C/CF message is sent.*
3	Client: Cancels the previous order. *Sends a [MsgType 35=F] with [SenderSubID 56=SBDx].*	The remainder of the order is cancelled. *A [MsgType 35=8] is sent with* *[OrderStatus 39=4,* *LeavesQty 151=0 and* *TargetSubID 57=SBDx].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.5.8 Multiple connections with more than one SenderCompID

ID #: ADM-08	Type: Administrative	Class: Optional	LSEG Assisted: N

Description: Multiple connections with more than one SenderCompID and without SenderSubID.			

| **Comments:** None. ||||

Prerequisites			

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.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client</u>: Establishes 2 Fix Sessions. *Sends a Logon [MsgType 35=A]* *With SenderCompID 49=CMPIDX1.* *Sends a Logon [MsgType 35=A]* *With 49 SenderCompID 49=CMPIDX2.*	Logons are accepted and sessions are established. *A message [MsgType 35=A] is sent to the Client for each logon.*	
2	<u>Client</u>: Enters 2 Sell/Buy Market Orders for 20 contracts for INST1 through each session. *Sends a [MsgType 35=D] with [SenderCompID 49=CMPIDX1 and 49=CMPIDX2].*	Orders are accepted in each session. *2 [MsgType 35=8,* *39=0, 56= CMPIDX1 and CMPIDX2] are sent.* Orders are partially traded. *2 [MsgType 35=8] is sent with* *[OrderStatus 39=1, 56= CMPIDX1 and CMPIDX2].*	Quote or Market Depth sent. *A C/CF message is sent.*
3	<u>Client</u>: Cancels the previous orders. *Sends a [MsgType 35=F] with [SenderCompID 49=CMPIDX1 and 49=CMPIDX2].*	The remainder of each order is cancelled. *A [MsgType 35=8] is sent with [OrderStatus 39=4,* *LeavesQty 151=0 and* *56= CMPIDX1 and CMPIDX2].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6 Order Creation Test Cases

4.6.1 Market Order

ID #: ORD-01	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a Market Top Orderp.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [12@2.00 – 10@2.50]; no other orders must be in the Book. Group for instrument INST1 must be in 'Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Sell Market Order for 20 contracts for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40=1].*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].* Partial/Full Trade. *A [MsgType 35=8] message is sent.*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade is sent. *A C/CF message is sent.*

4.6.2 Limit Order

ID #: ORD-02	Type: Order Creation	Class: Mandatory	LSEG Assisted: N
Description: Entering a Limit Order. The order opens the position.			
Comments: None.			
Prerequisites			
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.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Buy order 15@0.20, Open Position, for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40=2], [OpenClose 77=O].*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=15].* Partial/Full Trade. *A [MsgType 35=8] message is sent.*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade sent. *A C/CF message is sent.*

4.6.3 Passive Limit Order

ID #: ORD-03	Type: Order Creation	Class: Optional	LSEG Assisted: N
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: None.			
Prerequisites			
The market for instrument INST1 must be set to [10@200.00 – 10@201.50]. Group for instrument INST1 must be in 'Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: 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), for instrument INST1 *Sends a [MsgType 35=D] message with [OrdType 40=2], [TimeInForce 59=6], [ExpireDate 432=YYYYMMDD].*	Order is accepted and booked at 201.40 and is good until the date chosen. *A [MsgType 35=8] is sent with [OrdStatus 39=0], [TimeInForce 59=6], [ExpireDate 432=YYYYMMDD].*	

4.6.4 IOC Order

ID #: ORD-04	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering an 'Immediate or Cancel' Order.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [12@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Sell 'Immediate of Cancel' order 10@2.50 for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40=2] and [TimeInForce 59=3].*	Order is matched/cancelled. *A [MsgType 35=8] is sent.*	

4.6.5 House Limit Order

ID #: ORD-05	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a House limit order.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a limit Order Buy 100@2.40, House, for instrument INST1. *Sends a [MsgType 35=D] message with [Rule80A 47=F],[CombinedOrdType 7906=2].*	Order is accepted and booked. *A [MsgType 35=8] is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.6 Limit Order with an Account

ID #: ORD-06	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a limit order with an Account.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a limit Order Sell 40@2.25 with an Account Number, for instrument INST1. *Sends a [MsgType 35=D] message with [Account 1=123A].*	Order is accepted and booked. *A [MsgType 35=8] is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.7 Limit Order with Text

ID #: ORD-07	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a limit order with a Text.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a limit Order Sell 40@2.25 with a Memo, for instrument INST1. *Sends a [MsgType 35=D] message with [Text 58=HelloLSE].*	Order is accepted and booked. *A [MsgType 35=8] is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.8 Trading a Strategy

ID #: ORD-08	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Trading a Strategy (Trade in the strategy book)			
Comments: None.			
Prerequisites			
The instrument INST24 is a strategy and contains 2 legs (spread INST22 – INST23) The market for instrument INST24 must be set to [10@2.00 – 10@2.50]. The market for instrument INST22 (1st leg of spread) must be set to [5@3.20 – 10@3.30]. The market for instrument INST23 (2nd leg of spread) must be set to [10@1.00 – 10@1.10].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a limit Order Sell 10@2.00 for instrument INST24. *Sends a [MsgType 35=D] message, with [SecurityType 167=STR], [ClOrdID 11=abc].*	Order is accepted and booked. *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.* Strategy Trade sent. *A CS message is sent.* *(PriceIndicatorMarker = 'P')* Leg Trades sent *A C/CF message per leg is sent* *(PriceIndicatorMarker = 'P')*

4.6.9 Trading a Strategy against its Leg Markets

ID #: ORD-09	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Trading a Strategy against its leg markets (Implied Trade)			
Comments: None.			

Prerequisites
Instrument INST24 is a strategy (spread INST22 – INST23) with legs INST22 and INST23
The market for instrument INST22 must be set to [10@2.00 – 10@2.50].
The market for instrument INST23 must be set to [5@1.00 – 5@1.50].
The market for the spread INST24 must be set to [15@0.60 – 15@1.60].
The implied market on INST24 is [5@0.50 – 5@1.50].

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client</u>: 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.* *(PriceIndicatorMarker = 'I')* *NOTE:* *For the strategy, no CS message is broadcasted.*

4.6.10 Stop Order

ID #: ORD-10	Type: Order Creation	Class: Optional	LSEG Assisted: N

Description: Entering a Stop Order and being able to handle it when it gets triggered.

Comments: None.

Prerequisites
The INST21 needs to allow Stop Order The market for instrument INST21 must be set to [30@2.00 – 10@2.50]. The last Price or the previous day's close on INST21 must be greater than 2.00.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Sell Stop Order 9@2.00 for instrument INST21, trigger price @2.10. *Sends a [MsgType 35=D] message, with [StopPx 99=2.10] and [OrdType 40=4].*	Order is accepted and booked. *A [MsgType 35=8] message is sent with [OrdStatus 39=0] and [OrdType 40=4].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
2	Client:Enters an order on INST21 to Sell 25@2.00.	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. For the Stop order being triggered: *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrdType 40=2].* For the partial Trade: *A [MsgType 35=8] message is sent with [OrdStatus 39=1].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade sent. *A C/CF message is sent.*

4.6.11 Limit Order with Disclosed Quantity

ID #: ORD-11	Type: Order Creation	Class: Optional	LSEG Assisted: N

Description: Entering a limit order with a Disclosed quantity.

Comments: None.

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)

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a limit Order Buy 30@2.10 with a disclosed quantity of 25 for instrument INST1. *Sends a [MsgType 35=D] message, with [MaxShow 210=25].*	Order is accepted and booked and only 25 contracts are shown. *A [MsgType 35=8] message is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.12 Limit Order with Minimum Quantity

ID #: ORD-12	Type: Order Creation	Class: Optional	LSEG Assisted: N

Description: Entering a limit order with a Minimum quantity.

Comments: None.

Prerequisites

The market for instrument INST1 must be set to [10@2.00 – 10@2.50]

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a limit Order Buy 30@2.10 with a minimum quantity of 10 for instrument INST1. *Sends a [MsgType 35=D] message, with [MinQty 110=10].*	Order is eliminated because there is no volume to fill it at 2.10. *A [MsgType 35=8] message is sent with [OrdStatus 39=4].*	
2	Client: Enters a limit Order Buy 30@2.50 with a minimum quantity of 10 for instrument INST1. *Sends a [MsgType 35=D] message, with [MinQty 110=10].*	Order is traded for 10 and the remainder is booked for 20@2.50. *A [MsgType 35=8] message is sent with [OrdStatus 39=0].* *A [MsgType 35=8] message is sent with [OrdStatus 39=1].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade sent. *A C/CF message is sent.*

4.6.13 Market Top Order at Limit Price

ID #: ORD-13	Type: Order Creation	Class: Mandatory	LSEG Assisted: N

Description: Entering a Market Top Order at limit price.

Comments: None.

Prerequisites
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.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Buy @0.0001 for 20 contracts for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40=2].* Client: Enters a Sell market for 12 contracts for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40=1].*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=20].* Trade 12@0.0001. *A [MsgType 35=8] message is sent with [LastShares 32=12], [LastPx 31=0.0001], [OrdStatus 39=2]*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade is sent. *A C/CF message is sent.*
2	Client: Enters a Sell @99999.5000 for 15 contracts for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40=2].* Client: Enters a Buy market for 15 contracts for instrument INST1. *[MsgType 35=D] with [OrdType 40=1].*	Order is accepted. *[MsgType 35=8] message is sent with [OrdStatus 39=0], [OrderQty 38=15].* Trade 15@99999.5000 *[MsgType 35=8] message is sent with [LastShares 32=12], [LastPx31=99999.5000] [OrdStatus39=2]*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade is sent. *A C/CF message is sent.*

4.6.14 New Order Cross

ID #: ORD-14	Type: Order Creation	Class: Optional	LSEG Assisted: N

Description: Entering a Cross New Order Cross that is accepted and executed.

Comments: None.

Prerequisites
The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book.
Group for instrument INST1 must be in 'Continuous Trading' mode.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enter a New Cross Order for 20 contracts @ 2.50 for instrument INST1. *Sends a [MsgType 35=s] message with [price 44=2.50],* **NoSides 552 = 2],** *and repeating block 2 times:* *Side 54* *ClOrdID 11* *Account 1* *Account Profile 8001* *OpenClose 77* *Text 58* *Rule 80A*	Order is accepted. Trade 20@2.00. *A [MsgType 35=8] message is sent with [OrdStatus 39=2], [OrderQty 38=20].* [LastShares 32=20], [LastPx 31=2.50], [LeavesQty 151=0]. **[NoSides 552 = 2],** **[SpecialTradeInd 9459 =B]** *and repeating block 2 times:* *Side 54* *ClOrdID 11* *Account 1* *Account Profile 8001* *OpenClose 77* *Text 58* *Rule 80A*	Quote or Market Depth sent. *None.* Trade is sent. *A C/CF message is sent.*

4.6.15 New Order Cross - Rejected

ID #: ORD-15	Type: Order Creation	Class: Optional	LSEG Assisted: N

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
The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book.
Group for instrument INST1 must be in 'Continuous Trading' mode.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client</u>: Enter a New Cross Order for 20 contracts @ **3.50** for instrument INST1. *Sends a [MsgType 35=s] message with [price 44=3.50]*, **NoSides 552 = 2**], *and repeating block 2 times:* *Side 54* *ClOrdID 11* *Account 1* *Account Profile 8001* *OpenClose 77* *Text 58* *Rule 80A*	Order is Rejected. Trade 20@2.00. *A [MsgType 35=8] message is sent with* **[ExexType 150=8],** **[Text 58 = Cross order is outside bid/ask price spread],**	*None.*

4.6.16 Committed Order

ID #: ORD-16	Type: Order Creation	Class: Optional	LSEG Assisted: N

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

The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book. Group for instrument INST1 must be in 'Continuous Trading' mode.

#	Test Steps	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. *Sends a [MsgType 35=D] message with [OrdType 40 = C], [price 44=2.50], [Contra Trader 337 =TBD*]*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [ExexType 150=0], [OrderQty 38=20]* *[Contra Trader 337 = TBD*]*	Quote or Market Depth sent. *None.*
2	<u>Client</u>: Enter a New Sell Order for 20 contracts @ 2.50 for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40 = C], [price 44=2.50], [Contra Trader 337 =same as step 1*]*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ExexType 150=2], [OrderQty 38=20]* *[Contra Trader 337 = same as step 1*]*	Quote or Market Depth sent. *None.* Trade is sent. *A C/CF message is sent.*

4.6.17 Committed Order - Rejected

ID #: ORD-17	Type: Order Creation	Class: Optional	LSEG Assisted: N

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

The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book.

Group for instrument INST1 must be in 'Continuous Trading' mode.

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: Enter a New Buy Order for 20 contracts @ 2.50 for instrument INST1. *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)*	Order is rejected. *A [MsgType 35=8] message is sent with [ExexType 150=8], [Text 58 = Opposite firm must be filled for committed order]*	Quote or Market Depth sent. *None.*

4.6.18 Committed Order Strategy

ID #: ORD-18	Type: Order Creation	Class: Optional	LSEG Assisted: N

Description: Entering a New Committed Order on a strategy

Comments: None.

Prerequisites

The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book.

Group for instrument INST1 must be in 'Continuous Trading' mode.

Instrument must have underlying: ENI (on IDEM), SBER (on LSEDM), SCH or EUI (on Curve)

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.	Orders are accepted and booked and spread is created.	Quote or Market Depth sent. *An F/FF or H/HF message is sent*
2	Client: Enters two regular Buy/Sell orders in order to create a spread for instrument INST2	Orders are accepted and booked and spread is created.	Quote or Market Depth sent. *An F/FF or H/HF message is sent*
3	Client: Send a message using instrument INST1 and INST2 for creating a strategy STRAT1		

4	Client: Enters a committed order within the spread specifying as counter party BIT	Order is accepted and traded.	Trade message is sent. *C<> message is sent* with Price Indicator Marker = "T"

4.6.19 Matched Principal Order

ID #: ORD-19	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a Limit order with account type Matched Principal.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50]. The trader ID must be granted for the account MP			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Buy Limit Order 100@2.40, Matched Principal for the instrument INST1. *Sends a [MsgType 35=D] message with [Rule80A 47=B],*	Order is accepted and booked. *A [MsgType 35=8] is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.20 Market Maker Limit Order

ID #: ORD-20	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a Limit order with account type Market Maker.			
Comments: Not supported on IDEM			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50]. The trader ID must be granted for the account Market Maker			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a Buy Limit Order 100@2.40, with Account Market Maker for the instrument INST1. *Sends a [MsgType 35=D] message with [Rule80A 47=P],*	Order is accepted and booked. *A [MsgType 35=8] is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.21 Best Price Setter

ID #: ORD-21	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a limit order that becomes a best price setter.			
Comments: Not supported on IDEM			
Prerequisites			
Book is empty for the Series			

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: Enters an order on a Series *Sends a [MsgType 35=D] message.*	Order is accepted. *A [MsgType 35=8] is sent with [OrdStatus 39=0] and [BestPriceSetter 16455=1]*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.6.22 Deferred Cross Order

ID #: ORD-22	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Deferred Publication for Cross Orders.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book. Group for instrument INST1 must be in 'Continuous Trading' mode. **Cross volume/value would respect the Post Trade LIS Value and Volume (please refer to Market Access Italy to know these thresholds)**			

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	<u>Client</u>: Enter a New Cross Order *Sends a [MsgType 35=s] message with* **[TradePublishIndicator 1390=2].** **NoSides 552 = 2]**, *and repeating block 2 times:* *Side 54* *ClOrdID 11* *Account 1* *Account Profile 8001* *OpenClose 77* *Text 58* *Rule 80A*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=2],* **[TradePublishIndicator 1390=2].** **[NoSides 552 = 2]**, **[SpecialTradeInd 9459 =B]** *and repeating block 2 times:* *Side 54* *ClOrdID 11* *Account 1* *Account Profile 8001* *OpenClose 77* *Text 58* *Rule 80A*	Quote or Market Depth sent. *None.* Trade is sent. *A C/CF message is sent at the end of day*

4.6.23 Deferred Committed Order

ID #: ORD-23	Type: Order Creation	Class: Optional	LSEG Assisted: N

Description: Deferred Publication for Committed Order (interbank)

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
The market for instrument INST1 must be set to [100@2.00 – 100@3.00]; no other orders must be in the Book.   Group for instrument INST1 must be in 'Continuous Trading' mode.   **Cross volume/value would respect the Post Trade LIS Value and Volume (please refer to Market Access Italy to know these thresholds)**

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enter a New Buy Order for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40 = C], [Contra Trader 337 =TBD*]* *[TradePublishIndicator 1390=2].*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [ExexType 150=0], [TradePublishIndicator 1390=2].* *[Contra Trader 337 = TBD*]*	Quote or Market Depth sent. *None.*
2	Client: Enter a New Sell Order for instrument INST1. *Sends a [MsgType 35=D] message with [OrdType 40 = C], [Contra Trader 337 =same as step 1*]* *[TradePublishIndicator 1390=2].*	Order is accepted. *A [MsgType 35=8] message is sent with [OrdStatus 39=2], [ExexType 150=2]* *[Contra Trader 337 = same as step 1*]* *[TradePublishIndicator 1390=2].*	Quote or Market Depth sent. *None.* Trade is sent. *A C/CF message is sent at the end of trading day.*

4.7 Order Cancellation Test Cases

4.7.1 Order Cancellation

ID #: CXL-01	Type: Order Cancellation	Class: Mandatory	LSEG Assisted: N

Description: Cancelling an order			
Comments: None.			

Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client</u>: Enters a regular Buy Order 10@2.20 for instrument INST1. *Sends a [MsgType 35=D] message.*	Order is accepted and booked. *One [MsgType 35=8] message is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
2	<u>Client</u>: Cancels the previous order. *Sends a [MsgType 35=F] message.*	The remainder of the 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.*

4.7.2 Cancelling Partially Filled Order

ID #: CXL-02	Type: Order Cancellation	Class: Mandatory	LSEG Assisted: N

Description: Cancelling a partially filled order.			
Comments: None.			

Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client</u>: Enters a regular Buy Order 60@2.50 for instrument INST1. *Sends a [MsgType 35=D] message.*	Order is accepted and booked. *One [MsgType 35=8] message is sent with [OrdStatus 39=0].* Trade 10@2.50. *One [MsgType 35=8] message is sent with [OrdStatus 39=1] and [LeavesQty 151=50].*	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>: Cancels the previous order. *Sends a [MsgType 35=F] message.*	The remainder of the order is cancelled. *One [MsgType 35=8] message is sent with [OrdStatus 39=4], [OrderQty 38=30] and [LeavesQty 151=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.7.3 Order Cancellation by Market Operations

ID #: CXL-03	Type: Order Cancellation	Class: Mandatory	LSEG Assisted: Y
Description: Order cancellation by the Market Operation Center.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a regular Buy Order 60@2.50 for instrument INST1. *Sends a [MsgType 35=D] message.*	Order is accepted and booked. *One [MsgType 35=8] message is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
2	BIT: Cancels the previous order.	The remainder of the order is cancelled. *One [MsgType 35=8] message is sent with [OrdStatus 39=M].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*

4.8 Order Modification Test Cases

4.8.1 Modifying Price of an Order

ID #: MOD-01	Type: Order Modification	Class: Mandatory	LSEG Assisted: N
Description: Modifying the price of an order.			
Comments: None.			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 – 10@2.50]			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a regular Sell Order 2000@2.25. *Sends a [MsgType 35=D] message [Price 44=2.25].*	Order is accepted and booked at 2.25. *One [MsgType 35=8] message is sent with [OrdStatus 39=0], [Price 44=2.25].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
2	Client: Modifies the previous order 2000@2.20. *Sends a [MsgType 35=G] message [Price 44=2.20].*	Modification is accepted and the price of the order is now 2.20. *One [MsgType 35=8] message is sent with [OrdStatus 39=5], [Price 44=2.20].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
3	Client: 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.*

4.8.2 Modifying Quantity of an Order

ID #: MOD-02	Type: Order Modification	Class: Mandatory	LSEG Assisted: N
Description: Modifying the quantity of an order.			
Comments: None.			
Prerequisites			
1. The market for instrument INST1 must be set to [10@2.00 – 10@2.50]			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters a regular Sell Order 1@2.25. *Sends a [MsgType 35=D] message [OrderQty 38=1].*	Order is accepted and booked at 1@2.25. *One [MsgType 35=8] message is sent with [OrdStatus 39=0] and [OrderQty 38=1].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
2	Client: Modifies the previous order 20@2.25. *Sends a [MsgType 35=G] message [OrderQty 38=20].*	Modification is accepted and the quantity is now 20. *One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=20].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
3	Client: 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.*

4.8.3 Modifying Quantity and Price of Order

ID #: MOD-03	Type: Order Modification	Class: Mandatory	LSEG Assisted: N

Description: Modifying the quantity and the price (decreasing) of a partially filled order.			

Comments: None.			

Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50]			

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: 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	Client: Modifies the previous order 15@2.25/2.75. *Sends a [MsgType 35=G] message [OrderQty 38=15], [Price 44=2.25/2.75].*	Modification is accepted and the order is now booked 15@2.25/2.75. *One [MsgType 35=8] message is sent with [OrdStatus 39=5], [OrderQty 38=15], [Price 44=2.25/2.75].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
3	Client: 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.*

4.8.4 Modifying a previously modified order

ID #: MOD-04	Type: Order Modification	Class: Mandatory	LSEG Assisted: N

Description: Modifying an order that has been previously modified and partially filled.			

Comments: None.			

Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50]			

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: 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.*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.* Trade sent. *A C/CF message is sent.*

#		Test Steps	Expected Results		Market Information
2		Client: 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].*		Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
3		Client: 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=5], [OrderQty 38=21], [Price 44=2.40].*		Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
4		Client: 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.*

4.9 Indication of Interest to Trade Test Cases

4.9.1 Indication of Interest to Trade

ID #: IIT-01	Type: Request for Quote	Class: Mandatory	LSEG Assisted: N
Description: Sending an Indication of Interest to Trade message (previously known as Request for Quote).			
Comments: None.			
Prerequisites			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters an Indication of Interest to Trade for the instrument INST1 for any quantity. Sends a [MsgType 35=R] message.	Indication of Interest to Trade message is received and dispatched to external participants. A [MsgType 35=b] message is sent to client.	Indication of Interest to Trade sent. A D/DF message is sent.

4.10 Trade Management Test Cases

4.10.1 Multiple Fills

ID #: TRD-01	Type: Trade Management	Class: Mandatory	LSEG Assisted: Y
Description: Handling many fills for the same order.			
Comments: None.			
Prerequisites			
The market for instrument INST1 must be set to [12@2.00 – 10@2.50]. Group for instrument INST1 must be in 'Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client</u>: Enters an order on instrument INST1 to Sell 75@2.40. *Sends a [MsgType 35=D] message.*	Order is accepted. *A [MsgType 35=8] is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An F/FF or H/HF message is sent.*
2	<u>BIT</u>: Enters 10 Buy orders for instrument INST1 2@MKT , 3@MKT, 4@MKT, 5@MKT 6@MKT , 7@MKT, 8@MKT, 9@MKT 10@MKT, 11@MKT.	10 Trades: 2@2.40, 3@2.40, 4@2.40, 5@2.40, 6@2.40, 7@2.40, 8@2.40, 9@2.40, 10@2.40, 11@2.40. *Ten (10) [MsgType 35=8] messages are sent. The last one with [LeavesQty 151=10].* Market for instrument INST1 is now [12@2.00 – 10@2.40].	Trade sent. *A C/CF message is sent for each trade.*

4.10.2 Unsolicited Trade Cancellations

ID #: TRD-02	Type: Trade Management	Class: Optional	LSEG Assisted: Y
Description: Handling Trade cancellation from Market Operation Center (MOC).			
Comments: None.			
Prerequisites			
Execution of Test Case TRD-01.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>BIT</u>: Cancelling the first and the last Trades from Test Case TRD-01 (2@2.40 and 11@2.40).	The 2 trades are cancelled. *Two (2) [MsgType 35=8] messages are sent with [ExecTransType 20=1], [OrdStatus 39=4], [ExecType 150=4].*	Trade Cancellation and Summary. *Two (2) I/IF an N/NF messages are sent.*

4.10.3 Unsolicited Trade Cancellation on a Strategy

ID #: TRD-03	Type: Order Creation	Class: Optional	LSEG Assisted: Y

Description: Handling a Trade Cancellation on a Strategy from Market Operation Center (MOC).

Comments: None.

Prerequisites
The market for instrument INST22 must be set to [10@2.00 – 10@2.50].
Strategy is a spread (2 legs)

#	Test Steps	Expected Results	
		Order Entry – FIX	Market Information - HSVF
1	Client: Enters a limit Order Sell 20@2.55 for instrument INST22. *Sends a [MsgType 35=D] message, with [SecurityType 167=STR].*	Order is accepted and booked. *A [MsgType 35=8] message is sent with [OrdStatus 39=0].*	Quote or Market Depth sent. *An FS or HS message is sent.*
2	Client: Enters a limit Order Buy 20@2.55 for instrument INST22. *Sends a [MsgType 35=D] message, with [SecurityType 167=STR], [ClOrdID 11=abc].*	Order is accepted and booked. *A [MsgType 35=8] message is sent with [OrdStatus 39=0], [ClOrdID 11=abc].* An execution report for the Strategy trade 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 Trade 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.* Strategy Trade sent. *A CS message is sent.*
3	BIT: 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: *A [MsgType 35=8] message is sent with [OrdStatus 39=4], [ClOrdID 11=abc] MultipleReportingType 442=2* An execution report for the Strategy Trade cancellation is sent. *A [MsgType 35=8] message is sent with [OrdStatus 39=4], [ClOrdID 11=abc] MultipleReportingType 442=3*	Trade Cancellation and Summary. *Two (2) I/IF an N/NF messages are sent.*

4.10.4 Trade Amend

ID #: TRD-04	Type: Trade Management	Class: Optional	LSEG Assisted: Y
Description: Handling manual trade amend			
Comments: None.			
Prerequisites			
Execution of Test Case TRD-01.			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>BIT</u>: Manually amends price and quantity of the first trade from Test Case TRD-01 (2@2.40).	The trade is amended. *Two (2) [MsgType 35=8] messages are sent: the first one is sent with [ExecTransType 20=1], [OrdStatus 39=4], [ExecType 150=4, [CancellationAndAmendments 847=1]; the second one is sent with ExecTransType 20=0], [OrdStatus 39=0], [ExecType 150=0], [CancellationAndAmendments 847=2];*	Cancellation and Summary. *An I/IF an N/NF messages are sent.* New Trade sent. *A C/CF message is sent* *PTT Cancellation and Amendments=A*

4.10.5 Manual Trade Acceptance

ID #: TRD-05	Type: Order Creation	Class: Optional	LSEG Assisted: N
Description: Entering a Cross New Order Cross that is accepted and executed.			
Comments: currently not supported on IDEM.			
Prerequisites			
INST1 has to support Manual Trade Acceptance			

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Enters two regular Buy/Sell orders in order to create a spread for instrument INST1. Sends *two [MsgType 35=D] messages*	Orders are accepted and booked and spread is created. *Two [MsgType 35=8] messages are sent with [OrdStatus 39=0]*	
	Client: Enters two cross orders within the spread with the same quantity and price *Sends two [MsgType 35=s] message*	Order is accepted and traded. *Two [MsgType 35 = 8] are sent*	
	BIT: Manually Accept the trade	The trade is accepted	

4.11 User Flexible Combination (FLEXCO) Creation Request Test Cases

4.11.1 FLEXCO Strategy Creation

ID #: FLX-01	Type: FLEXCO Creation	Class: Optional	LSEG Assisted: N
Description: New FLEXCO Strategy Creation Request Accepted			
Comments: None.			

Prerequisites
Strategy format (example Price Spread) is configured as a permitted FLEXCO at the exchange.
Strategy Group and Leg group are both in a group state of Continuous Trading.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Sends ON message specifying the number of legs (must be 2), group, instrument IDs, verb and ratio for each individual leg. *Sends a [Msg Type 35=c], with [security Type 167= "STR", Security Request Type 321 ="1", NoRelatedSym 146 ="2" and repeating block: Strategy Leg Symbol 311 Strategy leg Security Type 310 Strategy leg Maturity date 313 Strategy leg Maturity Day 314 Strategy leg Put or Call 315 Strategy leg Strike Price 316 Strategy leg Ratio 319 Side 54]*	Strategy Creation Request is accepted. *Sends a [Msg Type 35=d], with [security Response Type = "1", external Symbol 55 and repeating block: Strategy Leg Symbol 311 Strategy leg Security Type 310 Strategy leg Maturity date 313 Strategy leg Maturity Day 314 Strategy leg Put or Call 315 Strategy leg Strike Price 316 Strategy leg Ratio 319 Side 54]*	*JS/NS/HS are all broadcasted in consecutive order with the status marker in the HS message = "T".*

4.11.2 FLEXCO Strategy Modification

ID #: FLX-02	Type: FLEXCO Creation	Class: Optional	LSEG Assisted: N

Description: FLEXCO Strategy Creation Request Accepted with Modification

Comments: A way to obtain 'accept with modification' is to d**ouble** 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
Strategy format (example Price Spread) is configured as a permitted FLEXCO at the exchange.
Strategy Group and Leg group are both in a group state of Continuous Trading.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	<u>Client:</u> Send ON message specifying the number of legs (must be 2), group, instrument IDs, verb and ratio for each individual leg. *Sends a [Msg Type 35=c], with [security Type 167= "STR", Security Request Type 321 ="1", NoRelatedSym 146 ="2" and repeating block: Strategy Leg Symbol 311 Strategy leg Security Type 310 Strategy leg Maturity date 313 Strategy leg Maturity Day 314 Strategy leg Put or Call 315 Strategy leg Strike Price 316 Strategy leg Ratio 319 (see above comments) Side 54]*	Strategy Creation Request is accepted. *Sends a [Msg Type 35=d], with [security Response Type = "2", external Symbol 55 and repeating block: Strategy Leg Symbol 311 Strategy leg Security Type 310 Strategy leg Maturity date 313 Strategy leg Maturity Day 314 Strategy leg Put or Call 315 Strategy leg Strike Price 316 Strategy leg Ratio 319 Side 54]*	*JS/NS/HS are all broadcasted in consecutive order with the status marker in the HS message = "T".*

4.11.3 FLEXCO Strategy Rejection

ID #: FLX-03	Type: FLEXCO Creation	Class: Optional	LSEG Assisted: N

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
Strategy format (example Price Spread) is configured as a permitted FLEXCO at the exchange. Strategy Group and Leg group are both in a group state of Continuous Trading.

#	Test Steps	Expected Results	
		Order Entry – FIX	**Market Information - HSVF**
1	Client: Send ON message specifying the number of legs (must be 2), group, instrument IDs, verb and ratio for each individual leg. *Sends a [Msg Type 35=c], with [security Type 167= "STR", Security Request Type 321 ="1", NoRelatedSym 146 ="2"* *and repeating block:* *(see comments above)* *Strategy Leg Symbol 311* *Strategy leg Security Type 310* *Strategy leg Maturity date 313* *Strategy leg Maturity Day 314* *Strategy leg Put or Call 315* *Strategy leg Strike Price 316* *Strategy leg Ratio 319* *Side 54]*	Strategy Creation Request is accepted. *Sends a [Msg Type 35=j], with [Business Reject Reason 380 = "2", and Text 58 = "Invalid Leg Information"*	*none*

4.12 Bundle Order Test Cases

4.12.1 Bundle Order against Different Counterparties

ID #: BO-01	Type: Bundle Order	Class: Optional	LSEG Assisted: Y
Description: Multiple Bundle Order against different Counterparties completed successfully			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.			
The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.			
Group for instrument INST1 and INST2 must be in _Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Client AE: Trade Capture Report (AE) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	Proposal Type= B: Bundle Order	
2	Exchange: Proposal Acceptance with Trade Capture Report Acknowledgment (AR)		
3	Client	Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted. AE: Trade Capture Report is received	
4		35=8	Trade price is updated for INST1 and INST2

4.12.2 Bundled Order Automatically Cancelled

ID #: BO-02	Type: Bundle Order	Class: Optional	LSEG Assisted: N
Description: BO automatic cancellation at market closure (expiry)			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.			
The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.			
Group for instrument INST1 and INST2 must be in _Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Client AE: Trade Capture Report (AE) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	Proposal Type= B: Bundle Order	*none*
2		<At market closure, but all confirmed legs will be removed.	

4.12.3 Unsolicited Bundle Order Proposal message

ID #: BO-03	Type: Bundle Order	Class: Mandatory	LSEG Assisted: Y
Description: unsolicited Bundle Order proposal sent from the Exchange to the Clients. Clients have to confirm to manage AE with Proposal type: B			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.			
The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.			
Group for instrument INST1 and INST2 must be in _Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Exchange: generates the AE =Trade Capture Report Client: Receive the AE Proposal Type= B: Bundle Order	Client AE: Trade Capture Report (AE) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	*none*

4.12.4 Deferred Bundle Order

ID #: BO-04	Type: Bundle Order	Class: Optional	LSEG Assisted: Y

Description: Deferred Publication for Bundle Orders			

Prerequisites

The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.

The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.

Group for instrument INST1 and INST2 must be in ‚Continuous Trading' mode.

The volume/value of each leg would respect the Post Trade LIS Value and Volume (please refer to Market Access Italy to know these thresholds)

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	Market Information - HSVF
1	Client AE: Trade Capture Report (AE) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2 *Sends a [MsgType 35=AE] message, with [TradePublishIndicator 1390=2].*	Proposal Type= B: Bundle Order	
2	Exchange: Proposal Acceptance with Trade Capture Report Acknowledgment (AR)		
3	Client	Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted. AE: Trade Capture Report is received	
4		Execution report *[MsgType 35=8] message with [TradePublishIndicator 1390=2].*	Trade price is updated for INST1 and INST2

4.13 Third Party Trades Test Cases

4.13.1 Third Party Trades

ID #: TPT-01	Type: Third Party Trades	Class: Optional	LSEG Assisted: Y
Description: Multiple Third Party Trades against different Counterparties completed successfully			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book. Group for instrument INST1 must be in ‚Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Client AE: Trade Capture Report Order (AE) on INST1 specifying Exchange counterparty1 and counterparty2	Proposal Type= T: Inter Dealer Broker Order	*none*
2	Exchange: Proposal Acceptance with Trade Capture Report Acknowledgment (AR)		
3	Client	Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted. AE: Trade Capture Report is received	
4		35=8	Trade price is updated for INST1

4.13.2 Third Party Trade Automatically Cancelled

ID #: TPT -02	Type: Third Party Trades	Class: Optional	LSEG Assisted: N
Description: BO automatic cancellation at market closure (expiry)			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book. Group for instrument INST1 must be in ‚Continuous Trading' mode.			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Client AE: Trade Capture Report Order (AE) on INST1 specifying Exchange counterparty1 and counterparty2	Proposal Type= T: Inter Dealer Broker Order	*none*
2		<At market closure, but all confirmed legs will be removed.	

4.13.3 Unsolicited Third Party Trade message

ID #: TPT-03	Type: Third Party Trades	Class: Mandatory	LSEG Assisted: Y
Description: unsolicited Third Party message sent from the Exchange to the Clients. Clients have to confirm to manage AE with Proposal type: T			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book. Group for instrument INST1 must be in ˍContinuous Trading' mode.			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Exchange: generate the AE Trade Capture Report Client: Receive a Third Party Trade message	Client receive the AE: Trade Capture Report is received ProposalType: T: Inter Dealer Broker Order	*none*

4.14 Drop Copy - FIX

ID #: DC-01	Type: Drop-Copy	Class: Optional	LSEG Assisted: N
Description: It allows customers to manage orders entered by other traders in the firm			
Prerequisites			
1. Customer must connect two users: One normal order routing user; One Drop Copy user;			

#	Test Steps	Expected Results	
		Trading Engine Responses – FIX	**Market Information - HSVF**
1	Client: Drop Copy user Logon (35=A)	Successful Logon *[Logon 35=A]*	None
2	- Insert 3 orders with OR/FX user; - Modify an order with OR/FX user; - Cancel an order with OR/FX user.	- Orders are booked; - Modified Order is booked; - Order is cancelled.	
3		Drop Copy user to receive Execution Reports of all order acknowledgements *Sends Execution Reports [35=8]*	

Certification Guide

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