

# **SOLA DERIVATIVES**

Guide to Certification (SAIL)

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**BORSA ITALIANA**

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# 1. INTRODUCTION

## Purposes

The purpose of this document is to provide customers with a detailed overview of the Certification service across Borsa Italiana.

- 1.1 The SAIL 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 SOLA Access Information Language (SAIL) Protocol.

## Readership

- 1.2 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	Review
1.2	16/03/2016	Annual Certification procedure and contacts
1.3	23/01/2017	Certification Test Scenarios: 4.7.34; 4.9.36; 4.17.3; 4.19; 4.20.
1.4	15/03/2017	Review Certification Test Scenarios
1.5	16/08/2017	Review Certification Test Scenarios New Test cases: ORD-29, ALR-02, TRD04, TRD-05 Certification policy updated New Passport policy

<b>1.6</b>	05/08/2017	Certification policy updated Review Certification Test Scenarios New Test cases: ORD-30, ORD-31, BUQ-04a, BUQ-04b, BUQ-04c
<b>1.7</b>	12/03/2018	Review of test cases ORD-24 and ORD-26 ORD-25 and ORD-27 have been modified according to the new Deferred Publication functionality New test case: BO-06
<b>1.8</b>	26/06/2019	Rebranding
<b>1.9</b>	26/06/2019	SOLA Version update
<b>2.0</b>	16/09/2019	SOLA Version update
<b>2.1</b>	28/12/2020	SOLA Version update New Test cases: ORD-32, ORD-33, ORD-34
<b>2.2</b>	29/04/2021	Euronext Rebranding

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 if you have any functional questions about SOLA derivatives services outlined in this document.

- Phone: 0039 02 72426668
- Email: [market-access@borsaitaliana.it](mailto:market-access@borsaitaliana.it)

## 2. CERTIFICATION PROGRAMME

The Certification Programme is based on regulatory compliance.

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

Under EU and national regulatory requirements (including the ESMA Guidelines on Systems and Controls in a Highly Automated Trading Environment) the eligible Borsa Italiana 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.

Customers not compliant 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 Borsa Italiana 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's 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



## Certification Policy

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

- 2.4.
- ✓ Prior to use the application in the live environment (for new applications);
  - ✓ The customer modifies the software in any way that directly impacts Borsa Italiana 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 team that look after certifications) that no changes have been applied to the application since the last certification

## Test Scenario Exception Policy

2.5.

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.

## 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

2.7. has been re-certified and the non-conformant behaviour corrected.

## 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**

## Test Charges

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

2.8.

## 3. CERTIFICATION PROCESS

The Certification Process is an integral part of the Certification Programme.

Mandatory testing will be required for all applications connecting to the production environment and mandatory functions must 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** team to provide the software name and version to be certified
- 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.

### 3.1. Before Taking the Test

The Market Access team 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

3.2. 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 when this step 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 Market Access Analyst.

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 Market Access Analyst. The email should be addressed to **market-access@borsaitaliana.it**

## After the Test

3.3 After the test a Market Access Analyst 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, the 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. CERTIFICATION TEST SCENARIOS

## 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

Customers must perform all 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 Market Access team to confirm a pass or fail.

Prior to the report being run the customer will be required to confirm 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.

## Submitting execution report and notifying result

4.2. 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 Market Access team at **market-access@borsaitaliana.it**

The testing team will verify the reports within 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**.

## Certification Instruments

4.3.

Instruments involved in the various certification test cases are identified as INST1 to INST22. These symbols may refer to any instrument available in Borsa Italiana 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 Borsa Italiana 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.

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

## Terminology

Term	Definition
<b>Client</b>	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.
<b>Instrument</b>	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.
<b>Instrument group</b>	Refers to all instruments with the same underlying.

## Technical Test Cases

### 4.5.1. Establishing a SAIL session

4.5	<b>ID #:</b> TEC-01	<b>Type:</b> Technical	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Establishing the first SAIL connection of a trading session.				
<b>Comments:</b> First Time User Connection (Message Type TC).				
<b>Prerequisites</b>				
None.				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	Client: Connects to SOLA.  Sends a TC message. [Exchange Message ID: 0]	Connection established.  Sends a TK message [User sequence ID: 0 ]		
2		Sends a Heartbeat message question.  Sends a TH message		
3	Client: Sends a Heartbeat response within the specified timeframe [Inactivity Interval] value sent in the connection message (TC).  Sends a TI message			

## 4.5.2. Terminating a SAIL session

<b>ID #:</b> TEC-02	<b>Type:</b> Technical	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Terminating a SAIL session			
<b>Comments:</b> User's Disconnection Request (Message Type TD)			
<b>Prerequisites</b>			
Execution of test case TEC-01			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Disconnects from SOLA. Sends a TD message	Connection is terminated. Sends a TL message	

## 4.5.3. Restarting a SAIL session

<b>ID #:</b> TEC-03	<b>Type:</b> Technical	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> User Reconnection during the session – Retransmission from next message.			
<b>Comments:</b> User Reconnection (Message Type TC)			
<b>Prerequisites</b>			
Execution of test cases TEC-01 and TEC-02			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Reconnects to SOLA.	Sends an arbitrary number of messages	



	Sends a TC message with a blank Exchange Message ID: [Exchange message ID: " "]	and the connection is re-established. Sends a TK message: [User sequence ID != next expected User sequence ID]	
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#### 4.5.4. Disconnection Instruction Management – Exchange Disconnection

<b>ID #:</b> TEC-04	<b>Type:</b> Technical	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Disconnection Instruction Management – Disconnection by Exchange; outstanding quotes are cancelled.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
None.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Connects to SOLA. <i>Sends a TC message:</i> <i>[Exchange Message ID: 0]</i> <i>[Inactivity Interval: 1]</i>	Connection established. <i>Sends a TK message</i>	
2	<u>Client:</u> Active Y(ON)		
3	<u>Client:</u> Specifies disconnection instructions. <i>Sends a TA message:</i> <i>[Disconnection Instruction: Q]</i>	Disconnection Instruction is accepted. <i>Sends a TM message</i>	
4	<u>Client:</u> Sends a few quotes. <i>Sends several Q&lt;i&gt; messages</i>	Quotes are accepted. <i>Sends several LA messages</i>	Quote or Market Depth sent. <i>Several /FFF or H/HF messages are sent.</i> <i>For strategy: Several FS or HS message are sent</i>

<p>5</p>	<p><u>Client:</u> Stops flow of client messages for longer than the "Inactivity Interval" period defined in the TC message of this connection.</p>	<p>SOLA disconnects client and cancels all outstanding quotes.</p>	<p>Quote or Market Depth sent.  <i>Several F/FF or H/HF messages are sent.</i>  <i>For strategy: Several FS or HS message are sent</i></p>
<p>6</p>	<p><u>Client:</u> Reconnects and receives missed messages.  <i>Sends a TC message:</i>  <i>[Exchange message ID: " "]</i></p>	<p>Connection accepted.  <i>Sends a TK message</i>          Quotes cancellation notice is sent.  <i>Sends an KG message</i></p>	

#### 4.5.5. Disconnection Instructions Management – Client Disconnection

<b>ID #:</b> TEC-05	<b>Type:</b> Technical	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Disconnection Instruction Management – Disconnection by Client; outstanding quotes are cancelled.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
None.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Specifies disconnection instructions.  <i>Sends a TA message:</i> <i>[Disconnection Instruction: Q]</i>	Disconnection Instruction is accepted.  <i>Sends a TM message</i>	
2	<u>Client:</u> Active Y(ON)		
3	<u>Client:</u> Sends a few quotes.  <i>Sends several Q&lt;i&gt; messages</i>	Quotes are accepted.  <i>Sends several LA messages</i>	
4	<u>Client:</u> Disconnects.  <i>Sends a TD message</i>	Disconnection is accepted.  <i>Sends a TL message</i>  All outstanding quotes are cancelled.	Quote or Market Depth sent.  <i>Several /FFF or H/HF messages are sent.</i>  <i>For strategy: Several FS or HS message are sent</i>
5	<u>Client:</u> Reconnects and receives missed messages.  <i>Sends a TC message:</i>	Connection accepted.  <i>Sends a TK message</i>	

	[Exchange message ID: " "]	Quotes cancellation notice is sent. <i>Sends an KG message</i>	
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#### 4.5.6. Disconnection Instruction Management – Quotes not Cancelled

<b>ID #:</b> TEC-06	<b>Type:</b> Technical	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Disconnection Instruction Management – Disconnection by Client; outstanding quotes are not cancelled			
<b>Comments:</b> Instruction to cancel quotes is removed			
<b>Prerequisites</b>			
Execution of test case TEC-05			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Specifies disconnection instructions. <i>Sends a TA message:</i> [Disconnection Instruction: Q]	Disconnection Instruction is accepted. <i>Sends a TM message</i>	
2	<u>Client:</u> Active N(OFF)		
3	<u>Client:</u> Sends a few quotes. <i>Sends several Q&lt;i&gt; messages</i>	Quotes are accepted. <i>Sends several LA messages</i>	Quote or Market Depth sent. <i>Several F/FF or H/HF messages are sent.</i> <i>For strategy: Several FS or HS message are sent</i>
4	<u>Client:</u> Disconnects.	Disconnection is accepted; outstanding	

	<i>Sends a TD message</i>	quotes are not cancelled. <i>Sends a TL message</i>	
5	<u>Client</u> : Reconnects. <i>Sends a TC message</i>	Connection is accepted. <i>Sends a TM message</i>	

#### 4.5.7. Sequence Resynchronization

<b>ID #:</b> TEC-07	<b>Type:</b> Technical	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Re-synchronization from out of sequence situation.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
Client must be disconnected.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> : Connects to SOLA <i>Sends a TC message:</i> <i>[Exchange Message ID: 0]</i>	Connection established. <i>Sends a TK message</i>	
2	<u>Client</u> : Sends an order or a quote. <i>[User Sequence ID: z]</i>	Message is out of sequence. Client is disconnected. Client must reconnect. <i>Sends a TO message:</i> <i>[Received User Sequence ID: z]</i> <i>[Expected User Message ID: x ]</i>	

3	<u>Client</u> : Reconnects. <i>Sends a TC message</i>	Re-connection and Disconnection Instructions are accepted. <i>Sends a TK</i>	
4	<u>Client</u> : Sends an order or a quote. <i>[User Sequence ID: x]</i>	Message is in sequence. Order or quote is accepted.	

#### 4.5.8. End of Transmission

<b>ID #:</b> TEC-08	<b>Type:</b> Technical	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> End of Transmission			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
Execution of test case TEC-01			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>BIT</u> : Sends an End of Transmission message at the end of the trading day.  Restart SAIL Front End gateway.	<i>Sends a TT message</i>	

## Unsolicited Service Test Cases

### 4.6.1. Group Status Change Notification

4.6	<b>ID #:</b> UNS-01	<b>Type:</b> Unsolicited Services	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Group State Change Notification				
<b>Comments:</b> None.				
<b>Prerequisites</b>				
Choose a Group and change the status of the group.				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	Client: Is connected and has requested to receive NG message type.			
2		Sends an NG message when an instrument group change from pre-opening** to Continuous Trading	Group Status Updated. A GR message is sent	



## 4.6.2. Instrument State Change Notification

<b>ID #:</b> UNS-02	<b>Type:</b> Unsolicited Services	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Instrument State Change Notification			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
Choose an instrument and change the status of the instrument.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Is connected and has requested to receive NI message type.		
2		Sends an NI message when an instrument group change from pre-opening** to Continuous Trading	Quote or Market Depth sent. An F/FF or H/HF message is sent For strategy: FS or HS message is sent

## 4.6.3. Bulletin Message

<b>ID #:</b> UNS-03	<b>Type:</b> Unsolicited Services	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Bulletin message (Market Supervision message) sent from			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
MOC enters a bulletin to be disseminated to market participants			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Is connected on HSVF		
2	BIT: sends a bulletin messages to the clients		Bulletin message. An L message is sent

## Order Creation Test Cases

### 4.7.1. Market Top order

4.7	<b>ID #: ORD-01</b>	<b>Type: Order Creation</b>	<b>Requirement: Optional</b>	<b>Co-ordinated Test: N</b>	
<b>Description:</b> Entering a Market Top order.					
<b>Comments:</b> None.					
<b>Prerequisites</b>					
The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@2.50]; no other orders must be in the book.					
2. Group for instrument INST1 must be in 'Continuous Trading' mode.					
#	Test Steps	Expected Results			
		Trading Engine Responses (SAIL)	Market Information (HSVF)		
1	<p><u>Client:</u> Enters a Sell Market order for 20 contracts for instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Price type: M]</i></p>	<p>Order is booked.</p> <p><i>Sends a KE message</i></p> <p>Order is partially/full filled</p> <p><i>Sends 1 NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>Strategy:</i></p> <p><i>A CS message is sent</i></p> <p><i>A C/CF message per leg is sent</i></p>		

## 4.7.2. Limit Order

ID #: ORD-02	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Entering a limit order. The order opens the position.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. The book for instrument INST1 must be set to [Buy 12@0.10 – Sell 10@0.20].			
2. Group for instrument INST1 must be in 'Continuous Trading' mode.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a Buy order 15@0.20, Open Position, for instrument INST1.  <i>Sends an OE message:</i> [Open/Close: O] [Price type: L]	Order is booked. <i>Sends a KE message</i>  The order is partially/fully traded. <i>Sends 1 NT message</i>  <i>For Strategy</i> <i>Sends 1 NT message and</i>  <i>1 NL message per leg</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i>  <i>For strategy: FS or HS message is sent</i>  Trade sent. <i>A C/CF message is sent</i> <i>Strategy:</i> <i>A CS message is sent</i> <i>A C/CF message per leg is sent</i>

## 4.7.3. Opening Order

ID #: ORD-03	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Entering an opening order (price Type: "O") during the pre-opening** phase. The order will participate to the auction and totally filled in.			
<b>Comments:</b> None.			

Prerequisites			
The book for instrument INST1 must be set to [Buy 12@200.00 – Sell <b>10@201.50</b> ]. Group for instrument INST1 must be <b>pre-opening** phase</b>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client</u>: Enters a Sell order 12@ opening price, Close Position, for instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Price type: O]</i></p> <p><i>[Duration Type: F]</i></p> <p><i>[Open/Close: C]</i></p> <p><i>the status of the instrument changes from Pre-opening to Opening</i></p>	<p>Order is booked.</p> <p><i>Sends a KE message</i></p> <p>The order is traded at opening price, during the auction phase.</p> <p><i>Sends 1 NT message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p>

#### 4.7.4. Limit Order during Pre-Opening Phase

ID #: ORD-04	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Entering a limit order (price Type: "L") during the pre-opening** phase. The order will partially participate to the auction.			
<b>Comments:</b> None.			
Prerequisites			
The book for instrument INST1 must be set to [Buy 12@200.00 – Sell <b>10@201.50</b> ]. Group for instrument INST1 must be <b>pre-opening** phase</b>			

#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Sell order 15@ opening price, Sends an OE message: [Price type: L] The status of the instrument changes from Pre –opening to Opening</p>	<p>Order is booked. Sends a KE message The order is traded at opening price. Remaining quantity will pass into continuous trading Sends 1 NT message</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent For strategy: FS or HS message is sent Trade sent. A C/CF message is sent</p>

#### 4.7.5. Passive Limit Order

ID #: ORD-05	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a limit order that gets booked. The order is good until a specific date.			
<b>Comments:</b> This test is to validate that the client application is using the right date format, namely 'YYYYMMDD'. Represents the order's last active date.			
<b>Prerequisites</b>			
<p><b>1. The book for instrument INST1 must be set to [Buy 12@200.00 –Sell 10@201.50].</b></p> <p><b>2. Group for instrument INST1 must be in 'Continuous Trading' mode.</b></p>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	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 date and with a day</p>	<p>Order is booked. Sends a KE message</p>	<p>Quote or Market Depth sent. An F/FF or H/HF message is sent For strategy: FS or HS message is sent</p>

<p>number less than 12 (ex: Dec 10th, June 5th, March 2nd), for instrument INST1</p> <p><i>Sends an OE message:</i></p> <p><i>[Price type: L]</i></p> <p><i>[Duration Type: D]</i></p> <p><i>[GTD Data: YYYYMMDD (Represents the order's last active day)]</i></p>		
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#### 4.7.6. Fill and Kill

<b>ID #: ORD-06</b>	<b>Type: Order Creation</b>	<b>Requirement:</b>	<b>Optional</b>	<b>Co-ordinated Test: N</b>
<b>Description:</b> Entering a 'Fill and Kill' order.				
<b>Comments:</b> None				
<b>Prerequisites</b>				
<ol style="list-style-type: none"> <li>1. The market for instrument INST1 must be set to [12@2.00 – <b>10@2.50</b>].</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode.</li> </ol>				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<p><u>Client:</u> Enters a Sell 'Fill and Kill' order <b>15@2.00</b> for instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Duration Type: E]</i></p>	<p>Order is filled/cancelled</p> <p><i>Sends a KE message</i></p> <p><i>Sends 1 NT message and NZ message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>	

## 4.7.7. Limit Order with Clearing Instruction and Owner Data

<b>ID #:</b> ORD-07	<b>Type:</b> Order Creation	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Entering a limit order with a Clearing Instruction and Owner Data.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. The market for instrument INST1 must be set to [10@2.00 – <b>10@2.50</b> ].			
2. Group for instrument INST1 must be in 'Continuous Trading' mode			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Sell Limit Order 40@2.25 with a Clearing Instruction and Owner Data, for instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Clearing Instruction: anything]</i></p> <p><i>[Owner Data: anything]</i></p>	<p>Order is booked.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>Strategy: An HS message is sent</i></p>



## 4.7.8. Booked Order Filled at 2 Prices

<b>ID #: ORD-08</b>	<b>Type: Order Creation</b>	<b>Requirement: Optional</b>	<b>Co-ordinated Test: N</b>
<b>Description:</b> Entering a Book any price order that gets filled at 2 different prices.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. Group for instrument INST1 must be in 'Continuous Trading' mode.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters 2 orders: Buy 10@2.50, 15@2.60.		Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i> <i>Strategy: An HS message is sent</i>
2	<u>Client:</u> Enters a Sell Market any price Order for 20 contracts for instrument INST1.  <i>Sends an OE message:</i> <i>[Price type: W]</i>	Order is filled at 2 different prices <b>15@2.60.and</b> 5@2.50  <i>Sends 2 NT messages</i>  <i>Strategy:</i> <i>2 NT messages each followed by 1 NL message per leg</i>	Trade sent. <i>2 C/CF message are sent</i> <i>Strategy: 2 CS are sent</i> <i>Per Leg: C or CF message is sent</i>  Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i> <i>Strategy: An HS is sent</i>

## 4.7.9. Minimum Fill Order

<b>ID #:</b> ORD-09	<b>Type:</b> Order Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Entering a Minimum Fill volume order.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. The market for instrument INST1 must be set to [10@2.00 – <b>10@2.50</b> ].			
2. Group for instrument INST1 must be in 'Continuous Trading' mode.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a Buy Limit Order 10@2.40 for instrument INST1 with a minimum fill volume of 5.  <i>Sends an OE message:</i>  <i>[Quantity Term: M]</i>  <i>[Additional Quantity: 5]</i>	Order is partially filled/eliminated because it cannot be filled for the specified volume.  <i>Sends a KE message:</i>	

## 4.7.10. Stop Order

<b>ID #:</b> ORD-10	<b>Type:</b> Order Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Entering a Stop Order and being able to handle it when it gets triggered.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. The INST21 needs to allow Stop Orders.			

2. Group for instrument INST1 must be in 'Continuous Trading' mode
3. The market for instrument INST21 must be set to [30@2.00 – 10@2.50].
4. The last Price or the previous day's close for INST21 must be greater than 2.00.

#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	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 an OE message:</i></p> <p><i>[Additional Price: 2.10]</i></p> <p><i>[Special Price Term: S]</i></p>	<p>Order is accepted and not booked.</p> <p><i>Sends a KE message</i></p> <p><i>[Status: S]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
2	<p><u>Client:</u> Enters an order on INST21 to sell <b>25@2.00</b>.</p>	<p>Order is accepted and 25 traded at 2.00 against the booked order.</p> <p>The client order is triggered and traded 5@2.00.</p> <p><i>Sends an NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p> <p>The remaining 4 contracts are booked at 2.00.</p> <p><i>Sends a KE message</i></p> <p><i>[Status: ]</i></p>	<p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>Strategy: 1 CS are sent and 1 C/CF message per leg</i></p> <p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

## 4.7.11. Stop on Ask Order

ID #: ORD-11	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Stop on Ask Order and being able to handle it when it gets triggered. (Not booked immediately)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow Stop Orders.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Instrument Book must be clear</li> <li>4. The market for instrument INST21 must be set to [12@10.00 – 10@10.50].</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a Sell StopOnAsk Order 8@10.00 for instrument INST21, trigger price 10.25  <i>Sends an OE message:</i>  <i>[Additional Price: 10.25]</i>  <i>[Special Price Term: I]</i>	Order is accepted and is not on the book.  <i>Sends a KE message</i>  <i>[Status: "S "]</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent</i>  <i>For strategy: FS or HS message is sent</i>
2	<u>Client:</u> Enters a sell order on INST21 15@10.25.	Limit order triggers StopOrder.  StopOrder match bid side.  Trade 8@10.00 is done.  <i>Sends an NT message</i>  <i>For Strategy</i>	Trade sent.  <i>A C/CF message is sent</i>  <i>Strategy: 1 CS are sent and 1 C/CF message per leg</i>  Quote or Market Depth sent.

		<p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p> <p>The remaining 4 Qty are booked at 10.00 on Bid side</p> <p><i>Sends a KE message</i></p>	<p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
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## 4.7.12. Stop on Bid Order

ID #: ORD-12	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Stop on Bid Order and being able to handle it when it gets triggered. (booked immediately)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow Stop Orders.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Instrument Book must be clear</li> <li>4. The market for instrument INST21 must be set to [10@10.00 – 10@10.35].</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Bid StopOnBid Order 8@10.25 for instrument INST21, trigger price 9.90</p> <p><i>Sends an OE message:</i></p> <p><i>[Additional Price: 9.90]</i></p> <p><i>[Special Price Term: "E" ]</i></p>	<p>Order is accepted, is immediately triggered and booked</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

## 4.7.13. Stop on Last Order

ID #: ORD-13	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Stop on Last Order and being able to handle it when it gets triggered. (booked and traded immediately)			
<b>Comments:</b>			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow Stop Orders.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Instrument Book must be clear</li> <li>4. Two opposite orders with Price 10,20 must be traded</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> Enters a bid order on INST21 12@10.30.	Order is accepted and is on the book.  <i>Sends a KE message</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent</i>  <i>For strategy: FS or HS message is sent</i>
2	<u>Client:</u> Enters a ask StopOnLast Order 15@10.30 for instrument INST21, trigger price 10.30  <i>Sends an OE message:</i>  <i>[Additional Price: 10.30]</i>  <i>[Special Price Term: S]</i>	Stop is enter  Order is immediately triggered.  StopOrder match bid side.  Trade 12@10.30 is done.  <i>Sends an NT message</i>  <i>For Strategy</i>  <i>Sends 1 NT message and</i>  <i>1 NL message per leg</i>	Trade sent.  A C/CF message is sent  Strategy: 1 CS are sent and 1 C/CF message per leg  Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent</i>  <i>For strategy: FS or HS message is sent</i>

		The remaining 3 Qty are booked at 10.30 on Ask side <i>Sends a KE message</i>	
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#### 4.7.14. Ask Touched Order

ID #: ORD-14	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering an If Ask Touched Order and being able to handle it when it gets triggered. (Not booked immediately)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow If Touched Orders.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. The market for instrument INST21 must be set to 12@10.00.</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy IfAskTouched Order 8@10.00 for instrument INST21, trigger price 10.75</p> <p><i>Sends an OE message:</i></p> <p><i>[Additional Price: 10.75]</i></p> <p><i>[Special Price Term: H]</i></p>	<p>Stop Order is accepted and is not on the book.</p> <p><i>Sends a KE message</i></p> <p><i>[Status: "S "]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
2	<p><u>Client:</u> Enters a sell order on INST21 15@10</p>	<p>Limit order triggers</p> <p>Trade 8@10.00 is done.</p>	<p>Trade sent.</p> <p><i>A C/CF message is sent</i></p>



		<p><i>Sends an NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p> <p><i>Sends a KE message</i></p>	<p>Strategy: 1 CS are sent and 1 C/CF message per leg</p> <p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent</p> <p>For strategy: FS or HS message is sent</p>
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#### 4.7.15. Bid Touched Order

<b>ID #:</b> ORD-15	<b>Type:</b> Order Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Entering an If Touched on Bid Order and being able to handle it when it gets triggered. (booked immediately)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow If Touched Orders.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. The market for instrument INST21 must be set to [10@10.00 - 10@10.35].</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Bid IfTouchBid Order 8@10.25 for instrument INST21, trigger price 10.10 <i>Sends an OE message: [Additional Price:10.10]</i></p> <p><i>[Special Price Term: "F" ]</i></p>	<p>Order is accepted, is immediately triggered and booked but no contract made</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

## 4.7.16. Touched on Last Order

ID #: ORD-16	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a If Touched on Last Order and being able to handle it when it gets triggered. (booked and traded immediately)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow If Touched Orders.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Two opposite orders with Price 10.20 must be traded</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a sell order on INST21 15@10.30.</p>	<p>Order is accepted and is on the book.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
2	<p><u>Client:</u> Enters a buy If Touched on Last Price 17@10.30 for instrument INST21, trigger price 10.10</p> <p><i>Sends an OE message:</i></p> <p><i>[Additional Price: 10.10]</i></p> <p><i>[Special Price Term: T]</i></p>	<p>Order is immediately triggered.</p> <p>If touch order match bid side.</p> <p>Trade 15@10.30 is done.</p> <p><i>Sends an NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p> <p>The remaining 2 Qty are booked at 10.30 on Ask side</p> <p><i>Sends a KE message</i></p>	<p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p>Strategy: <i>1 CS are sent and 1 C/CF message per leg</i></p> <p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

## 4.7.17. Circuit Breaker Triggered

ID #: ORD-17	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Circuit Breaker** Triggered to Y price limit violation			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow Circuit Breaker.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Instrument Book must be clear</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a Sell Order Q@P for instrument INST21. P>Y P<X (Yhigh<P<XHigh) <i>Sends an OE message</i>	Order is accepted and is on the book. <i>Sends a KE message</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i>
2	<u>Client:</u> Enters a Buy order AT Market price for quantity Q	<i>Orders is deleted due to circuit breaker (KE sent with Order Status : C)</i> <i>NI Message with Instrument state changes in Suspended Status 'S'.</i> <i>After 1minute NI message with Status 'N'</i>	<i>H send with Instrument Status F</i> Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i> <i>after one minute H send with Instrument Status T</i>

## 4.7.18. Circuit Breaker Triggered

ID #: ORD-18	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Circuit Breaker** Triggered to Z price limit violation			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The INST21 needs to allow Circuit Breaker.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Instrument Book must be clear</li> <li>4. Two opposite orders with Price 10 must be traded</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a regular Buy order 100@20 for instrument INST1.</p> <p>First condition: XLow&lt;YLow&lt;20&lt;Yhigh&lt;XHigh</p> <p>Second condition: 20&gt; ZHigh or 20&lt; ZLow</p>	<p>Order is accepted and is on the book.</p> <p><i>Sends a KE message</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>Client:</u> Enters an order on Sell 100@20</p>	<p><i>Orders is deleted due to circuit breaker (KE sent with Order Status : C)</i></p> <p><i>NI Message with Instrument state changes in Suspended as Status 'S'. After 1min NI message with instrument Status 'N'</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>H send with Instrument Status F</i></p> <p><i>after one minute H send with Instrument Status T</i></p>

## 4.7.19. House Order

ID #: ORD-19	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Entering a House order.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. The market for instrument INST1 must be set to [12@2.00 – <b>10@2.50</b> ].			
2. Group for instrument INST1 must be in 'Continuous Trading' mode			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy Limit Order 100@2.40, House for the instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Price type: L]</i></p> <p><i>[Account type: 2]</i></p>	<p>Order is booked.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

## 4.7.20. Client Limit Order

ID #: ORD-20	Type: Order Creation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Entering a Client Limit Order			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			

#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy Limit Order 100@2.40, Pro, for instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Account Type: 1]</i></p>	<p>Order is booked</p> <p><i>Sends a KE message</i></p> <p><i>[Status: ]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

#### 4.7.21. Limit Order with Disclosed Quantity

ID #: ORD-21	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Limit Order with a Disclosed quantity.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>The market for instrument INST1 must be set to [10@2.00 – <b>10@2.50</b>].</li> <li>Group for instrument INST1 must be in 'Continuous Trading' mode</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy Limit Order 30@2.05 with a Disclosed quantity of 25 for instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Quantity Term: D]</i></p> <p><i>[Additional Quantity: 25]</i></p>	<p>Order is accepted and booked and only 25 contracts are shown.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

## 4.7.22. Limit Order for Strategy

ID #: ORD-22	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Limit Order for a Strategy (spread) that gets traded ( <b>Trade in Strategy Book</b> )			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The instrument INST24 is a strategy and contains 2 legs (spread INST22 – INST23)</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. The market for instrument INST24 must be set to [10@2.00 – 10@2.50].</li> <li>4. The market for instrument INST22 (1<sup>st</sup> leg of spread) must be set to [5@3.20 – 10@3.30].</li> <li>5. The market for instrument INST23 (2<sup>nd</sup> leg of spread) must be set to [10@1.00 – 10@1.10].</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Clients:</u> Enters a Sell Limit Order 10@2.00 for instrument INST24.	<p>Order is accepted and traded against the client order.</p> <p><i>Sends an NT message for the strategy and 1 NL message per leg</i></p> <p>Trade sent.</p> <p><i>1 NT message for the spread, followed by 1 NL for each leg</i></p>	<p>Trade sent.</p> <p><i>For strategy: CS message is sent followed by 1 C/CF message per leg</i></p> <p><i>For the legs: C/CF [PriceIndicatorMarket = P] message is sent per leg</i></p> <p>Strategy Quote or Market Depth sent.</p> <p><i>An FS or HS message is sent</i></p>

### 4.7.23. Market Order at Instrument Limit

<b>ID #:</b> ORD-23	<b>Type:</b> Order Creation	<b>Class:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Entering a Market Order at instrument limit (Min/Max) price.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The market for instrument INST1 must be set to [12@0.0001 – 10@99999.5000]; no other orders must be in the Book.</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode.</li> <li>3. Adjust Min/Max for Product/instrument in Configuration manager</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information - HSVF
1	<p><u>Client:</u> Enters a Buy @0.0001 for 20 contracts for instrument INST1.</p> <p><u>Client:</u> Enters a Sell market for 12 contracts for instrument INST1.</p> <p><i>Sends an OE message:</i> <i>[Price type: M]</i></p>	<p>Order is accepted and trades completely</p> <p><i>Sends a KE message</i> <i>[Status: X ]</i></p> <p>Trade Sent</p> <p><i>Sends 1 NT message</i> <i>For Strategy</i></p> <p><i>Sends 1 NT message and</i> <i>1 NL message per leg</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>For strategy: CS message is sent followed by 1 C/CF message per leg</i></p>
2	<p><u>Client:</u> Enters a Sell @99999.5000 for 15 contracts for instrument INST1.</p> <p><u>Client:</u> Enters a Buy market for 15 contracts for instrument INST1.</p>	<p>Order is accepted and trades completely</p> <p><i>Sends a KE message</i> <i>[Status: X ]</i></p> <p>Trade Sent</p> <p><i>Sends 1 NT message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p>



	<i>Sends an OE message: [Price type: M]</i>	<i>For Strategy Sends 1 NT message and 1 NL message per leg</i>	<i>For strategy: CS message is sent followed by 1 C/CF message per leg</i>
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#### 4.7.24. Cross Order Block

<b>ID #: ORD-24</b>	<b>Type: Order Creation</b>	<b>Requirement: Optional</b>	<b>Co-ordinated Test: N</b>
<b>Description:</b> Cross Order validation			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>Instrument Book must be clear</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.	Orders are accepted and booked and spread is created. <i>Sends a KE message</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i>
2	<u>Client:</u> Enters a cross order within the spread and quantity higher than the block min volume  Send a Cross Order through OX message	Order is accepted and traded. <i>Sends a KO message and two NT messages with Special Trade Indicator= "B" (block)</i>	Trade message is sent. <i>C&lt;&gt; message is sent with Price Indicator Marker ="B"</i>

## 4.7.25. Deferred Cross Order

ID #: ORD-25	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Deferred Publication for Cross Orders			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. Group for instrument INST1 must be in 'Continuous Trading' mode 2. Instrument Book must be clear 3. <b>Cross volume/value would respect the Post Trade LIS Value and Volume (please refer to Market Access Italy to know these thresholds)</b>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.	Orders are accepted and booked and spread is created.  <i>Sends a KE message</i>	Quote or Market Depth sent.  An F/FF or H/HF message is sent
2	<u>Client:</u> Enters a cross order within the spread  Send an Cross Order through OX message  <i>[Deferred Publication = D]</i>	Order is accepted and traded.  <i>Sends a KO message and two NT messages with Defferred Pubblication = D</i>	Trade message will be sent at the end of the trading day.

## 4.7.26. Committed Block Order

ID #: ORD-26	Type: Order Creation	Requirement: Optional	Co-ordinated Test: Y
<b>Description:</b> Committed block order (interbank)			
<b>Comments:</b> None.			

Prerequisites			
1. Group for instrument INST1 must be in 'Continuous Trading' mode 2. Instrument Book must be clear			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.	Orders are accepted and booked and spread is created. <i>Sends a KE message</i>	Quote or Market Depth sent. An F/FF or H/HF message is sent
2	<u>Client:</u> Enters a committed order within the spread and quantity higher than the block min volume, specifying as counter party BIT (0201) Send an OE message with Price Type='C'	Order is accepted and traded. <i>Sends a Ke message</i>	
3	<u>BIT:</u> Enters a committed order within the spread specifying as Client counter party	Order is accepted and traded. <i>Sends a Ke message and two NT messages with Special Trade Indicator = "K"</i>	Trade message is sent. <i>C&lt;&gt; message is sent with Price Indicator Marker = "T"</i>

## 4.7.27. Deferred Committed Order

ID #: ORD-27	Type: Order Creation	Requirement: Optional	Co-ordinated Test: Y
<b>Description:</b> Deferred Publication for Committed Order (interbank)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. Group for instrument INST1 must be in 'Continuous Trading' mode 2. Instrument Book must be clear 3. <b>Cross volume/value would respect the Post Trade LIS Value and Volume (please refer to Market Access Italy to know these thresholds)</b>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.	Orders are accepted and booked and spread is created.  <i>Sends a KE message</i>	Quote or Market Depth sent.  An F/FF or H/HF message is sent
2	<u>Client:</u> Enters a committed order within the spread specifying as counter party BIT (0201)  Send an OE message with Price Type='C' and Deferred Publication=D	Order is accepted and traded.  <i>Sends a Ke message with Deferred Publication=D</i>	
3	<u>BIT:</u> Enters a committed order within the spread specifying as Client counter party	Order is accepted and traded.  <i>Sends a Ke message and two NT messages with with Deferred Publication=D</i>	Trade message will be sent at the end of the trading day.

## 4.7.28. While Connected Orders

ID #: ORD-28	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> While connected orders			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
1. Group for instrument INST1 must be in 'Continuous Trading' mode			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a regular order specifying in duration type = W	Order is accepted.	<i>F/FF or H/HF messages Sent</i>
2	<u>Client:</u> Disconnection and re connection on the systems	Order status changed to I (EliminatedOnDisconnect) as soon as the Client perform re connection	<i>F/FF or H/HF messages Sent</i>

## 4.7.29. Matched Principal Order

ID #: ORD-29	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Limit order with account type Matched Principal.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The market for instrument INST1 must be set to [12@2.00 – <b>10@2.50</b>].</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. The trader ID must be granted for the account MP</li> </ol>			

#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy Limit Order 100@2.40, Matched Principal for the instrument INST1.</p> <p><i>Sends an OE message:</i></p> <p><i>[Price type: L]</i></p> <p><i>[Account type: 6]</i></p>	<p>Order is booked.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p>

#### 4.7.30. Market Maker Limit Order

ID #: ORD-30	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a Limit order with account type Market Maker.			
<b>Comments:</b> Not supported on IDEM			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [10@2.00 – 10@2.50].</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. The trader ID must be granted for the account Market Maker</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy Limit Order 100@2.40, with Account Type Market Maker for the instrument INST1.</p>	<p>Order is booked.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p>

	<i>Sends an OE message:</i> <i>[Price type: L]</i> <i>[Account type: 4]</i>		
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#### 4.7.31. Best Price Setter

ID #: ORD-31	Type: Order Creation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> Entering a limit order that becomes a best price setter.			
<b>Comments:</b> Not supported on IDEM			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [10@2.00 – 10@2.50].</li> <li>2. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>3. Participant subscribed the BP message on the TC Message</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a Sell Limit Order <b>40@101.10</b> with a Clearing Instruction for instrument INST1.  <i>Sends an OE message:</i> <i>[Clearing Instruction: anything]</i>	Order is booked. <i>Sends a KE message</i> <i>Sends a BP Message</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i>

## 4.7.32. CPI Committed Order

<b>ID #:</b> ORD-32	<b>Type:</b> Order Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Entering a CPI committed order.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>2. Instrument Book must be clear</li> <li>3. INST1 belong to Instrument Group <b>GR</b></li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.</p> <p><i>Sends 2 OE messages:</i></p> <p><i>[Open/Close: O]</i></p> <p><i>[Price type: L]</i></p>	<p>Orders are accepted and booked and spread is created.</p> <p><i>Sends a KE message for each side.</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>Client:</u> Enters a committed order within the spread and quantity higher than the CPI min volume, specifying as counter party BIT (0201).</p> <p>Side must be Sell and Capacity must be House and Price Type CPI.</p> <p><i>Sends an OE message:</i></p> <p><i>[Price type: I]</i></p>	<p>Order is booked.</p> <p><i>Sends a KE message with status "K" (parked).</i></p>	



3	<p><u>BIT</u>: Enters a Buy Client order with Price Type CPI for 20 contracts for instrument INST1 specifying Client counter party.</p>	<p>Order is parked and the CPI period starts.</p> <p><i>At the end of the CPI period sends a KE and a NT message with Special Trade Indicator= CPI-X for each side.</i></p>	<p><i>A NR message is sent with CPI status equal to blank.</i></p>
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### 4.7.33. CPI Cross Order

<b>ID #:</b> ORD-33	<b>Type:</b> Order Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<p><b>Description:</b> Entering a CPI cross order.</p>			
<p><b>Comments:</b> None.</p>			
<p><b>Prerequisites</b></p>			
<ol style="list-style-type: none"> <li>1. Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>2. Instrument Book must be clear</li> <li>3. INST1 belong to Instrument Group <b>GR</b></li> </ol>			
#	Test Steps	<b>Expected Results</b>	
		<b>Trading Engine Responses (SAIL)</b>	<b>Market Information (HSVF)</b>
1	<p><u>Client</u>: Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.</p> <p><i>Sends 2 OE messages:</i></p> <p><i>[Open/Close: O]</i></p> <p><i>[Price type: L]</i></p>	<p>Orders are accepted and booked and spread is created.</p> <p><i>Sends a KE message for each side.</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>Client:</u> Enters a cross order having capacity House in sell and capacity Client in buy for 20 contracts for instrument INST1.</p> <p>Price Type must be set to CPI.</p> <p><i>Sends an OX message:</i> [Price type: I]</p>	<p>Orders are parked and the CPI period starts.</p> <p><i>Sends a KO message and a KE for each side with status "K" (parked).</i></p> <p>At the end of the CPI period sends 2 KE and 2 NT messages with Special Trade Indicator= CPI-X</p>	<p><i>A NR message is sent with CPI status equal to blank.</i></p>
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#### 4.7.34. CPI Order

<b>ID #: ORD-34</b>	<b>Type: Order Creation</b>	<b>Requirement: Optional</b>	<b>Co-ordinated Test: N</b>
<b>Description:</b> Entering a CPI order.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>Group for instrument INST1 must be in 'Continuous Trading' mode</li> <li>Instrument Book must be clear</li> <li>INST1 belong to Instrument Group <b>GR</b></li> </ol>			
#	Test Steps	<b>Expected Results</b>	
		<b>Trading Engine Responses (SAIL)</b>	<b>Market Information (HSVF)</b>
1	<p><u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.</p> <p><i>Sends 2 OE messages:</i> [Open/Close: O] [Price type: L]</p>	<p>Orders are accepted and booked and spread is created.</p> <p><i>Sends a KE message for each side.</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>Client</u>: Enters a cross order having capacity House in sell and capacity Client in buy for 20 contracts for instrument INST1.</p> <p>Price Type must be set to CPI.</p> <p><i>Sends an OX message: [Price type: I]</i></p>	<p>Orders are parked and the CPI period starts.</p> <p><i>Sends a KO message and a KE with status "K" (parked) for each side.</i></p>	<p><i>A NR message is sent with CPI status equal to blank.</i></p>
3	<p><u>Client</u>: During the CPI window enters a normal order having capacity House in Sell for 20 contracts and lower price compared to the sell side of the cross order.</p>	<p>Order is traded.</p> <p>Sends a NT messages with Special Trade Indicator= CPI for each side.</p>	<p>A C/CF/CS message is sent with CPI flag="CPI"</p>

## Order Cancellation Test Cases

### 4.8.1. Cancelling an Order

4.8	<b>ID #:</b> CXL-01	<b>Type:</b> Order Cancellation	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Cancelling an order.				
<b>Comments:</b> None.				
<b>Prerequisites</b>				
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	Client: Enters a regular Sell order 10@2.20 for instrument INST1.  Sends an OE message	Order is booked.  Sends a KE message: [Order ID: x] [Order Status: ]	Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent	
2	Client: Cancels the previous order.  Sends an XE message: [Cancelled Order ID: x]	Order is cancelled.  Sends a KZ message [Order Status: "A"]	Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent	

### 4.8.2. Cancelling an order by Market Operations

<b>ID #:</b> CXL-02	<b>Type:</b> Order Cancellation	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Cancelling an order by Market Control.			
<b>Comments:</b> None.			

Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> : Enters a regular Sell order 10@2.20 for instrument INST1.  <i>Sends an OE message</i>	Order is booked.  <i>Sends a KE message: [Order ID: x]</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent For strategy: FS or HS message is sent</i>
2	<u>BIT</u> : Cancels the previous order.  <i>Sends an XE message: [Cancelled Order ID: x]</i>	Order is cancelled.  <i>Sends a NZ message [Order Status: "M"]</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent For strategy: FS or HS message is sent</i>

#### 4.8.3. Cancelling a Partially Filled Order

ID #: CXL-03	Type: Order Cancellation	Requirement: Mandatory	Co-ordinated Test: N
<b>Description:</b> Cancelling a partially filled order.			
<b>Comments: None.</b>			
Prerequisites			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> : Enters a regular Buy order	Order is booked.	Quote or Market Depth sent.

	30@2.50 for instrument INST1. <i>Sends an OE message</i>	<i>Sends a KE message:</i> [Order ID: x] Trade 10@2.50 <i>Sends an NT message</i> <i>For Strategy</i> <i>Sends 1 NT message and</i> <i>1 NL message per leg</i>	<i>An F/FF or H/HF message is sent</i> <i>For strategy: FS or HS message is sent</i>  <i>Trade sent.</i> <i>A C/CF message is sent</i> <i>For strategy: CS message is sent followed by 1 C/CF message per leg</i>
2	<u>Client</u> : Cancels the previous order. <i>Sends an XE message:</i> [Cancelled Order ID: x]	The remaining quantity of the order is cancelled. <i>Sends a KZ message</i> [Status: "A"]	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i> <i>For strategy: FS or HS message is sent</i>

## 4.9. Order Modification Test Cases

### 4.9.1. Modifying the Price of an Order

<b>ID #:</b> MOD-01	<b>Type:</b> Order Modification	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Modifying the price of an order; quantity remains unchanged.			
<b>Comments:</b> The order is cancelled to "clear" the testing environment.			
<b>Prerequisites</b>			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> : Enters a regular Sell order 20@2.25.	Order is booked. <i>Sends a KE message:</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i>

	<i>Sends an OE message</i>	<i>[Order ID: x]</i>	<i>For strategy: FS or HS message is sent</i>
2	<p><u>Client</u>: Modifies the previous order 20@2.20.</p> <p><i>Sends an OM message:</i></p> <p><i>[Quantity Sign: =]</i></p> <p><i>[Quantity: 20]</i></p> <p><i>[Modified Order ID: x]</i></p>	<p>Order is booked.</p> <p><i>Sends a KM message:</i></p> <p><i>[Order ID: y]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
3	<p><u>Client</u>: Cancels the order.</p> <p><i>Sends an XE message:</i></p> <p><i>[Cancelled Order ID: y]</i></p>	<p>Order is cancelled.</p> <p><i>Sends a KZ message:</i></p> <p><i>[Status: A]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

#### 4.9.2. Modifying Order Quantity

<b>ID #:</b> MOD-02	<b>Type:</b> Order Modification	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Modifying the quantity (absolute) of an order.			
<b>Comments:</b> The order is cancelled to "clear" the testing environment.			
<b>Prerequisites</b>			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client</u>: Enters a regular Sell order 1@2.25.</p>	<p>Order is accepted and booked at 1@2.25.</p> <p><i>Sends a KE message:</i></p> <p><i>[Order ID: x]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p>

	<i>Sends an OE message</i>		<i>For strategy: FS or HS message is sent</i>
2	<p><u>Client</u>: Modifies the previous order 20@2.25.</p> <p><i>Sends an OM message:</i></p> <p><i>[Quantity Sign: =]</i></p> <p><i>[Quantity: 20]</i></p> <p><i>[Modified Order ID: x]</i></p>	<p>Order is booked. Modification is accepted and the Quantity is now 20.</p> <p><i>Sends a KM message:</i></p> <p><i>[Order ID: y]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
3	<p><u>Client</u>: Cancels the order.</p> <p><i>Sends an XE message:</i></p> <p><i>[Cancelled Order ID: y]</i></p>	<p>Order is cancelled.</p> <p><i>Sends a KZ message:</i></p> <p><i>[Status: A]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>

#### 4.9.3. Modifying an Order that was Previously Modified

<b>ID #:</b> MOD-03	<b>Type:</b> Order Modification	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Modifying an order that has been previously modified and partially filled.			
<b>Comments:</b> The order is cancelled to “clear” the testing environment.			
<b>Prerequisites</b>			
The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client</u>: Enters a regular Buy Order 21@2.50.</p>	<p>Order is accepted and booked at 21@2.50.</p> <p><i>Sends a KE message:</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p>



	<i>Sends an OE message</i>	<i>[Order ID: x] Trade 10@2.50  Sends an NT message (partial fill)  For Strategies, sends NL message per leg</i>	<i>For strategy: FS or HS message is sent  Trade sent.  A C/CF message is sent  For strategy: CS message is sent followed by 1 C/CF message per leg</i>
2	<i>Client: Modifies the previous order 21@2.50.  Sends an OM message: [Quantity Sign: =] [Quantity: 21] [Modified Order ID: x]</i>	<i>Order is booked. Modification is accepted and the Quantity is now 21 and price is 2.50.  Sends a KM message: [Order ID: y]</i>	<i>Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent</i>
3	<i>Client: Modifies the previous order 21@2.40.  Sends an OM message: [Quantity Sign: =] [Quantity: 21] [Modified Order ID: y]</i>	<i>Order is booked. Modification is accepted and the Quantity is now 21 and price is 2.40.  Sends a KM message: [New Order ID: z]</i>	<i>Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent</i>
4	<i>Client: Cancels the order.  Sends an XE message: [Cancelled Order ID: z]</i>	<i>Order is cancelled.  Sends a KZ message [Status: A "]</i>	<i>Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent</i>

## 4.9.4. Modifying a Market Top Order

<b>ID #:</b> MOD-04	<b>Type:</b> Order Modification	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Modifying a Market Top order and assigning it a limit price.			
<b>Comments:</b> The order is cancelled to “clear” the testing environment. (Conditional to ORD01)			
<b>Prerequisites</b>			
The market for instrument INST1 must be set to [10@2.00 – 12@2.50]; no other orders must be in the book.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters a Buy Market order for 20 Contracts.</p> <p>Sends an OE message: [Price type: M]</p>	<p>Sends a KE message: [Order ID: x]</p> <p>Trade 12@2.50 and the remaining 8@2.50 is booked.</p> <p>Sends an NT message (partial fill)</p> <p>For Strategy</p> <p>Sends 1 NT message and</p> <p>1 NL message per leg</p>	<p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent</p> <p>For strategy: FS or HS message is sent</p> <p>Trade sent.</p> <p>A C/CF message is sent</p> <p>For strategy: CS message is sent followed by 1 C/CF message per leg</p>
2	<p><u>Client:</u> Modifies the previous order 9@2.40.</p> <p>Sends an OM message: [Quantity Sign: +] [Quantity: 1] [Price type: L] [Modified Order ID: x]</p>	<p>Order is booked. Modification is accepted and the Quantity is now 9 and price is 2.40.</p> <p>Sends a KM message: [Order ID: y] [Status: " "]</p>	<p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent</p> <p>For strategy: FS or HS message is sent</p>

<p>3</p>	<p><u>Client</u>: Cancels the previous order.  <i>Sends an XE message:          [Cancelled Order ID: y]</i></p>	<p>Order is cancelled.  <i>Sends a KZ message          [Status: "A"]</i></p>	<p>Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent          For strategy: FS or HS message is sent</i></p>
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## Indication of Interest to Trade Test Cases

### 4.10.1. Indication of Interest to Trade

#### 4.10.

<b>ID #:</b> IIT-01	<b>Type:</b> Indication of Interest to Trade	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Sending an Indication of Interest to Trade message (previously known as Request for Quote).			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
None.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters a Indication of Interest to Trade for the instrument INST1 for any quantity.  <i>Sends an RQ message</i>	Indication of Interest to Trade is accepted.  <i>Sends a KO message</i>	Indication of Interest to Trade sent.  <i>A D/DF message is broadcasted.</i>

## 4.10.2. Responding to Indication of Interest to Trade

<b>ID #:</b> IIT-02	<b>Type:</b> Indication of Interest to Trade	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Responding to an Indication of Interest to Trade message (previously known as Request for Quote).			
<b>Comments:</b>			
<b>Prerequisites</b>			
1. No market for instrument INST1. 2. Client is connected.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	BIT: Enters an Indication of Interest to Trade for the instrument INST1 for any quantity.	Indication of Interest to Trade is accepted.	Indication of Interest to Trade message received and dispatched to external participants on the HSVF Market feed.  Request for Quote sent. A D/DF message is sent.
2	Client: Responds by posting a market for instrument INST1.  Sends an OE or a Q<i> message	Market is accepted.  Sends a KE or an LA message	Quote or Market Depth sent.  An F/FF or H/HF message is sent  For strategy: FS or HS message is sent

## Bulk Quote Test Cases

### 4.11.1. Entering Bulk Quote

4.1	<b>ID #:</b> BUQ-01	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Entering bulk quotes.				
<b>Comments:</b> None.				
<b>Prerequisites</b>				
<ol style="list-style-type: none"> <li>1. No market for instrument INST1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must send Clearing Data message BD ( for traderID/GroupID )</li> </ol>				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<p><u>Client:</u> Enters 2 quotes (1 bid and 1 ask) on INST1, Bid = 10@1.00, Ask=10@1.20.</p> <p><i>Sends a BD message (if not already done)</i></p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>Quotes are accepted and booked.</p> <p><i>Sends a KD message</i></p> <p><i>Sends an LA message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>	
2	<p><u>Client</u> Enters a regular Sell order 5@0.90 for instrument INST1.</p>	<p>Order is accepted Trade 5@1.00.</p> <p><i>Sends an NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p> <p>The market is now [5@1.00 – 10@1.20].</p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>For strategy: CS message is sent followed by 1 C/CF message per leg</i></p>	

## 4.11.2. Modifying Bulk Quote

<b>ID #:</b> BUQ-02	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Modifying the price on quotes when some have been rejected.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Instrument INST10 has to be forbidden.</li> <li>3. Participant must be configured as Market Maker on group GRP1.</li> <li>4 Participant must send Clearing Data message BD ( for traderID/GroupID )</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters quotes for all instruments of GRP1. At least 101 instruments must be quoted on both sides with bids of 1000@100.00 and asks of 900@100.50. Only one bulk quote message must be sent.</p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>All quotes are accepted and booked except the 2 on the forbidden instrument. The markets for selected instruments in group GRP1 are now [1000@100.00 – 900@100.50].</p> <p><i>Sends an LA message:</i></p> <p><i>[Number of quotes in error: 002]</i></p> <p><i>[Error code: 1004]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Several F/FF or H/HF messages are broadcasted</i></p> <p><i>For strategy: Several FS or HS message are broadcasted</i></p>
2	<p><u>Client:</u> Modifies the price of all quotes previously accepted.</p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>Quotes are modified. No error message is returned. Market is now:</p> <p>[1000@100.10 – 900@100.30]</p> <p><i>Sends an LA message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Several F/FF or H/HF messages are broadcasted</i></p> <p><i>For strategy: Several FS or HS message are broadcasted</i></p>

## 4.11.3. Modifying quantity of quotes

<b>ID #:</b> BUQ-03	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Modifying the quantity for quotes.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Instrument INST10 has to be forbidden.</li> <li>3. Participant must be configured as Market Maker on group GRP1.</li> <li>4 Participant must send Clearing Data message BD ( for traderID/GroupID )</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters quotes for all instruments of GRP1. At least 101 instruments must be quoted on both sides with bids of 1000@100.00 and asks of 900@100.50. Only one bulk quote message must be sent.</p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>All quotes are accepted and booked except the 2 on the forbidden instrument. The markets for selected instruments in group GRP1 are now [1000@100.00 – 900@100.50].</p> <p><i>Sends an LA message:</i></p> <p><i>[Number of quotes in error: 002]</i></p> <p><i>[Error code: 1004]</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Several F/FF or H/HF messages are broadcasted</i></p> <p><i>For strategy: Several FS or HS message are broadcasted</i></p>
2	<p><u>Client:</u> Modifies the quantity of all quotes previously accepted.</p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>Quotes are modified. No error message is returned. Market is now:</p> <p>[1010@100.00 – 800@100.50]</p> <p><i>Sends an LA message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Several F/FF or H/HF messages are broadcasted</i></p> <p><i>For strategy: Several FS or HS message are broadcasted</i></p>



## 4.11.4. Cancelling all Quotes

<b>ID #:</b> BUQ-04a	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Cancelling all quotes (Global Cancellation, formerly known as "Panic Quote").			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must send Clearing Data message BD ( for traderID/GroupID )</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters 40 quotes (20 bid and 20 ask) on instruments of group GRP1, Bid = 10@1.00, Ask = 10@1.20.</p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>Quotes are accepted and booked. The markets are now [10@1.00 – 10@1.20] for all instruments.</p> <p><i>Sends an LA message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Twenty (20) F/FF or H/HF messages are sent</i></p> <p><i>For strategy: Twenty (20)FS or HS message are sent</i></p>
2	<p><u>Client</u> Enters a regular Sell order 10@1.00 for instrument INST1.</p>	<p>Order is accepted. Trade 10@1.00.</p> <p><i>Sends an NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>For strategy: CS message is sent followed by 1 C/CF message per leg</i></p>
3	<p><u>Client:</u> Cancels all quotes with a GC message with Type</p>	<p>Quotes are cancelled. Market for instrument</p>	<p>Quote or Market Depth sent.</p> <p><i>Twenty (20) F/FF or H/HF messages are sent</i></p>

of Cancellation "QuotesOnly".  <i>Sends a GC message</i>  <i>[Type of Cancellation=Q]</i>	INST1 is now [0@0.00 – 10@1.00].  <i>Sends a KG message</i>	<i>For strategy: Twenty (20)FS or HS message are sent</i>
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#### 4.11.5. Cancelling all Orders

<b>ID #:</b> BUQ-04b	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Cancelling all Orders with Global Cancellation (Global Cancellation, formerly known as "Panic Quote").			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must send Clearing Data message BD ( for traderID/GroupID )</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> : Enters 5 Buy orders <b>10@1.10</b> for instrument INST1.  <i>Sends an OE message</i>	Orders are booked.  <i>Sends a KE message</i>	Quote or Market Depth sent.  <i>Five (5) F/FF or H/HF messages are sent</i>  <i>For strategy: Five (5) FS or HS message are sent</i>
2	<u>Client</u> Enters a regular Sell order <b>5@1.10</b> for instrument INST1.	Order is accepted. Trade <b>5@1.10</b> .  <i>Sends an NT message</i>  <i>For Strategy</i>  <i>Sends 1 NT message and</i>  <i>1 NL message per leg</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent</i>  <i>For strategy: FS or HS message is sent</i>  Trade sent.  <i>A C/CF message is sent</i>  <i>For strategy: CS message is sent followed by 1 C/CF message per leg</i>

3	<p><u>Client</u>: Cancels all orders with a GC message with Type of Cancellation "OrdersOnly".</p> <p><i>Sends a GC message</i></p> <p><i>[Type of Cancellation=O]</i></p>	<p>Orders are cancelled.</p> <p><i>Sends a KG message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Five (5) F/FF or H/HF messages are sent</i></p> <p><i>For strategy: Five (5) FS or HS message are sent</i></p>
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#### 4.11.6. Cancelling all Orders and Quotes

<b>ID #:</b> BUQ-04c	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Cancelling all Orders and Quotes (Global Cancellation, formerly known as "Panic Quote").			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must send Clearing Data message BD ( for traderID/GroupID )</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client</u>: Enters 40 quotes (20 bid and 20 ask) on instruments of group GRP1, Bid = 10@1.00, Ask = 10@1.20.</p> <p><i>Sends a Q&lt;i&gt; message</i></p> <p><u>Client</u>: Enters 5 Buy orders <b>10@1.10</b> for instrument INST1.</p>	<p>Quotes are accepted and booked. The markets are now [10@1.00 – 10@1.20] for all instruments.</p> <p><i>Sends an LA message</i></p> <p>Orders are booked.</p> <p><i>Sends a KE message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>F/FF or H/HF messages are sent</i></p> <p><i>For strategy: FS or HS message are sent</i></p>

	<i>Sends an OE message</i>		
2	<p><u>Client:</u> Enters 2 regular Sell orders: <b>5@1.00</b> for instrument INST1</p> <p><b>5@1.10</b> for instrument INST1.</p>	<p>Orders are accepted.</p> <p>Trades <b>5@1.00</b> and 5@1.10</p> <p><i>Sends an NT message</i></p> <p><i>For Strategy</i></p> <p><i>Sends 1 NT message and</i></p> <p><i>1 NL message per leg</i></p>	<p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p> <p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>For strategy: CS message is sent followed by 1 C/CF message per leg</i></p>
3	<p><u>Client:</u> Cancels all orders and quotes with a GC message with Type of Cancellation "All".</p> <p><i>Sends a GC message</i></p> <p><i>[Type of Cancellation=A]</i></p>	<p>Quotes are cancelled. Market for instrument INST1 is now [0@0.00 – 10@1.00].</p> <p><i>Sends a KG message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>F/FF or H/HF messages are sent</i></p> <p><i>For strategy:)FS or HS message are sent</i></p>

## 4.11.7. Handling Unsolicited Cancellations of All Quotes

<b>ID #:</b> BUQ-05	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Handling unsolicited cancellation of all quotes (done by the Market Operation Center.).			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must send Clearing Data message BD (for traderID/GroupID )</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p>Client: Enters 40 quotes (20 bid and 20 ask) on instruments of group GRP1, Bid = 10@1.00, Ask = 10@1.20.</p> <p>Sends a Q&lt;i&gt; message</p>	<p>Quotes are accepted and booked.</p> <p>Sends an LA message</p>	<p>Quote or Market Depth sent.</p> <p>Twenty (20) F/FF or H/HF messages are sent</p> <p>For strategy: Twenty (20) FS or HS message are sent</p>
2	<p>Client: Enters a regular Buy order 10@1.30 for instrument INST1.</p>	<p>Order is accepted and is traded against the booked quotes. Trade 10@1.20.</p> <p>Sends an NT message</p> <p>For Strategy</p> <p>Sends 1 NT message and 1 NL message per leg</p>	<p>Trade sent.</p> <p>A C/CF message is sent</p> <p>For strategy: CS message is sent followed by 1 C/CF message per leg</p> <p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent</p> <p>For strategy: FS or HS message is sent</p>

3	BIT: Cancels all quotes for the participant.	<p>Quotes are cancelled.</p> <p>Sends an NP message (cancellation reason: M)</p> <p>*cancellation reason could be filled "S" in case of cancellation by the system.</p>	<p>Quote or Market Depth sent.</p> <p>Twenty (20) F/FF or H/HF messages are sent</p> <p>For strategy: Twenty (20) FS or HS message are sent</p>
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#### 4.11.8. Unsolicited cancellation of all quotes by Trader

<b>ID #:</b> BUQ-06	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Handling unsolicited cancellation of all quotes (done by Trader).			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must be enable for Global Cancellation</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p><u>Client:</u> Enters 40 quotes (20 bid and 20 ask) on instruments of group GRP1, Bid = 10@1.00, Ask = 10@1.20.</p> <p>Sends a Q&lt;i&gt; message</p>	<p>Quotes are accepted and booked.</p> <p>Sends an LA message</p>	<p>Quote or Market Depth sent.</p> <p>Twenty (20) F/FF or H/HF messages are sent</p> <p>For strategy: Twenty (20) FS or HS message are sent</p>

2	<u>Client</u> : Cancels all quotes through a GC message.	Quotes are cancelled. Sends an NP message (Quote cancellation reason: A – Cancelled By Trader)	Quote or Market Depth sent. Twenty (20) F/FF or H/HF messages are sent For strategy: Twenty (20) FS or HS message are sent
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#### 4.11.9. Unsolicited Cancellation of Quote by Circuit Breaker

<b>ID #:</b> BUQ-07	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Handling unsolicited cancellation of all quotes (CancelledByCircuitBreaker).			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must send Clearing Data message BD (for traderID/GroupID )</li> <li>4. Two opposite orders with Price 10 must be traded</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> Price 20 XLow<YLow<ZLow<YHigh<20<ZHigh<XHigh		
2	<u>Client</u> Enters a regular Buy order 100@20 for instrument INST1.	Order is accepted and booked.	Quote or Market Depth sent. Twenty (20) F/FF or H/HF messages are sent

		<i>Sends 1 an KE message</i>	For strategy: Twenty (20) FS or HS message are sent
3	<p><u>Client</u>: Enters 100 quotes (50 bid and 50 ask) on instruments of group GRP1, Bid = 50@19.5, Ask = 50@20.</p> <p><i>Sends a Q&lt;i&gt; message</i></p>	<p>Quotes are deleted due to circuit breaker (<i>NP sent with cancellation reason: C</i>))</p> <p><i>NI Message with Instrument state changes in Suspended as 'S'</i></p> <p>After 1minute <i>NI Message with Instrument Status 'N'</i>.</p>	<p>Trade sent.</p> <p>A C/CF message is sent</p> <p>For strategy: CS message is sent followed by 1 C/CF message per leg</p> <p>Quote or Market Depth sent.</p> <p>An F/FF or H/HF message is sent with Status "F"</p> <p>For strategy: FS or HS message is sent with Status "F"</p> <p>After 1minute for H/HF or F/FF message is sent with Status "T".</p>

#### 4.11.10. Unsolicited Cancel of Quotes on Disconnect

<b>ID #:</b> BUQ-08	<b>Type:</b> Bulk Quote	<b>Requirement:</b> Mandatory for Market Makers	<b>Co-ordinated Test:</b> N
<b>Description:</b> Handling unsolicited cancellation of all quotes (EliminatedOnDisconnect)			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. No market for instruments in group GRP1.</li> <li>2. Participant must be configured as Market Maker on group GRP1.</li> <li>3. Participant must send Clearing Data message BD (for traderID/GroupID )</li> </ol>			



#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client</u> : Enters quotes Buy and Sell quotes.	<p>Quotes are accepted and booked.</p> <p><i>Sends a KD message</i></p> <p><i>Sends an LA message</i></p>	<p>Quote or Market Depth sent.</p> <p><i>Twenty (20) F/FF or H/HF messages are sent</i></p> <p><i>For strategy: Twenty (20) FS or HS message are sent</i></p>
2	Request for Disconnection by the Client Send TD Message	<p><i>Receives TL Message and Client gets disconnected and quotes are removed.</i></p>	<p>Trade sent.</p> <p><i>A C/CF message is sent</i></p> <p><i>For strategy: CS message is sent followed by 1 C/CF message per leg</i></p> <p>Quote or Market Depth sent.</p> <p><i>An F/FF or H/HF message is sent</i></p> <p><i>For strategy: FS or HS message is sent</i></p>
3	<u>Client</u> : Re-connection on the system	<p><i>Quotes are deleted (NP sent with Quote cancellation reason: I (EliminatedOnDisconnect))</i></p>	<p>Trade sent.</p> <p>A C/CF message is sent</p> <p>For strategy: CS message is sent followed by 1 C/CF message per leg</p> <p>Quote or Market Depth sent. <i>An F/FF or H/HF message is sent For strategy: FS or HS message is sent</i></p>

## Trade Management Test Cases

### 4.12.1. Many Fills for Same Order

4.1	<b>ID #:</b> TRD-01	<b>Type:</b> Trade Management	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> N
<b>Description:</b> Handling many fills for the same order.				
<b>Comments:</b> None.				
<b>Prerequisites</b>				
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.				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<u>Client:</u> Enters a Sell order or a quote for instruments INST1 75@2.40.  <i>Sends an OE message</i>	Order is accepted.  <i>Sends a KE or an LA message</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent</i>  <i>For strategy: FS or HS message is sent</i>	
2	<u>Client:</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.  <i>Sends 10 NT messages</i>  <i>For each of the 10 strategies</i>  <i>Sends 1 NT message and 1 NL message per leg</i>  Market for instrument INST1 is now [12@2.00 – 10@2.40].	Trade sent.  <i>A C/CF message is sent for each trade</i>  <i>For strategy: CS message is sent followed by 1 C/CF message per leg for each strategy trade</i>	

## 4.12.2. Manual Trade Cancellation

<b>ID #:</b> TRD-02	<b>Type:</b> Trade Management	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Handling manual cancellation of a regular trade by the Market Operation Center.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
Execution of test case TRD-01			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	BIT: Manually cancels 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>Sends 2 NX messages</p> <p>For each of the 2 Strategies</p> <p>Sends 1 NX message and</p> <p>1 NY message per leg</p>	<p>Trade Cancellation and Summary.</p> <p>Two (2) I/IF and N/NF messages are sent</p> <p>For Strategy: Two (2) IS and NS messages are sent</p>

## 4.12.3. Manual Trade Creation and Cancellation

<b>ID #:</b> TRD-03	<b>Type:</b> Trade Management	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Handling manual trade creation and cancellation.			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
None.			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>BIT</u> : Creates a manual trade for instrument INST1 by using the TraderID of the client on both sides of the trade.	A first trade is created. <i>Sends one NT message For Strategy Sends 1 NT message and 1 NL message per leg</i>	Trade sent. <i>A C/CF message is sent. For strategy: CS message is sent followed by 1 C/CF message per leg</i>
2	<u>BIT</u> : Creates a manual trade for instrument INST1 by using the TraderID of the client on one side and a different TraderID for the client on the opposite side of the trade.	A second trade is created <i>Sends one NT message For Strategy Sends 1 NT message and 1 NL message per leg</i>	Trade sent <i>A C/CF message is sent For strategy: CS message is sent followed by 1 C/CF message per leg</i>
3	<u>BIT</u> : Cancel trades created in Steps 1 and 2.	Trades are cancelled. <i>2 NX messages are sent. For each of the 2 Strategies Sends 1 NX message and 1 NY message per leg</i>	Trades Cancellation. <i>I/IF and N/NF messages sent For Strategy: IS and NS messages are sent</i>

### 4.12.4. Trade Amend

<b>ID #:</b> TRD-04	<b>Type:</b> Trade Management	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Handling manual trade amend from Market Operation Center (MOC).			
<b>Comments:</b> None.			
<b>Prerequisites</b>			
Execution of test case TRD-01			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>BIT</u> : Manually amends price and quantity of the first trade from Test Case TRD-01 (2@2.40).	A trade is amended. <i>Sends one NX message</i> <i>[PTT Cancellations and Amendments=C]</i>  <i>Sends one NT message</i> <i>[PTT Cancellations and Amendments=A]</i>	Cancellation and Summary. <i>An I/IF an N/NF messages are sent.</i>  New Trade sent. <i>A C/CF message is sent</i>  <i>PTT Cancellation and Amendments=A</i>

### 4.12.5. Manual Trade Acceptance

<b>ID #:</b> TRD-05	<b>Type:</b> Trade Management	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Handling manual trade amend from Market Operation Center (MOC).			
<b>Comments:</b> currently not supported on IDEM.			
<b>Prerequisites</b>			
INST1 has to support Manual Trade Acceptance			

#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Enters two regular Buy/Sell orders in order to create a spread for instrument INST1.	Orders are accepted and booked and spread is created. <i>Sends a KE message</i>	Quote or Market Depth sent. <i>An F/FF or H/HF message is sent</i>
2	<u>Client:</u> Enters two cross orders within the spread with the same quantity and price  Send two Cross Orders through OX messages	Order is accepted and traded. <i>Sends a KO message and two NT messages [Special Trade Indicator= D and Proposal Status = W]</i>	Trade message is sent. <i>C&lt;&gt; message is sent with Price Indicator Marker = "C"</i>
3	BIT: Manually Accept the trade	The trade is accepted <i>Sends one NT message [Proposal Status = A]</i>	

## Market Maker Protection Test Cases

### 4.13.1. Max Volume

ID #: MMT-01	Type: Trade Management	Requirement: for MM	Mandatory	Co-ordinated Test: N
Description: Max Volume: is designed to protect market making participants from "excessive" trades				
Comments: Enabled by default for all Market Makers				
<b>Prerequisites</b>				
For this test one MM (Participant) and one TRADER (Exchange Controlled) are needed. Set MM protection Max Volume to 100 ON instrument A of Group Z (in BD message) Set MM protection to Advanced (in RP message)				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<u>Client:</u> Buy 150 of A @ Price P  Sell 150 of A @ Price P + 1 Tick  <i>Sends an Qi message:</i>	Quote is accepted.  <i>Sends a LA message</i>		
2	<u>Client:</u> Sell 100 of A @ Market Price  <i>Sends an OE message</i>	Trade is done  <i>Sends 1 NT message is sent</i>  <i>An NP message is sent</i>		

## 4.13.2. Delta Volume

ID #: MMT-02	Type: Trade Management	Requirement: Mandatory for MM	Co-ordinated Test: N
Description: Delta Volume: is designed to protect market making participants from "excessive" trades			
Comments: Enabled by default for all Market Makers			
<b>Prerequisites</b>			
Set MM protection Max Volume to 2000 Set MM protection Max Delta to 1000 Set MM protection to Advanced			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<u>Client:</u> Quote on Instrument A of Group Z: Buy 1010 of A @ Price P Sell 1010of A @ Price P + 1 Tick <i>Sends an Qi message:</i>	Quote is accepted. <i>Sends a LA message</i>	
2	<u>Client:</u> enters Sell 1010 of A @ Market Price <i>Sends an OE message</i>	Trade is done <i>Sends 1 NT message is sent</i> <i>An NP message is sent</i>	



## Market Maker Alarms

### 4.14.1. Market Maker Alarms

4.1	<b>ID #:</b> ALR-01	<b>Type:</b> Trade Management	<b>Requirement:</b> Mandatory for Market Maker	<b>Co-ordinated Test:</b> N
<b>Description:</b>				
<b>Comments:</b> For this test one MM (Participant) and one TRADER (Exchange Controlled) are needed.				
<b>Prerequisites</b>				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<u>Client:</u> The MM will Quote on Instruments belonging to Group AA fulfilling its spread and volume obligation  <i>Sends an Qi message:</i>	Order is accepted  <i>Sends an LA message</i>  No market makers alarms are generated	H/HF or F/FF messages sent.	
2	<u>Client:</u> The MM will Quote on Instruments belonging to Group AA not fulfilling its spread obligations	Order is accepted  <i>Sends an LA message</i>  <i>Sail Messages MM is received after 2 minutes advising that spread obligations are not fulfilled</i>	H/HF or F/FF messages sent.	
3	<u>Client:</u> The MM will Quote on	Order is accepted	H/HF or F/FF messages sent.	

	Instruments belonging to Group AA not fulfilling its volume obligations	<i>Sends an LA message Sail Messages MM is received after 2 minutes advising that spread obligations are not fulfilled</i>	
4	<u>Client:</u> The MM will not Quote on any Instruments belonging to Group AA	<i>Sail Messages MM is received after 2 minutes advising that prices are missing Q</i>	H/HF or F/FF messages sent.
5	<u>Client:</u> The MM will Quote on Instruments belonging to Group AA not fulfilling comparable size deviation	<i>Sail Messages MM is received after 2 minutes advising that Quantities outside comparable size deviation [Alert Type = 9]</i>	H/HF or F/FF messages sent.

#### 4.14.2. Market Maker Alarms under Stressed Market Condition

<b>ID #:</b> ALR-02	<b>Type:</b> Trade Management	<b>Requirement:</b> Mandatory for Market Maker	<b>Co-ordinated Test:</b> Y
<b>Description:</b>			
<b>Comments:</b> For this test one MM (Participant) and one TRADER (Exchange Controlled) are needed.			
<b>Prerequisites</b>			
The trader has Market making obligations for Group AA			
#	Test Steps	<b>Expected Results</b>	
		<b>Trading Engine Responses (SAIL)</b>	<b>Market Information (HSVF)</b>

1	<u>BIT:</u> sends Bulletin message Stressed Market Condition Start on Group AA		L(1) Regular Text Bulletin [Bulletin type = 2]
2	<u>Client:</u> The MM will Quote on Instruments belonging to Group AA fulfilling its spread and volume obligation  <i>Sends an Qi message:</i>	Order is accepted  <i>Sends an LA message</i>  No market makers alarms are generated	H/HF or F/FF messages sent.
3	<u>Client:</u> The MM will Quote on Instruments belonging to Group AA not fulfilling its spread obligations	Order is accepted  <i>Sends an LA message</i>  <i>Sail Messages MM is received after 2 minutes advising that spread obligations are not fulfilled</i>	H/HF or F/FF messages sent.
4	<u>Client:</u> The MM will Quote on Instruments belonging to Group AA not fulfilling its volume obligations	Order is accepted  <i>Sends an LA message</i>  <i>Sail Messages MM is received after 2 minutes advising that spread obligations are not fulfilled</i>	H/HF or F/FF messages sent.
5	<u>Client:</u> The MM will not Quote on any Instruments belonging to Group AA	<i>Sail Messages MM is received after 2 minutes advising that prices are missing Q</i>	H/HF or F/FF messages sent.
6	<u>Client:</u> The MM will Quote on Instruments belonging to	<i>Sail Messages MM is received after 2 minutes advising that Quantities</i>	H/HF or F/FF messages sent.

	Group AA not fulfilling comparable size deviation	<i>outside comparable size deviation [Alert Type = 9]</i>	
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## Drop Copy Test Cases

### 4.15.1 Drop Copy

4.1	<b>ID #:</b> DC-01	<b>Type:</b> Drop Copy extended messages	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> It allows customers to manage orders entered by other traders in the firm				
<b>Comments:</b> Drop copy user type needs to be used				
<b>Prerequisites</b>				
Customer must connect two users: <ul style="list-style-type: none"> <li>- One normal order routing user;</li> <li>- One Drop Copy user;</li> </ul>				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<u>Client:</u> Enter orders with normal OR user; <ul style="list-style-type: none"> <li>- modify some of these orders</li> <li>- cancels some of those orders leaving some other orders active on the market</li> </ul> <i>Sends Internal messages cancellation for</i>	Order is accepted and is not on the book. <i>Sends a KE message [Status: "I "]</i> <i>In the drop copy connection these messages will be received in the extended format, please verify that in the messages KM , KE, KZ and NZ you can see additional field:</i>		

		<i>Price Type</i> <i>Previous Displayed Quantity</i> <i>Previous Booked Price</i> <i>Displayed Quantity</i> <i>Filler String</i> <i>System Best Bid Price</i> <i>System Best Ask Price</i> <i>Filler String</i> <i>Filler String</i> <i>End of Message Block</i> <i>Special Price Term</i> <i>Additional Price</i> <i>Quantity Term</i> <i>Additional Quantity</i> <i>Guaranteed Quantity</i> <i>Duration Type</i> <i>GTD Date</i> <i>Opposite Firm</i> <i>Filler String</i> <i>Order Type</i> <i>Previous Order ID</i> <i>Linked Quantity</i> <i>Filler String</i> <i>Filler String</i> <i>Remaining Quantity</i> <i>Filler String</i>	
2	<p><u>Client:</u>  Perform the following operation:  Match partially an existing order</p>	<p><i>Trade is done</i>  <i>Sends 1 NT message is sent</i>  <i>In the drop copy connection these messages will be</i></p>	

	<p>Cancel an existing trade</p> <p>Cancel an existing trade on a leg of a Strategy trade</p> <p><i>Sends an OE message</i></p> <p><i>Sends Internal messages cancellation for trades</i></p>	<p><i>received in the extended format, please verify that in the messages</i></p> <p><i>NT: Execution Notice</i></p> <p><i>NL: Leg Execution Notice</i></p> <p><i>NX: Execution Cancellation Notice</i></p> <p><i>NY: Leg Execution Cancellation Notice</i></p> <p><i>The following field are displayed:</i></p> <p><i>Previous Booked Quantity</i></p> <p><i>Previous Booked Price</i></p> <p><i>Displayed Quantity</i></p> <p><i>Order Type</i></p> <p><i>Liquidity Status</i></p> <p><i>End of Message Block</i></p> <p><i>Remaining Quantity</i></p> <p><i>Filler String</i></p> <p><i>Timestamp Date</i></p> <p><i>Price Variation</i></p> <p><i>Net Change</i></p> <p><i>Open Price</i></p> <p><i>High Price</i></p> <p><i>Low Price</i></p> <p><i>Last Price</i></p> <p><i>Opening trade</i></p> <p><i>Filler String</i></p> <p><i>Filler String</i></p> <p><i>Filler String</i></p> <p><i>Internal Market Bid</i></p>	
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		<i>Internal Market Ask</i> <i>OppositeMsgType</i> <i>Original Price</i> <i>Special Price Term</i> <i>Additional Price</i> <i>Additional Quantity</i> <i>Type</i> <i>Additional Quantity</i> <i>Duration Type</i> <i>GTD Date</i> <i>Filler String</i> <i>Clearing Firm</i> <i>Connection ID</i> <i>Exchange ID</i> <i>OrderTradingMode</i> <i>OrderTimeStamp</i> <i>Strategy Group</i> <i>Strategy Instrument</i> <i>Strategy Verb</i> <i>Strategy Trade</i> <i>Number</i> <i>Leg Number</i> <i>MatchNumber</i> <i>NumberInMatch</i>	
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## User Defined Strategies (FLEXCO)

### 4.16.1. New Strategy Creation

4.1	<b>ID #:</b> FLX-01	<b>Type:</b> New Strategy Instrument Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> New Strategy Creation.				
<b>Comments:</b> None.				
<b>Prerequisites</b>				
None.				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	<u>Client:</u> Send ON message specifying the Number of legs and the Instruments	Sends NI and KN Messages <i>Creation Status = 'C'</i>	<i>Sends JS/NS/HS messages</i>	



## 4.16.2. Existed Strategy Modification

<b>ID #:</b> FLX-02	<b>Type:</b> New Strategy Instrument Creation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Existed Strategy Modification			
<b>Comments:</b> Strategy Already Exists and the System will modify			
<b>Prerequisites</b>			
Execution of test case FLX01			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Send ON message specifying the Number of legs and the Instruments	Sends NI and KN Messages Creation Status = 'M'	Sends JS/NS/HS messages

## Bundle Order Test Scenarios

### 4.17.1. Bundle Order against Different Counterparties

ID #: BO-01	Type: Bundle Order	Requirement: Optional	Co-ordinated Test: Y
<b>Description:</b> Multiple proposal request against different counterparties completed successfully			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.</li> <li>3. Group for instrument INST1 and INST2 must be in _Continuous Trading mode.</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	Proposal acknowledgement indicating the double of Legs specified in the initial Proposal Request with the Trader ID used. Proposal Status = W: Waiting for approval. The proposal legs with Order Status = W: Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR). Proposal Type= B: Bundle Order	None

2	Exchange: Proposal Acceptance with Bundle Proposal (OB)		
3	Client	<p>Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.</p> <p>Order Status = (blank):</p> <p>Order put in the order book.</p> <p>Proposal Status= W: Waiting for approval.</p>	
4	Proposal Update (PU) unsolicited	<p>Proposal leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.</p> <p>Order Status=(blank):</p> <p>Order put in the order book</p> <p>Proposal Status=W; Waiting for approval.</p>	
5	Execution Notice (NT) unsolicited		Trade price is updated for INST1 and INST2

#### 4.17.2. Bundle Order against Different Counterparties Cancelled

<b>ID #:</b> BO-02	<b>Type:</b> Bundle Order	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Multiple proposal requests against different counterparties cancelled.			

Prerequisites			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.</li> <li>3. Group for instrument INST1 and INST2 must be in <u>Continuous Trading mode</u></li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	<p>Proposal acknowledgement indicating the double of Legs specified in the initial Proposal Request with the Trader ID used.</p> <p>Proposal Status = W: Waiting for approval.</p> <p>The proposal legs with Order Status = W:</p> <p>Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR).</p> <p>Proposal Type= B: Bundle Order.</p>	None
2	Client: Proposal Cancellation (XP)	Proposal cancellation specifying <u>any leg</u> (Original Order ID) of the Proposal and the <b>Refusal Reason</b> .	
3	Client	<p>Proposal cancellation acknowledgement with the latest Order Status and the <b>Refusal Reason</b>. Specifies the <b>Trader ID</b> used.</p> <p><b>Proposal Status=R: Refused</b></p>	
4	Proposal Update (PU) unsolicited	Sent to the PR Initiator Participant connection.	

		<p>Contains only the refused leg with the latest order status and indicates the <b>refusal reason</b>.</p> <p><b>Proposal status=R: Refused</b></p> <p>Note: No further proposal Updates (PU) will be received after <b>Proposal Status=R: Refused</b></p>	
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### 4.17.3. BO Leg Refusal

<b>ID #:</b> BO-03	<b>Type:</b> Bundle Order	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> BO leg refusal by participant.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.</li> </ol> <p>Group for instrument INST1 and INST2 must be in <u>Continuous Trading mode</u>.</p>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	Verify Proposal acknowledgement (KB)	None
2	Exchange: Proposal Cancellation (XP)		

3	Client	<p>Sent to the BO initiator Participant connection.</p> <p>Contains only the refused leg indicating the latest Order Status and the Refusal Reason.</p> <p>Proposal Status = R: Refused</p> <p>Note: No further Proposal updates (PU) will be received after Proposal status= R : Refused.</p>	None
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#### 4.17.4. BO Automatic Cancellation

<b>ID #:</b> BO-04	<b>Type:</b> Bundle Order	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> BO automatic cancellation at market closure (expiry).			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.</li> <li>3. Group for instrument INST1 and INST2 must be in Continuous Trading mode.</li> </ol>			
#	Test Steps	<b>Expected Results</b>	
		<b>Trading Engine Responses (SAIL)</b>	<b>Market Information (HSVF)</b>
1	Client: Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2	Verify Proposal acknowledgement (KB)	None

		<p>Order expiration notice at the end of the trading day.</p> <p>Order status=E: The order has been eliminated by the trading engine.</p> <p>Bundle orders are valid only during the trading day.</p> <p>No specific message (PU or PN) will be sent at market closure, but all confirmed legs will be removed.</p>	
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#### 4.17.5. Unsolicited Bundle order Proposal Notice

<b>ID #:</b> BO-05	<b>Type:</b> Bundle Order	<b>Requirement:</b> Mandatory	<b>Co-ordinated Test:</b> Y
<b>Description:</b> unsolicited Bundle Order proposal Notice sent from the Exchange to the Clients. Clients have to confirm to manage PN message			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.</li> <li>3. Group for instrument INST1 and INST2 must be in Continuous Trading mode.</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Exchange submit the BO (Bundle order request)	Proposal acknowledgement KB	
2	Client receive the PN message Proposal Type = B: Bundle Order	Exchange sends PN ( Proposal Notice)	

## 4.17.6. Deferred Bundle Order

<b>ID #:</b> BO-06	<b>Type:</b> Bundle Order	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Deferred Publication for Bundle Orders			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. The book for instrument INST2 must be set to [Buy 12@2.00 – Sell 10@5]; no other orders must be in the book.</li> <li>3. Group for instrument INST1 and INST2 must be in _Continuous Trading mode.</li> <li>4. <b>The volume/value of each leg would respect the Post Trade LIS Value and Volume (please refer to Market Access to know these thresholds)</b></li> </ol>			
<b>5. Expected Results</b>			
#	Test Steps	Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p>Client:</p> <p>Client submit Bundle Order (BO) on INST1 and INST2 specifying Exchange counterparty1 and counterparty2</p> <p><i>BO message with [Deferred Publication=D]</i></p>	<p>Proposal acknowledgement (KB message) indicating the double of Legs specified in the initial Proposal Request with the Trader ID used.</p> <p>Proposal Status = W: Waiting for approval.</p> <p>The proposal legs with Order Status = W: Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR).</p> <p>Proposal Type= B: Bundle Order</p> <p>Deferred Publication=D: Deferred</p> <p>A single KE message will be sent for every leg</p>	None



		(committed order) of the Bundle Order. Order Status = (blank): Order put in the order book	
2	Exchange: Proposal Acceptance with Bundle Proposal (OB)	<p>Proposal Acceptance acknowledgment will be received by the Participant that sent the OB with the Trader ID used.</p> <p>Order Status = (blank): Order put in the order book</p> <p>Proposal Status = A: Approved</p> <p>A single KE will be sent for every leg (committed order) of the Bundle.</p> <p>Order Status = (blank): Order put in the order book</p>	
3	Proposal Update (PU) unsolicited	<p>Proposal leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.</p> <p>Order Status=(blank): Order put in the order book</p> <p>Proposal Status=W; Waiting for approval.</p>	
4	<p>Execution Notice (NT) unsolicited</p> <p><i>[Deferred Publication= D]</i></p>		Trade price is updated for INST1 and INST2

## Third Party Trade Test Scenarios

### 4.18.1. Third Party Trade

4.1	<b>ID #:</b> TPT-01	<b>Type:</b> Third Party Trade	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> Third Party Trade request completed successfully				
<b>Prerequisites</b>				
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. Group for instrument INST1 must be in Continuous Trading mode.</li> </ol>				
#	Test Steps	Expected Results		
		Trading Engine Responses (SAIL)	Market Information (HSVF)	
1	Client: Client submit Proposal Request (PR) on INST1 specifying Exchange counterparty1 and counterparty2	<p>Proposal acknowledgement indicating the double of Legs specified in the initial Proposal Request with the Trader ID used.</p> <p>Proposal Status = W: Waiting for approval.</p> <p>The proposal legs with Order Status = W: Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR).</p> <p>Proposal Type= T: Inter Dealer Broker Order.</p>	None	
2	Exchange: Proposal Acceptance with			

	Bundle Proposal (OB)		
3	Client	<p>Bundle leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.</p> <p>Order Status = (blank): Order put in the order book.</p> <p>Proposal Status= W: Waiting for approval.</p>	
4	Proposal Update (PU) unsolicited	<p>Proposal leg acceptance notice sent to the Initiator Participant with the details of multiple leg(s) accepted.</p> <p>Order Status=(blank): Order put in the order book</p> <p>Proposal Status=W; Waiting for approval.</p>	Trade price is updated for INST1
5	Execution Notice (NT) unsolicited		Trade price is updated for INST1

#### 4.18.2. Third Party Trade Cancelled

<b>ID #:</b> TPT-02	<b>Type:</b> Third Party Trade	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Multiple proposal requests against different counterparties cancelled.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. Group for instrument INST1 must be in _Continuous Trading mode</li> </ol>			
<b>#</b>	<b>Test Steps</b>	<b>Expected Results</b>	

		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Client submit Proposal Request (PR) on INST1 specifying Exchange counterparty1 and counterparty2	Proposal acknowledgement indicating the double of Legs specified in the initial Proposal Request with the Trader ID used. Proposal Status = W: Waiting for approval. The proposal legs with Order Status = W: Waiting for approval refer to the proposal to be sent to the Entering Firm ID and the reverse sided proposal to be send to Opposite Firm ID (in the original PR). Proposal Type= T: Inter Dealer Broker Order.	None
2	Client: Proposal Cancellation (XP)	Proposal cancellation specifying <u>any leg</u> (Original Order ID) of the Proposal and the <b>Refusal Reason</b> .	
3	Client	Proposal cancellation acknowledgement with the latest Order Status and the <b>Refusal Reason</b> . Specifies the <b>Trader ID</b> used. <b>Proposal Status=R: Refused</b>	
4	Proposal Update (PU) unsolicited	Sent to the PR Initiator Participant connection. Contains only the refused leg with the latest order status and indicates the <b>refusal reason</b> . <b>Proposal status=R: Refused</b> Note: No further proposal Updates (PU) will be received after <b>Proposal Status=R: Refused</b>	

## 4.18.3. Third Party Trade Leg Refusal

<b>ID #:</b> TPT-03	<b>Type:</b> Third Party Trade	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> Y
<b>Description:</b> TPT leg refusal by participant.			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>2. Group for instrument INST1 must be in <u>Continuous Trading mode</u> .</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Client submit Proposal Request (PR) on INST1 specifying Exchange counterparty1 and counterparty2	Verify Proposal acknowledgement (KB)	None
2	Exchange: Proposal Cancellation (XP)		
3	Client	<p>Sent to the TPT initiator Participant connection.</p> <p>Contains only the refused leg indicating the latest Order Status and the Refusal Reason.</p> <p>Proposal Status = R: Refused</p> <p>Note: No further Proposal updates (PU) will be received after Proposal status= R : Refused.</p>	None

## 4.18.4. Third Party Trade Automatic Cancellation

ID #:	Type:	Requirement:	Co-ordinated Test:
TPT-04	Third Party Trade	Optional	N
<b>Description:</b> TPT automatic cancellation at market closure (expiry).			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>Group for instrument INST1 must be in Continuous Trading mode.</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Client submit Third Party Trade (TPT) on INST1 specifying Exchange counterparty1 and counterparty2	Verify Proposal acknowledgement (KB)	None
2		Order expiration notice at the end of the trading day. Order status=E: The order has been eliminated by the trading engine.Third Party Trades are valid only during the trading day.No specific message (PU or PN) will be sent at market closure, but all confirmed legs will be removed.	

## 4.18.5. Unsolicited Third Party Prosopal Notice

ID #:	Type:	Requirement:	Co-ordinated Test:
TPT-05	Third Party Trade	Mandatory	Y
<b>Description:</b> unsolicited Proposal Notice sent from the Exchange to the Clients. Clients have to confirm to manage PN message			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>The book for instrument INST1 must be set to [Buy 12@2.00 – Sell 10@6]; no other orders must be in the book.</li> <li>Group for instrument INST1 must be in Continuous Trading mode.</li> </ol>			

#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Exchange submit the PR proposal request  Client: Receive a Third Party Trade Proposal notice	Receive a Proposal Notice from the Exchange.  <i>PN message</i> Proposal Type T: Inter Dealer Broker Order	None

## Pre-Trade Validation

### 4.19.

#### 4.19.1. Exposition Risk Limit Rejection

ID #: PTV-01	Type: Pre-Trade Validation	Requirement: Optional	Co-ordinated Test: N
<b>Description:</b> A new order hits a configured Exposition RiskLimit and is rejected			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. RiskLimits are configured on the Participant's Trader team or Firm.</li> <li>2. A RiskLimit matching the order's Side, Firm or Trader team and Instrument or Group is already reached.</li> <li>3. The market for instrument INST1 must be set to [10@101.00 – <b>10@102.00</b>].</li> <li>4. Group for instrument INST1 must be in 'Continuous Trading' mode</li> </ol>			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	Client: Enters a Sell Limit Order 40@101.10 with a Clearing	Order is rejected.  <i>Sends a ER message</i>  <i>[Status: ]</i>	Quote or Market Depth sent.  <i>An F/FF or H/HF message is sent</i>  <i>Strategy: An HS message is sent</i>

	<p>Instruction, for instrument INST1.</p> <p>A RiskLimit matching the order's Side, Firm or Trader team and Instrument or Group is already reached.</p> <p><i>Sends a OE message</i></p>		
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#### 4.19.2. Kill Switch

<b>ID #:</b> PTV-02	<b>Type:</b> Pre-Trade Validation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Kill Switch by Risk Manager Participant			
<b>Prerequisites</b>			
<ol style="list-style-type: none"> <li>1. Firm / Trader / Risk Manager exist</li> <li>2. The managed entity has at least one live order on book</li> </ol>			
#	Test Steps	<b>Expected Results</b>	
		<b>Trading Engine Responses (SAIL)</b>	<b>Market Information (HSVF)</b>
1	Risk Manager Participant send the RT message	<p><i>Sends KO message to the risk manger user</i></p> <p><i>Sends NZ messages to the standard users for orders [Status = R ]</i></p> <p><i>Sends NP message to the standard user for quotes [ Cancel Reason = S]</i></p>	



## 4.19.3. Risk Limit Configuration

<b>ID #:</b> PTV-03	<b>Type:</b> Pre-Trade Validation	<b>Requirement:</b> Optional	<b>Co-ordinated Test:</b> N
<b>Description:</b> Risk limits configuration or update by Risk Manager			
<b>Prerequisites</b>			
1. The market for instrument INST1 must be set to [10@2.00 – 10@2.50].			
#	Test Steps	Expected Results	
		Trading Engine Responses (SAIL)	Market Information (HSVF)
1	<p>Client enters Risk Limits Configuration:</p> <p>MK to set risk limits for their managed entities or MQ to set Market Maker Risk limits for their managed entities</p> <p><i>Firm, Trader, Reset, Number of Risk Limit Block, Group, Instrument, Max Order Quantity, Max Traded Long=5, Max Traded Short, Max Exposed Long=25, Max Exposed Short, Max Traded Spreads, Max Exposed Spreads</i></p>	<p><i>Sends LB message - Exchange acknowledges with Bulk Command Message Acknowledge</i></p>	
2	<p>Insert an order on Buy Side for quantity 25 on INST 1 at price P1</p>	<p>Risk Limits Configuration MK/MQ is sent out</p> <p><i>Order/Modification Acknowledgment</i></p> <p><i>KE/KM</i></p> <p><i>Risk Limits Usage Notice</i></p> <p><i>MN or NQ</i></p>	

3	Insert an order on Buy Side for quantity 1 on INST 1	<p>Error Message</p> <p><i>ER 3103</i></p> <p><i>ExposedLong limit exceeded at the trader/instrument level</i></p>	
4	Insert an order on Sell Side for quantity 6 on INST 1 at price P1	<p>Execution Notice</p> <p><i>NT message</i></p> <p>Risk Limits Usage Notice</p> <p><i>MN message</i></p> <p>Order Cancellation</p> <p><i>NZ message with status T</i></p>	

# CONTACT

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