Document title

OPTIQ CASH OEG CONFORMANCE : SBE AND FIX TEST SCRIPT

Document type or subject

Conformance test

Version number	Date
Revision Number: 1.3	12 Apr 2018

Number of pages	Author
65	Optiq Team

1. PREFACE

PURPOSE

The purpose of this document is to provide customers with a description of the Optiq order entry conformance script, with scenarios for connectivity, functional data conformance and high availability tests for the Phase 2 of the migration to Optiq covering the Euronext Cash markets.

Please note that the DR(disaster recovery) testing will be detailed in a future version.

TARGET AUDIENCE

This document is particularly relevant to clients that will need to perform mandatory conformance tests on Optiq Cash order entry, i.e. :

- Member developers;
- Technology providers (Independent Software Vendors and Application Service Providers ASPs);
- Liquidity Provider trading members using an ISV/ASP provider solution.

WHAT'S NEW?

The following lists only the most recent modification made to this revision/version. For the Document History table, see the Appendix. An update of this document will be provided in February 2018 providing functional scenarios descriptions for the TCS market and Algo ID management. Additionally please be aware that some potential adjustments to the conformance test scripts can be made to the below functionalities in the next release of this document:

- Liquidity Provider Command

- Liquidity Provider Command – Reject

REVISION NO./ VERSION NO.	DATE	AUTHOR	CHANGE DESCRIPTION
1.0	15 Nov 2017	Euronext	First version
1.1	19 Jan 2018	Euronext	Second version
1.2	19 March 2018	Euronext	Third version (HA section added)
1.3	19 March 2018	Euronext	Logon reject use case added related to invalid last sequence number for SBE (too high NextExpectedMsgSeqNum (789) for FIX) / HA section updated with mandatory versus highly recommended scenarios.

ASSOCIATED DOCUMENTS

The following lists the associated technical documents, which either should be read in conjunction with this document or which provide other relevant information for the user:

- Technical specifications (Phase 2: Cash OEG / ME & MDG)

  – Euronext Cash Market – Optiq Kinematics Specifications
  – Euronext Cash Markets – Optiq OEG Client Specifications – SBE Interface
  – Euronext Cash Markets – Optiq OEG Client Specifications – FIX 5.0 Interface
  – Euronext Cash Markets – Optiq MDG Client Specifications (updated for Phase 2)
  – Euronext Cash Markets - Optiq & TCS Error List
  – Euronext Cash Markets - Optiq OEG Connectivity Configuration specifications
  – Euronext Cash and Derivatives Markets - Optiq File Specifications
  – Euronext Cash Markets - CCG to OEG Changes highlights
  – Euronext Cash Markets - Change Highlights – Optiq MDG Phase 1 to 2
  – Euronext Cash Markets – Optiq High Availability and Business Continuity
  – EURONEXT OPTIQ PHASE 2: ORDER ENTRY GATEWAY (OEG) AND MATCHING ENGINE (ME) CONFORMANCE TEST GUIDELINES

- Technical Inputs:
  – Euronext Cash Markets – Optiq OEG SBE Template
  – Euronext Cash Markets – Optiq MDG SBE Template

CONTACT

Please find below the Optiq Support Desk contact details, which has been established to ensure customer readiness by:

  – sending information to customers related to Optiq
  – answering customers' questions related to Optiq
  – assisting customers in their testing and validation on the EUA environment
  – providing follow-up on customer conformance testing
  – assessing customers' state of readiness with regards to technical changes

Optiq Support Desk
- Tel: +33 1 70 48 25 55

Email: optiq@euronext.com

SCOPE OF MESSAGES AND FUNCTIONALITIES

The following table describe each Optiq Segment tag. Each tag will be then used for each message to specify on which Optiq Segment this message applies to. If there is no tag, the test applies to all segments.

Optiq Segment	Tag
Equities	EQ
Funds	FUND
Fixed Income	FRM

Warrants and Certificates	SP
Options	OPT
Futures	FUT
Commodities	CMDT
Indices	IDX
Drop Copy	DC

 Revision Number: 1.3

CONTENTS

2. SOFTWARE IDENTIFICATION

2.1 IN HOUSE SOLUTION IDENTIFICATION   EQ FUND FRM SP FUT OPT CMDT

REQUIRED SBE MESSAGES	Logon (100) Software provider
REQUIRED FIX MESSAGES	Logon (A) SoftwareProvider (21050)
MANDATORY	Yes for In house solutions

The approach consists of populating a dedicated field called "Software Provider" that exists in both SBE and FIX OEG messages as follows:

For an In house solution : To identify as being in house and provide transparency of versioning.

Instruction for SBE

The customer submits a Logon (100) message , making sure the field Software Provider will be filled using 8 characters in total, the three first Digits must be filled with Zeros and the remaining 5 characters must contain the versioning of your API solution.

0	0	0	Y	Y	Y	Y	Y

Success Criteria for **SBE**
The Optiq Analyst confirms a successful login, and validate the Software provider Field was populated.

A Logon Ack (101) message is sent by OEG providing the Exchange ID and the last message received from the client.

Instruction for FIX

The customer submits a Logon (A) message , making sure the field SoftwareProvider (21050) field will be filled using 8 characters in total, the three first Digits must be filled with Zeros and the remaining 5 characters must contain the versioning of your API solution.

0	0	0	Y	Y	Y	Y	Y

Success Criteria for **FIX**
The Optiq Analyst confirms a successful login, and validate the Softwareprovider Field was populated.

A Logon Ack (A) message is sent by OEG providing the Exchange ID and the last message received from the client.

2.2 ISV SOLUTION IDENTIFICATION EQ FUND FRM SP FUT OPT CMDT

REQUIRED SBE MESSAGES	Logon (100) Software provider
REQUIRED FIX MESSAGES	Logon (A) SoftwareProvider (21050)
MANDATORY	Yes for ISV solutions

For an ISV solution: To identify the ISV provider and provide transparency of versioning.

The approach consists of populating a dedicated field called "Software Provider" that exists in both SBE and FIX OEG messages as follows:

Instruction for SBE

The customer submits a Logon (100) message , making sure the field Software Provider will be filled using 8 characters in total, the three first Digits must be filled with the appropriated prefix assigned by the Exchange and the remaining 5 characters must contain the versioning of your API solution.

X	X	X	Y	Y	Y	Y	Y

Success Criteria for **SBE**
The Optiq Analyst confirms a successful login, and validate the Software provider Field was populated.

A Logon Ack (101) message is sent by OEG providing the Exchange ID and the last message received from the client.

Instruction for FIX

The customer submits a Logon (A) message , making sure the field Software Provider will be filled using 8 characters in total, the three first Digits must be filled with the appropriated prefix* assigned by the Exchange and the remaining 5 characters must contain the versioning of your API solution.

X	X	X	Y	Y	Y	Y	Y

Success Criteria for **FIX**
The Optiq Analyst confirms a successful login, and validate the Softwareprovider Field was populated.

A Logon Ack (A) message is sent by OEG providing the Exchange ID and the last message received from the client.

Note : The dedicated prefix will be sent from Euronext CAS service XXX to Each ISV.
ISV prefix range from -001 to -213 as per 4 bytes decimal digit representation format (- 2,147,483,646 …-1).

3.   ALGO IDENTIFICATION

3.1   ISV ALGO IDENTIFICATION   EQ FUND FRM SP FUT OPT CMDT

REQUIRED SBE MESSAGES	New Order (01); Ack (03)
REQUIRED FIX MESSAGES	NewOrderSingle (D); ExecutionReport (8)
MANDATORY	Yes for ISV solutions

Approach

The Algo Short code assignment will be managed as follows

- The negative range of short codes are allocated for ISV Algos.
- In order to avoid conflicts between multiple ISV, each ISV will be given a dedicated range to use for Algo Short code assignment .
- Once defined, the Algo Short Code should be transmitted by the ISV to the clients behind.

For an ISV solution: A dedicated prefix will be sent from Euronext CAS service XXX to Each ISV.

ISV prefix range from -001 to -213 as per 4 bytes decimal digit representation format (- 2,147,483,646 …-1).

ISV must assign his Algo ID short codes in the following negative range where XXX is the ISV prefix :

Instruction for SBE

The customer submits valid and correctly formatted New Order (01) message, making sure the field ClientIdentificationShortCode will be filled using the appropriated ISV prefix assigned by the Exchange

-	X	X	X	0	0	0	0	0	0	0

-	X	X	X	9	9	9	9	9	9	9

Success Criteria for **SBE**

The   Optiq   Analyst   confirms   a   successful   new   Order   message,   and   validate the ClientIdentificationShortCode Field was populated.

Instruction for FIX

The customer submits valid and correctly formatted New Order (D) message, making sure the field ClientIdentificationShortCode will be filled using the appropriated ISV prefix assigned by the Exchange

-	X	X	X	0	0	0	0	0	0	0

-	X	X	X	9	9	9	9	9	9	9

Success Criteria for **FIX**

The Optiq Analyst confirms a successful new Order message, and validate the ClientIdentificationShortCode Field was populated

   Revision Number: 1.3

4.   CLIENT ORDER ID MANAGEMENT

4.1   NEW ORDER   EQ FUND FRM SP FUT OPT CMDT

REQUIRED SBE MESSAGES	New Order (01);
REQUIRED FIX MESSAGES	NewOrderSingle (D);
MANDATORY	Yes

Depending on the nature of the client access, the *Client Order ID* must respect some constraints as described below.

Moreover it is recommended that clients implement their own configurable prefix in order to allow firms to integrate several application instances easily and ensure *Client Order ID* uniqueness across all the firm orders.

Regular Access: when a firm contracts its own and exclusive order entry access means directly with Euronext, the Firm Trading Solution type is Regular Access (or sometimes Direct Access) :

- **Regular "In House" Accesses** (i.e. non via ISV nor using Service Bureau) : Must specify a ClOrdID value in the positive number range.
- **Regular Accesses via ISV** without use of Service Bureau:
  - o The ISV must specify a ClOrdID value in the negative number range with the unique 3-digit number prefix assigned by the exchange. Numerically it means that clients are restricted to a range from –XXX0000000000000000 to –XXX9999999999999999, where XXX is their ISV ID.
  - o The correct use of the ISV ID and range is checked by the exchange during the conformance test, however afterwards the OEG will not perform any checks of the correct assignment of the ID or range in the inbound application message.
  - o A dedicated prefix will be sent from Euronext CAS service XXX to Each ISV.

Service Bureau Access: when a third-party customer, which may, among others, refer to a Service Bureau, contracts order entry access means with Euronext to act as an order carrier on behalf of several firms, the Firm Trading Solution type is Service Bureau Access.

  - o The Service bureau must specify a ClOrdID value in the negative number range with the unique 3-digit number prefix assigned by the exchange. Numerically it means that clients are restricted to a range from –XXX0000000000000000 to –XXX9999999999999999, where XXX is their Service Bureau ID.
  - o The Service Bureau ID is provided by the Euronext CAS service and is checked during the conformance test and is also checked and enforced at the OEG level for each inbound application message.

- **Instructions for SBE and FIX**: Customer sends order with valid prefix in the client order id field.

- **Success Criteria for SBE and FIX**: Optiq Analyst confirms that field Client Order Id / ClOrdID (tag 11) has the correct prefix
- a. Optiq Analyst confirms ClOrdID has a negative value
- b. Optiq Analyst confirms ClOrdID has the correct prefix

5.   ADMINISTRATION MESSAGES

5.1   LOGON   EQ FUND FRM SP FUT OPT CMDT

REQUIRED SBE MESSAGES	Logon (100)
REQUIRED FIX MESSAGES	Logon (A)
MANDATORY	Yes

Instruction for SBE

The customer submits a valid and correctly formatted Logon message to log into their OEG session with the following fields for **SBE**:

- Logical Access ID
- OE Partition ID
- Last Message Sequence Number: For the first connection of the day it should be set to zero (0). However, it will be the Sequence Number of the last message received by the client from the Exchange on a specific OE session.
- Software Provider (Mandatory for customers using a software Provider)
- Queuing Indicator set to 0 or Queuing Indicator set to 1

Success Criteria SBE

The Optiq Analyst confirms a successful login, this consists of a logon and then a logon confirmation.

A Logon Ack (101) message is sent by OEG providing the Exchange ID and the last message received from the client.

Instruction for FIX

The customer submits a valid and correctly formatted Logon message to log into their OEG session with the following fields for **FIX:**

- LogicalAccessID (21021)
- OEPartitionID (21019)
- NextExpectedMsgSeqNum (789): for the first connection of the day it must be 1. However it will be the sequence number of the last message received by the client from Exchange on a specific OEG session.
- SoftwareProvider (21050) – (Mandatory for customers using a software Provider)
- QueueingIndicator (21020) =0 or Logon with QueueingIndicator (21020)=1
- DefaultApplVerID (1137)= 9
- EncryptMethod (98)= 0

Success Criteria for FIX

The Optiq Analyst confirms a successful login. A Logon (A) message is sent back by OEG with the sequence number of the last message received from the client.

5.2   LOGON REJECT   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Logon Reject (102)
REQUIRED FIX MESSAGES	Reject (3)
MANDATORY	Yes

Instructions for SBE:
1- The customer initiates an OEG session with a wrong Logical Access ID
2- The customer initiates an OEG session with Queueing Indicator not sent / set
3- The customer try to logon with a LogicalAccessID which is already connected.
4- The customer try to logon with a LastSequenceNumber much higher than last sent by OEG.

Success Criteria for SBE:
1- Logon is rejected with Logon Reject Code= 1 (Unknown Connection Identifier)
2- Logon is rejected with Logon Reject Code= 7 (Invalid Logon format)
3- Logon is rejected with Logon Reject Code= 4 (Client session already logged on)
4- Logon is rejected with Logon Reject Code= 3 (Invalid sequence number) and Last Sequence Number field set to a given value. Then client sends his next logon where LastSequenceNumber is populated with a sequence number less or equal to this given value and he is able to logon successfully.

Instructions for FIX:
1- The customer initiates an OEG session with invalid Tag number .
2- The customer initiates an OEG session with required Tag missing
3- The customer initiates an OEG session with Tag NextExpectedMsgSeqNum (789) much higher than last sent by OEG

Success Criteria for FIX:
1- Logon is rejected with session reject reason= 0 (Invalid Tag number)
2- Logon is rejected with session reject reason= 1 (Required Tag is missing)
3- Logon is rejected with session reject reason= 10 (ReceivedNextExpectedMsgSeqNum(789) is too high) and LastMsgSeqNumProcessed (369) field set to a given value. Then client sends his next logon where the field NextExpectedMsgSeqNum (789) is populated with a sequence number less or equal to this given value and he is able to logon successfully.

5.3   HEARTBEAT   EQ FUND FRM SP OPT FUT CMDT
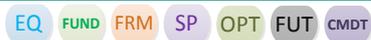
REQUIRED SBE MESSAGES	HeartBeat (106)
REQUIRED FIX MESSAGES	HeartBeat (0)
MANDATORY	Yes

Instructions for SBE: the customer should confirm the Template ID, Schema ID values sent are the same as in their Logon (100) message, and corresponds to the SBE template in use.

Success Criteria for SBE: the customer confirms regular Heartbeats are received according to the "Delay of Inactivity" defined by the exchange for the Optiq segment.

                                       Revision Number: 1.3

Instructions for FIX: The customer should confirm the HeartBInt (Tag 108) setting is the same as in their Logon (A) message, and corresponds to the value defined by the exchange for the Optiq segment.

Success Criteria for FIX: The customer confirms regular Heartbeats are received according to the HeartBInt setting defined by the exchange for the Optiq segment.

5.4   RESEND REQUEST   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	N/A
REQUIRED FIX MESSAGES	ResendRequest (2)
MANDATORY	Yes, for FIX protocol only

Instruction: the customer submits a valid and correctly formatted Resend Request (2) message with a nominated Begin and End Seq number.

Success Criteria: the Exchange resends messages, the customer confirms successful receipt of messages.

5.5   SEQUENCE RESET   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	N/A
REQUIRED FIX MESSAGES	SequenceReset (4)
MANDATORY	Yes, for FIX protocol only

Instruction: If possible, the customer submits a valid and correctly formatted Sequence Reset (4) by setting GapFillFlag (Tag 123) to 'Y' . The value in the NewSeqNo (Tag 36) will always represent the MsgSeqNum of the next message that by the Market.

Success Criteria: CTSG confirms successful receipt of a valid and correctly formatted Sequence Reset (4).

5.6   TEST REQUEST   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	TestRequest (107)
REQUIRED FIX MESSAGES	TestRequest (1)
MANDATORY	Yes

Instruction for SBE: the customer submits a Test Request (107) message .

Success Criteria for **SBE** the Exchange receives the Test Request. The Exchange will automatically reply with a HeartBeat (106) message. The customer confirms receipt of Heartbeat.

Instruction for FIX: the customer submits a Test Request (1) message.

Success Criteria for FIX: the Exchange receives the Test Request. The Exchange will automatically reply with a HeartBeat (0) message. The customer confirms receipt of Heartbeat with the expected TestReqID (Tag 112).

5.7   LOGOUT   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Logout (103)
REQUIRED FIX MESSAGES	Logout (5)
MANDATORY	Yes

Instructions for SBE:
   a. The customer submits a valid and correctly formatted Logout (103) message to log out the OEG session, with field Log Out Reason Code = 0
   b. The customer tries to logon with a LogicalAccessID which is already connected.

Success Criteria for SBE:
   a. The customer submits a valid and correctly formatted Logout (103) message to log out the OEG session.
      Optiq Analyst confirms the customer is successfully logged out.
   b. SessionStatus =103 (Client session already logged on).

Instructions for FIX:
   a. The customer submits a valid and correctly formatted Logout (5) message to log out the OEG session, with SessionStatus (tag 1409) set to 100 (Regular Logout by client).
   b. The customer tries to logon with a LogicalAccessID which is already connected.

Success Criteria for FIX:
   a. The customer confirms receipt of a valid Logout (5) message with SessionStatus=4 (Session logout complete). Optiq Analyst confirms the customer is successfully logged out.
   b. The customer confirms receipt of a valid logout (5) message with SessionStatus =103 (Client session already logged on).

6. SUBMISSION OF APPLICATION MESSAGES

6.1 NEW ORDER EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Ack (03)
REQUIRED FIX MESSAGES	NewOrderSingle (D); ExecutionReport (8)
MANDATORY	Yes

Instructions for SBE: the customer submits valid and correctly formatted new BUY order message, with all mandatory and conditional MIFID II fields properly populated.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of an Ack (03) message for BUY order with Ack Type= 0 (New Order Ack) without new MIFID II fields.

Instructions for FIX: the Customer submits valid and correctly formatted BUY new order messages, with all mandatory and conditional MIFID II fields properly populated.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of an Execution Report (8) message for BUY order with ExecType (Tag 150) = 0 (New) and OrdStatus (Tag 39) = 0 (New) .

Supported and Tested Successfully: ☐

6.2 TRADE – FULL EXECUTION EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Fill (04)
REQUIRED FIX MESSAGES	NewOrderSingle (D); Execution Report (8)
MANDATORY	Yes

Instructions for SBE: the customer submits valid and correctly formatted new SELL order message. An Optiq analyst will match the order entered by the client in order to generate a Full execution.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Fill (04) message.

Instruction for FIX: the customer submits valid and correctly formatted new SELL order message. An Optiq analyst will match the order entered by the client in order to generate a Full execution.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of an Execution report (8) message with ExecType=2 (Filled).

6.3   TRADE – PARTIAL EXECUTION   EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Fill (04)
REQUIRED FIX MESSAGES	NewOrderSingle (D); Execution Report (8)
MANDATORY	Yes

Instructions for SBE: the customer submits valid and correctly formatted new SELL order message. An Optiq analyst will match the order entered by the client in order to generate a Partial execution.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Fill (04) message.

Instruction for FIX: the customer submits valid and correctly formatted new SELL order message. An Optiq analyst will match the order entered by the client in order to generate a Partial execution.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of an Execution report (8) message with ExecType=1 (Partially Filled).

6.4   ORDER CANCEL   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Cancel Request (12)
REQUIRED FIX MESSAGES	OrderCancelRequest (F)
MANDATORY	Yes

Instruction for SBE: the customer submits a valid and correctly formatted Cancel Request (12) message, with Buy or Sell side.

Success criteria for SBE: the customer confirms the receipt and correct interpretation of a Kill (05) message for BUY or SELL order.

Instruction for FIX: the customer submits a valid and correctly formatted Cancel Request (F) message, with Buy or Sell side. Make sure the that required and, where applicable, the conditionally required fields are populated

Success criteria for FIX: the customer confirms the receipt and correct interpretation of an Execution Report (8) message for BUY or SELL orders, with ExecType and OrdStatus set to 4 = Cancelled.

6.5   CANCEL ON DISCONNECT – DEACTIVATED   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01)
REQUIRED FIX MESSAGES	NewOrderSingle (D)
MANDATORY	Yes

Instruction for SBE: the customer submits a valid and correctly formatted order with field Execution Instruction set to 3 (Disabled Cancel On Disconnect Indicator), then the client disconnects the OEG session.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Ack (03) message. The order remains in the book.

Instruction for FIX: the customer submits a valid and correctly formatted order with TAG 21018=1 (Order not in the scope of Cancel On Disconnect), then the client disconnects the OEG session.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of an Execution Report (8) message. The order will remain in the book.

6.6 CANCEL ON DISCONNECT – ACTIVATED EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01)
REQUIRED FIX MESSAGES	NewOrderSingle (D)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted order with field Execution Instruction set to 0 (Disabled Cancel On Disconnect Indicator), then the client will disconnect the OEG session.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Ack (03) message. The order remains in the book.

Instruction for FIX: the customer submits a valid and correctly formatted order with TAG 21018=0 (per Default Configuration), then the client disconnects the OEG session.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of an Execution Report (8) message. The order remains in the book.

6.7 ORDER CANCEL REJECT EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Cancel Request (12); Reject (07)
REQUIRED FIX MESSAGES	OrderCancelRequest (F); OrderCancelReject (9)
MANDATORY	Yes

Instruction for SBE: the customer submits a valid and correctly formatted Cancel Request (12) message, Buy or Sell which is already executed.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of a Reject (07) message for the BUY or SELL order with error code 2101 (Unknown Order).

Instruction for FIX: the customer submits a valid and correctly formatted Cancel Request (F) message, with Buy or Sell order. For example trying to cancel an order that is already fully executed.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of an OrderCancelReject (9) message with Tag 102=0 (Too late to cancel) for Buy or Sell order.

6.8   MASS QUOTE / QUOTE ^SP

REQUIRED SBE MESSAGES	Quote (08); Quote Ack (09)
REQUIRED FIX MESSAGES	MassQuote (i); MassQuoteAck (b)
MANDATORY	Yes for LP customers

Instruction for SBE: the Liquidity Provider submits valid and correctly formatted quotes, using the Quote (08) message on different Warrants instruments.

Success Criteria for SBE: the Liquidity Provider confirms the receipt and correct interpretation of QuoteAck (09) message.

Instruction for FIX: the Liquidity Provider submits valid and correctly formatted quotes, using MassQuote (i) message on different Warrants instruments belonging to the same Partition.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of MassQuoteAck (b) message.

6.9   MASS QUOTE / QUOTE REJECT ^SP

REQUIRED SBE MESSAGES	Quote (08); Quote Ack (09)
REQUIRED FIX MESSAGES	MassQuote (i); MassQuoteAck (b)
MANDATORY	Yes for LP customers

Instruction for SBE: the Liquidity Provider submits a valid and correctly formatted Quote (08) message on Warrants instrument with an unknown / incorrect Symbol Index.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of Quote Ack (09) message with the Bid Error Code and Offer Error Code populated.

Instruction for FIX: the Liquidity Provider submits some valid and correctly formatted MassQuote (i) message on a Warrants instrument with an unknown / incorrect SymbolIndex.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of MassQuoteAck (b) messages, with QuoteStatus=5 (Rejected) and BidErrorCode and OfferErrorCode fields populated.

6.10 OWNERSHIP REQUEST EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Ownership Request (18); Ownership Request Ack (17)
REQUIRED FIX MESSAGES	OwnershipRequest (U18); OwnershipRequestAck (U29)
MANDATORY	No

Instructions for SBE and FIX: the customer sends orders with a LogicalAccessID "A" and performs an Ownership Request with a LogicalAccessID "B" belonging to the same Firm, in order to define LogicalAccessID "B" as ones that will all Outbound messages associated to the targeted orders.

Success Criteria SBE: the customer confirms the receipt and correct interpretation of :
a) First OwnershipRequestAck (17) message with the total Affected Orders set to -1 and repeats all the fields as they were submitted in message (18)
b) Ack (03) message per order affected, if any. All such Ack messages will have the Ack Type set to 15 (Ownership Request Ack)
c) Second OwnershipRequestAck (17) message with the total Affected Orders set to the number of orders affected, which should be the same as the number of Ack (03) messages received.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of two Ownership Request Ack (U29) messages, and ExecutionReport (8) messages if any orders are present in the book.
a) First message has TotalAffectedOrders (Tag 533) set to -1 and repeats all fields as they were submitted.
b) Then the client may receive an ExecutionReport (8) message per order affected by the command, if any. All suck ExecutionReport (8) messages have the ExecType set to k (OwnershipRequest Ack).
c) Second message is received when the ownership request is totally processed, indicating the number of orders affected, which should be the same as the number of ExecutionReport (8) messages received.

6.11 LIQUIDITY PROVIDER COMMAND SP

REQUIRED SBE MESSAGES	Liquidity Provider Command (32)
REQUIRED FIX MESSAGES	LiquidityProviderCommand (UZ)
MANDATORY	No

Instructions for SBE:
a- Send a **Liquidity Provider Command** (32) message, with field LP Action Code set to 1(Knock-In By Issuer (KIBI))

b- Send a **Liquidity Provider Command** (32) message, with field LP Action Code set to 2 (Knock-Out By Issuer (KOBI))

c- Send a **Liquidity Provider Command** (32) message, with field LP Action Code set to 3 (Payment After Knock-Out (PAKO))

Success criteria for SBE: The customer confirms the receipt and correct interpretation of an Ack (03) message with:
a) field Ack Type set to 7 (Knock-In By Issuer (KIBI) Ack)
b) field Ack Type set to 8 (Knock-Out By Issuer (KOBI) Ack)

c) field Ack Type set to 9 (Payment After Knock-Out (PAKO) Ack)

Instructions for FIX:

a- Send a **LiquidityProviderCommand** (UZ) message, with LPActionCode (Tag 10076) set to 1 (Knock-In By Issuer (KIBI))

b- Send a **LiquidityProviderCommand** (UZ) message, with LPActionCode set to 2 (Knock-Out By Issuer (KOBI))

c- Send a **LiquidityProviderCommand** (UZ) message, with LPActionCode set to 3 (Payment After Knock-Out (PAKO))

Success criteria for FIX: The customer confirms the receipt and correct interpretation of a RequestAckMessage (Uy) message.

6.12   LIQUIDITY PROVIDER COMMAND – REJECT ^{SP}

REQUIRED SBE MESSAGES	**Liquidity Provider Command (32)**
REQUIRED FIX MESSAGES	**LiquidityProviderCommand (UZ)**
MANDATORY	**No**

Instructions for SBE: the customer sends:
   a) a **Liquidity Provider Command** (32) message on an instrument belonging to a Class which is a Closed (End Of Day) state.
   b) a **Liquidity Provider Command** (32) message with LP Action Code set to 4 (Bid only) or 5 (Offer Only) on an instrument in a PAKO period
   c) a **Liquidity Provider Command** (32) message with LP Action Code set to 1 (Knock-In by Issuer), to Knock-In an instrument which has already been Knocked-In.
   d) a **Liquidity Provider Command** (32) message with LP Action Code set to 2 (Knock-Out by Issuer) or 3 (Payment After Knock-out) on an instrument non eligible for PAKO / KOBI. The instrument doesn't belong to a Quote driven trading group, Isn't setup for PAKO or KOBI, OR it doesn't have any trading barriers.
   e) a **Liquidity Provider Command** (32) message, with LP Action Code set to 1 (Knock-In by Issuer) to Knock-In an instrument which is not regulatory halted.
   f) a **Liquidity Provider Command** (32) message on an instrument which is technically halted.

Success Criteria for SBE:
   a) The customer confirms receipt of a Reject (07) with Error Code = « TBC » -Text: Class closed or early monitoring.
   b) The customer confirms receipt of a Reject (07) with Error Code = « 2049 »-Text: «Quote Side conflicting w/Inst. Situation »"
   c) The customer confirms receipt of a Reject (07) with Error Code = « 1021 »-Text: « Instrument already Knocked-In »
   d) The customer confirms receipt of a Reject (07) with Error Code = « TBC » - Text: « Instrument ineligible to KIBI/KOBI/PAKO »
   e) The customer confirms receipt of a Reject (07) with Error Code = « TBC »-Text: « KIBI KO: instrument must be Reg-Halted »

  f) The customer confirms receipt of a Reject (07) with Error Code = « 1025 »-Text: « KIBI/KOBI/PAKO KO: inst. is Tech-Halted »

Instructions for FIX: the customer sends:
  a) a **LiquidityProviderCommand** (UZ) message on an instrument belonging to a Class which is a Closed (End Of Day) state.
  a) a **LiquidityProviderCommand** (UZ) message with LPActionCode set to 4 (Bid only) or 5 (Offer Only) on an instrument in a PAKO period
  b) a **LiquidityProviderCommand** (UZ) message with LPActionCode set to 1 (Knock-In by Issuer) to Knock-In an instrument which has already been Knocked-In.
  c) a **LiquidityProviderCommand** (UZ) message with LPActionCode set to 2 (Knock-Out by Issuer) or 3 (Payment After Knock-out) on an instrument non eligible for PAKO / KOBI. The instrument doesn't belong to a Quote driven trading group, Isn't setup for PAKO or KOBI, OR it doesn't have any trading barriers.
  d) a **LiquidityProviderCommand** (UZ) message, with LPActionCode set to 1 (Knock-In by Issuer) to Knock-In an instrument which is not regulatory halted.
  e) a **LiquidityProviderCommand** (UZ) message on an instrument which is technically halted.

Success Criteria for FIX:
  a) The customer confirms receipt of a RequestAckMessage (Uy) message with ErrorCode = « TBC » - Text: Class closed or early monitoring.
  b) The customer confirms receipt of a RequestAckMessage (Uy) message with ErrorCode = « 2049 »- Text: «Quote Side conflicting with Instrument Situation »"
  c) The customer confirms receipt of a RequestAckMessage (Uy) message with ErrorCode = « 1021 »- Text: « Instrument already Knocked-In »
  d) The customer confirms receipt of a RequestAckMessage (Uy) message with ErrorCode = « TBC » - Text: « Instrument ineligible to KIBI/KOBI/PAKO »
  e) The customer confirms receipt of a RequestAckMessage (Uy) message with ErrorCode = « TBC »- Text: « KIBI KO: instrument must be Reg-Halted »
  f) The customer confirms receipt of a RequestAckMessage (Uy) message with ErrorCode = « 1025 »- Text: « KIBI/KOBI/PAKO KO: inst. is Tech-Halted »

6.13 PRICE INPUT EQ FUND FRM SP BdL

REQUIRED SBE MESSAGES	Price Input (28)
REQUIRED FIX MESSAGES	PriceInput (UI)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted, Price Input (28) message with either Valuation Price or Alternative Indicative Price specified.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of Ack (03) message with Ack Type set to 10 (Price Input Ack).

Instruction for FIX: the customer submits a valid and correctly formatted, Price Input (UI) message with either Valuation Price or Alternative Indicative Price specified.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of a RequestAckMessage (Uy) message.

6.14 ONE SIDE ONLY PERIOD SP

REQUIRED SBE MESSAGES	Liquidity Provider Command (32)
REQUIRED FIX MESSAGES	LiquidityProviderCommand (UZ)
MANDATORY	No

Instruction for **SBE**: The LP customer submits a valid and correctly formatted, LP command (32) message with LP Action Code set to 4 (Bid Only) or 5 (Offer Only)

Success Criteria **SBE**: The LP customer confirms the receipt and correct interpretation of Ack (03) message with AckType set to 12 (Bid Only) or 13 (Offer Only)

Instruction for **FIX**: The LP customer submits a valid and correctly formatted, LP command (32) message with LPActionCode set to 4 (Bid) or 5 (Offer).

Success Criteria for **FIX**: The LP customer confirms the receipt and correct interpretation of a RequestAckMessage (Uy) message with LPActionCode set to 4 (Bid Only) or 5 (Offer Only).

6.15 USER NOTIFICATION EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	User Notification (39)
REQUIRED FIX MESSAGES	UserNotification (CB)
MANDATORY	No

Instruction for SBE: to ensure the result of this test it is advised to have at least two or more working orders. The Exchange will perform Kill switch for the client's firm, algo, trader or Sponsored Access to suspend or kill the member or trader access to the trading system.

Success Criteria for SBE: the client will confirm receipt of a User Notification (39) message with field User Status identifying the case that triggers the request, and supporting fields providing the granularity of the Kill. This should be followed by receipt of Kill (05) messages cancelling any open orders for the granularity identified.

Instruction for FIX: to ensure the result of this test it is advised to have at least two or more working orders. The Exchange will perform Kill switch for the client's firm, algo, trader or Sponsored Access to suspend or kill the member or trader access to the trading system.

Success Criteria for FIX: the client will confirm the receipt of a UserNotification (CB) message with User Status (Tag 926) identifying the case that triggers the request, and supporting fields providing the

granularity of the Kill. This should be followed by receipt of ExecutionReport (8) messages cancelling any open orders for the granularity identified.

6.16   ASK FOR QUOTE SP

REQUIRED SBE MESSAGES	Ask For Quote (33)
REQUIRED FIX MESSAGES	AskForQuote (UL)
MANDATORY	Mandatory for LPs

Instruction for SBE: the LP customer submits a cancellation of an active quote, using the Quote (08) message with Bid and Offer quantity set to zero (0). The Exchange will automatically respond with a Ask For Quote (33) message.

Success Criteria for SBE: the LP customer has to confirm the receipts of an Ask For Quote (33) request with field AFQReason identifying the cause that triggers the request.

Instruction for FIX: the LP customer submits a cancellation of an active quote, using the Quote (i) message with Bid and Offer quantity set to zero (0). The Exchange will automatically respond with a Ask For Quote (UL) message.

Success Criteria for FIX: The LP has to confirm the receipts of an AskForQuote (UL) message with AFQReason (Tag 9939) identifying the cause that triggers the request.

6.17   STATUS OF TARGET ORDERS EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Open Order Request (15)
REQUIRED FIX MESSAGES	OrderMassStatusRequest (AF)
MANDATORY	No

Instructions for SBE:
   a. The customer submits a valid and correctly formatted Open Request Order (15)
   b. The customer submits a valid and correctly formatted Open Request Order (15) on empty book.

Success Criteria for SBE:
   a. The customer confirms the receipt and correct interpretation of Ack (03) message with Ack Type=17 (Open Order Request Ack).
   b. The customer confirms the receipt and correct interpretation of Reject (07) message.

Instructions for FIX:
   a. The customer submits a valid and correctly formatted Order Mass Status request (AF) message.
   b. The customer submits a valid and correctly formatted Order Mass Status request (AF) message on empty book

Success Criteria for FIX:

    a. The customer confirms the receipt and correct interpretation of ExecutionReport (8) message with ExecType set to l (OrderMassStatusRequest Ack)

    b. The customer confirms the receipt and correct interpretation of OrderCancelReject (9) message (ErrorCode = '2101' - 'Unknown Order').

6.18 ORDER MASS CANCEL REQUEST EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Mass Cancel (13)
REQUIRED FIX MESSAGES	OrderMassCancelRequest (q)
MANDATORY	No

Instructions for SBE: to ensure the result of this test it is advised to have at least two or more working orders.

The customer submits a valid and correctly formatted Mass Cancel (13) message with:

    a) Field *Symbol Index* populated with a valid symbol index, to initiate cancellation of orders for a security

    b) Field *Instrument Group Code* populated with a valid trading group, to initiate cancellation of order for a security group

Make sure the Required fields and, where applicable, the conditionally required fields are populated.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of

    1) First **Order Mass Cancel Ack (14)** message with TotalAffectedOrders set to -1 and repeats all the fields as they were submitted

    2) Kill (05) messages for any open orders in the book associated either to the security, or the trading group

    3) Second **OrderMassCancelReport** (r) message with TotalAffectedOrders set to the number of orders cancelled, which should be equal to the number of Kill (05) messages received

Instructions for FIX: to ensure the result of this test it is advised to have at least two or more working orders.

The customer submits a valid and correctly formatted OrderMassCancelRequest (q) message with:

    a) MassCancelRequestType (Tag 530) = 1 (Cancel orders for a security).

    b) MassCancelRequestType (Tag 530) = A (Cancel orders for a security group).

Make sure the Required fields and, where applicable, the conditionally required fields are populated.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of

    1) First **OrderMassCancelReport** (r) message with TotalAffectedOrders (Tag 533) set to -1 and repeats all the fields as they were submitted

    2) ExecutionReport (8) messages for any open orders in the book associated either to the security, or the trading group

    3) Second **OrderMassCancelReport** (r) message with TotalAffectedOrders (Tag 533) set to the number of orders cancelled, which should be equal to the number of ExecutionReport (8) messages received

6.19   REQUEST FOR EXECUTION ^{SP}

REQUIRED SBE MESSAGES	**Request For Execution (34)**
REQUIRED FIX MESSAGES	**RequestForExecution (UM)**
MANDATORY	**No**

Instruction for SBE: the LP customer should have active quotes in an instrument. The Exchange will send the customer a Request For Execution (34) message.

Success criteria for SBE: the LP customer (setup as Market Maker managing the instrument) confirms the receipt of the Request For Execution (34) message. The customer can respond by either modifying / resending a Quote (08) message or by ignoring the request.

Instruction for FIX: the LP customer should have active quotes in an instrument. The Exchange will send the customer a Request For Execution (UM) message.

Success criteria for FIX: the customer (setup as Market Maker managing the instrument) confirms the receipt of the Request For Execution (UM) message. The customer can respond by either modifying / resending a MassQuote (i) message or by ignoring the request.

7. TRADING CHAIN FAILURES: EQ FUND FRM SP FUT OPT CMDT

7.1 INTRODUCTION:

In the event of disruptive incident resulting in failure of a partition Optiq trading chain application will switch client system processing from being done on the Primary instance (or node) of this partition to its Mirror instance within the same environment. This is a case of a High Availability (HA) event / failover.

High availability testing is scheduled to take place with customers during the dress rehearsals. Euronext is offering customers the possibility to test High availability before these dates in the v-EUA environment. Euronext strongly recommends the testing of High availability in advance of the dress rehearsals and will offer conformance testing capabilities for this purpose.

In this section:

- inbound messages refer to messages sent by the client to the OEG
- outbound messages refer to messages received by the client from OEG

7.1.1 Testing Objectives:

The aim of these test is to guarantee no loss of service for clients in case of outage in the primary Trading Chain. More specifically

- Client detects failure and is able to resume the service.
- Client deals correctly with the "intentional increment sequence number"([1]) for outbound messages after the reconnection.
- Client deals correctly with the reception of the Synchronization Time (51) / (FIX U51) message(s).
- Client detects any duplicate outbound message.
- Client detects any gap in sequence of inbound messages (based on the field "Last Client Message Sequence Number" (SBE) / NextExpectedMsgSeqNum (tag 789 in FIX protocol) in the Logon response message), and he is able to deal appropriately in accordance of his order entry retransmission policy.
- Client detects the scope of impacted instruments for which some previously received market events (trades/orders) are lost and therefore client must reconcile his order book with the central order book(with respect of those impacted instruments).

                             Revision Number: 1.3

7.1.2   Testing preparation:

The partition on which the fail over will be triggered and schedule, will be provided in an Optiq notice.
The client chooses at his convenience trading groups as follows:
- scenarios 7.2,7.3 and 7.5 : trading group should be in call trading phase during failover test period
- scenario 7.4.: trading group should be in continuous trading phase during failover test period

The client chooses at its convenience symbols that belongs to the target trading groups as follows:
- symbol #A listed in the failing over partition.
- symbol #B NOT listed in the failing over partition
(conditional : relevant for multi-partitions segment HA testing)

For scenario 7.2,7.3 and 7.4 client enters only buy orders preferably at Market To Limit price
For scenario 7.5 , client is responsible for choosing symbols where matching is available.

7.2   CLIENT RECOVERY DOES NOT INVOLVE RETRANSMISSION OF OUTBOUND MESSAGES (HIGHLY RECOMMANDED)

Specific objective:

- Client successfully reconnects to the Mirror
- Client deals correctly with the "intentional increment sequence number" for inbound messages after the reconnection.
- Client deals correctly with the reception of the Synchronization Time (51) / (FIX U51) message(s).
- Client detects the scope of impacted instruments for which some previously received market events (trades/orders) are lost and therefore client must reconcile his order book with the central order book(with respect of those impacted instruments).

Detailed course of events:

- Client use a connection that connects directly to the failing over partition.

- Client must have previously connected and received Instrument List (50) and recorded all segment instrument along with their related resynchronization ID
- Client enters the following order expected to remain in the book until the failover :
  - a non "Cancel On Disconnect" order #1 and a "Cancel On Disconnect" order #2 on symbol #A
  - a non "Cancel On Disconnect" order #1bis and an "Cancel On Disconnect" order #2bis on symbol #B (conditional: see above)
- Exchange experiences disruptive incident on the target partition
- **SUCCESS CRITERIA** : client order entry application is able to process successfully the whole recovery sequence as follows.

1. Detecting Failover for Order Entry Gateways (OEG):
- One possible indication is unexpected drop of connection by the OEG (*)
- Reception of the Synchronization Time (51) / (FIX U51) messages serves as confirmation of the switch to the Mirror instance.
  (*)Please note – an unexpected drop in connection may be caused by different events

2. Reconnection and recovery
On Euronext side, the automatic failover has the following impacts and the customer client connection should be able to process them :
- Client reconnects back to the exchange successfully
- Client processes correctly the "intentional increment of sequence" as follows:
  ✓ For SBE The first outbound message received by the client feature an "Intentional increment of sequence number"([1]).
  ✓ For FIX, a SequenceReset(4) is received to perform a gapfill of 1000.
- Synchronization Time (51) / (FIX U51) messages is received on symbol #A but not for symbol #B, client checks potential stale outbound messages by discarding any previously received outbound message for which Book In Time / BookINTime (tag 21002) or Trade Time / TransactTime (tag 60) is higher than Last In Book time. There should be any for order #1
- Kill (05) / (FIX 8) messages for CoD ordersfor both #A and B# symbols generated by Cancel On Disconnect mechanism are received

3. The real-time has resumed
From now on, the customer should be able to enter new orders normally.

7.3   CLIENT RECOVERY INVOLVES RETRANSMISSION OF OUTBOUND MESSAGES (HIGHLY RECOMMANDED)

Specific objective:

- Client successfully reconnects to the Mirror
- Client detects any gap in sequence of inbound messages (based on the field "Last Client Message Sequence Number" (SBE) / NextExpectedMsgSeqNum (tag 789 in FIX protocol) in the Logon response message), and he is able to deal appropriately in accordance of his order entry retransmission policy.
- Client deals correctly with the reception of the Synchronization Time (51) / (FIX U51) message(s).
- Client detects any duplicate outbound message.
- Client detects the scope of impacted instruments for which some previously received market events (trades/orders) are lost and therefore client must reconcile his order book with the central order book(with respect of those impacted instruments).

Detailed course of events:

- Client use a connection that connects directly to the failing over partition.
- Client must have previously connected and received Instrument List (50) and recorded all segment instrument along with their related resynchronization ID
- Client enters the following order expected to remain in the book until the failover :
  o a non "Cancel On Disconnect" order #1 and a "Cancel On Disconnect" order #2 on symbol #A

- a non "Cancel On Disconnect" order #1bis and an "Cancel On Disconnect" order #2bis on symbol #B (conditional: see above)Client must disconnect before the fail over schedule time. (the aim here to force at least one outbound message generated by the exchange but not received by the client before the failure)
- Exchange experiences disruptive incident on the target partition
- **SUCCESS CRITERIA** : client order entry application is able to process successfully the whole recovery sequence as follows.

---

1. Detecting Failover for Order Entry Gateways (OEG):
- One possible indication is unexpected drop of connection by the OEG (*)
- Reception of the Synchronization Time (51) / (FIX U51) messages serves as confirmation of the switch to the Mirror instance.
    (*)Please note – an unexpected drop in connection may be caused by different events

---

2. Reconnection and recovery

On Euronext side, the automatic failover has the following impacts and the customer client connection should be able to process them :

- Client reconnect back to the exchange successfully
- Client receives outbound messages associated to the market events that occurred before the incident without any jump in sequence
- Client receives afterward a first outbound message with a jump of sequence equal to the "intentional increment of sequence" . In the current scenario, client receives Synchronization Time (51) / (FIX U51) messages.
- At this stage, thanks to Synchronization Time (51) / (FIX U51) messages received , client must have identified symbol #A but not for symbol #B as part of the scope for which reconciliation with central book is required by discarding any previously received message for which Book In Time / BookINTime (tag 21002) or Trade Time / TransactTime (tag 60) is higher than Last In Book time. There should be any for order #1

    Kill (05) / (FIX 8) messages for CoD orders for both #A and B# symbols generated by Cancel On Disconnect mechanism are received.

---

3. The real-time has resumed

    From now on, the customer should be able to enter new orders normally.

7.4 CLIENT RECOVERY INVOLVES SOME SUPPOSEDLY MISSED INBOUND SEQUENCE NUMBERS (MANDATORY)

Specific objective:

- Client successfully reconnects to the Mirror
- Client detects possible gap in sequence of messages sent to the OEG (based on the field Last Client Message Sequence Number / NextExpectedMsgSeqNum (789) in the Logon response message), and he is able to deal appropriately in accordance of his order entry retransmission policy.
- Client detects the scope of impacted instruments for which some previously received market events (trades/orders) are lost and therefore client must reconcile his order book with the central order book(with respect of those impacted instruments).

Detailed course of events:

- Client use a connection that connects directly to the failing over partition.

- Client must have previously connected and received Instrument List (50) and recorded all segment instrument along with their related resynchronization ID

- First , client send a high quantity non Cancel On Disconnect order #1 at the buy side on symbol #A (and non CoD order 1#bis symbol #B). Then client sends continuously a sustained rate of very small quantity (minimum lots) CoD orders at the sell side that match totally against order #1 on symbol #A (and against order #1bis on symbol #B) nearly before the fail over scheduled time with the aim to generate a huge number of small trades but also provoke supposedly inbound message loss.

- Exchange experiences disruptive incident on the target partition

- **SUCCESS CRITERIA** : client order entry application is able to process successfully the whole recovery sequence as follows.

---

1. Detecting Failover for Order Entry Gateways (OEG):
- One possible indication is unexpected drop of connection by the OEG (*)
- Reception of the Synchronization Time (51) / (FIX U51) messages serves as confirmation of the switch to the Mirror instance.

      (*)Please note – an unexpected drop in connection may be caused by different events

---

2. Reconnection and recovery

On Euronext side, the automatic failover has the following impacts and the customer client connection should be able to process them :

- Client reconnect back to the exchange successfully
- Client detect that some inbound messages he has sent before the reconnection are supposedly missed by the exchange (based on the field Last Client Message Sequence Number/ NextExpectedMsgSeqNum (789) in the Logon response message. At this stage, client should identify the list of those sent messages for symbol #A and #B to prepare further actions depending on his risk management strategy :
- client might receive messages on symbol #A and #B associated to the market events occurred before the incident, including response related to messages supposedly missed by the exchange .
- Synchronization Time (51) / (FIX U51) messages are received. At this stage

✓ client must have identified symbol #A but not for symbol #B as part of the scope for which reconciliation with central book is required by discarding any previously received message for which Book In Time / BookINTime (tag 21002) or Trade Time / TransactTime (tag 60) is higher than Last In Book time.

✓ no orders on symbol #A within the list of supposedly missed messages should remain in pending state: Either not acknowledged before Synchronization Time message (->lost) , or acknowledged before Synchronization Time message (-> discarded or valid based on BookInTime and Last In Book time comparison)

Client deals with the list of inbound messages supposedly missed for symbol #B by the exchange by checking their status via OpenOrderRequest(15) / OrderMassStatusRequest (AF) or by pulling them from the market.

Kill (05) / (FIX 8) messages for CoD orders for both #A and B# symbols generated by Cancel On Disconnect mechanism are received.

---

3. The real-time has resumed

From now on, the customer should be able to enter new orders normally.

7.5 CLIENT RECOVERY INVOLVES CROSS ACCESS PARTITION FAILURE (MANDATORY IN THE CASE OF MULTI-PARTITION SEGMENT)

Specific objective:

- In case the client connection is not involved in cross access trading , client ignore the Synchronization Time (51) / (FIX U51) message(s)
- In case the client connection is involved in cross access trading:
    - ✓ Client deals correctly with the reception of the Synchronization Time (51) / (FIX U51) message(s).
    - ✓ Client detects the scope of instruments for which some previously received market events (trades/orders) are lost and therefore client must reconcile his order book with the central order book in scope.

Detailed course of events:

- Client use a connection that DO NOT connect directly to the failing over partition.

- Client must have previously connected and received Instrument List (50) and recorded all segment instrument along with their related resynchronization ID
- If client connection is involved in cross access trading, client enters the following likely on symbol #A to remain in the book until the failover :
    - o a non Cancel On Disconnect order #1 on symbol #A
    - o a Cancel On Disconnect order #2 on symbol #A
- Client sends a non Cancel On Disconnect orders on the target symbol #B nearly before the fail over scheduled time.
- Exchange experiences disruptive incident on the target partition
- **SUCCESS CRITERIA** : client order entry application is able to process successfully the whole recovery sequence as follows.

1. Detecting Failover for Order Entry Gateways (OEG):
• One possible indication is reception of Reject (07) / (FIX 8) message from the OEG with status "System Unavailable" from the partition (*)
• Reception of the Synchronization Time (51) / (FIX U51) messages serves as confirmation of the switch to the Mirror instance.   (*)Please note – reception of Reject / FIX 8 with Status "System Unavailable" may be caused by different events
2. Recovery   On Euronext side, the automatic failover has the following impacts and the customer client connection should be able to process them :   • Client checks that orders sent on symbol #B are acknowledged normally and not impacted by the failover.   • Client receivesoutbound messages on symbol #A associated to the market events that occurred before the incident.   • Synchronization Time (51) / (FIX U51) messages are received.   At this stage: ✓ In case the client connection is not involved in cross access trading ,client ignore the message   ✓ In case the client connection is involved in cross access trading, client must have identified symbol #A as part of the scope for which reconciliation with central book is required by discarding any previously received message for which Book In Time / BookINTime (tag 21002) or Trade Time / TransactTime (tag 60) is higher than Last In Book time There should be any for order #1   • Kill (05) / (FIX 8) messages for CoD orders generated by CoD mechanism are received
3. The real-time has resumed   From now on, the customer should be able to enter new orders normally.

([1]): Intentional Increment of Sequence Number:

Revision Number: 1.3

- In some cases when partition Primary instance fails over to the Mirror the message sequence number may be intentionally increments by a pre-defined number. This is being done specifically for cases of disruptive incidents (either HA or Business continuity) to guarantee delivery of full scope of messages for resynchronization and to reduce number of unexpected rejections of client Logon attempts.
- The latest values of this increment are provided in the section "Segment-Wide Configuration Settings" in the *Euronext Cash Markets – Optiq OEG Connectivity Configuration Specifications* document.
  For Day 1 of Optiq this value is set to 1000 for all trading segments.

8. ORDER & TRADE MANAGEMENT

8.1 DAY ORDER EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Time In Force = 0 (Day)
REQUIRED FIX MESSAGES	NewOrderSingle (D); TimeInForce (Tag 59) = 0 (Day)
MANDATORY	No

Instructions for SBE: the customer submits a valid and correctly formatted Day Order with Time In Force field set to 0 (Day)

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Ack (03) message, with Ack Type set to 0 (New Order Ack).

Instructions for FIX: the customer submits a valid and correctly formatted Day Order with Time In Force field set to 0 (Day)

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of the ExecutionReport (8) messages with ExecType (Tag 150) and OrdStatus (Tag 39) set to 0 (New).

8.2 IMMEDIATE OR CANCEL LIMIT ORDER EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 3 (Immediate or Cancel)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = 3 (Immediate or Cancel (IOC)
MANDATORY	No

Instructions for SBE: the customer submits a valid and correctly formatted IOC Limit order with Time In Force set to 3 (Immediate or Cancel) for each of the following conditions:
a. IOC Order fully trades with an active order.
b. IOC Order partially trades with an active order.

Success Criteria for SBE:
a. The customer confirms the receipt and correct interpretation of the following messages:
- Ack (03) message for the new order with Ack Type set to 0 (New Order Ack)
- Fill (04) message for the full execution
b. The customer confirms the receipt and correct interpretation of the following messages:
- Ack (03) message for new order and Cancelation messages
- Fill (04) message for execution of partial quantity
- Kill (05) message with field Kill Reason set to 8 (Remaining quantity killed (IOC))

       Revision Number: 1.3

Instructions for FIX: the customer submits a valid and correctly formatted IOC Limit order with Time In Force set to 3 (Immediate or Cancel) for each of the following conditions:

a. IOC Order fully trades with an active order.

b. IOC Order partially trades with an active order.

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of two ExecutionReport (8) messages:
- first for the acknowledgement of a new order with OrdStatus (Tag 39) and ExecType (Tag 150) set to 0 (New), and
- second for Execution of the full quantity, with OrdStatus (Tag 39) and ExecType (Tag 150) set to 2 (Filled).

b. The customer confirms the receipt and correct interpretation of three ExecutionReport (8) messages:
- first for the acknowledgement of a new order with OrdStatus (Tag 39) and ExecType (Tag 150) set to 0 (New), and
- second for the execution of the partial quantity with OrdStatus (Tag 39) and ExecType (Tag 150) set to 1 (Partially filled), and
- third for the cancelation of the remaining quantity with OrdStatus (Tag 39) set to 4 (Cancelled) and ExecType (Tag 150) set to X (Remaining quantity killed (IOC)).

8.3   FILL OR KILL ORDER EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 4 (Fill or Kill)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = 4 (Fill or Kill)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted Fill Or Kill (FOK) order with Time In Force set to 4 (Fill or Kill) for each of the following conditions:

a. FOK Order successfully trades with an active order.

b. FOK Order fails to trade with an active order by sending a FOK in an empty book.

Success Criteria for SBE:

a. The customer confirms the receipt and correct interpretation of the Ack (03) message, then a Fill (04) message following the trade execution.

b. The customer confirms the receipt and correct interpretation of the Reject (07) message error code= 2028 (No share available).

Instruction for FIX: the customer submits a valid and correctly formatted Fill Or Kill (FOK) order with Time In Force set to 4 (Fill or Kill) for each of the following conditions:

a. FOK Order successfully trades with an active order.

b. FOK Order fails to trade with an active order by sending a FOK in an empty book.

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of an initial ExecutionReport (8) message acknowledging the order, then a further ExecutionReport (8) message following the trade execution.

b. The customer confirms the receipt of the ExecutionReport (8) message with OrdStatus=8 (Rejected) with error code=2028 (No share available).

8.4   GOOD TILL CANCEL ORDER   EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 1 (Good Till Cancel)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = 1 (Good Till Cancel (GTC))
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted Good Till Cancel Order.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: the customer submits a valid and correctly formatted Good Till Cancel Order.

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of the ExecutionReport (8) message.

8.5   GOOD TILL DATE ORDER   EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 6 (Good till Date)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = 6 (Good till Date (GTD)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted Good Till Date Order with Time In Force set to 6 (Good till Date), with the Order Expiration Date field completed.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: the customer submits a valid and correctly formatted Good Till Date Order with Time In Force set to 6 (Good till Date), with the Order ExpireDate (Tag 432) field completed

Success Criteria for FIX: the customer confirms the receipt and correct interpretation of the ExecutionReport (8) message.

8.6   GOOD TILL TIME ORDER EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 5 (Good till Time)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = A (Good for Time (GTT)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted Good For Time Order, with Time in Force set to 5 (Good till Time), and Order Expiration Time = HHMMSS that will expire in 5 minutes.

Success Criteria for SBE: the customer confirms the receipt and correct interpretation of the Ack (03) message, with Ack Type set to 0 (New Order Ack) followed by a Kill (05) message after the expiration time with Kill Reason set to 2 (Order Expired)

Instruction for FIX: The customer submits a valid and correctly formatted Good For Time Order, with TimeInForce (Tag 59) = A (Good for Time (GTT), ExpireTime= YYYYMMDD-HH:MM:SS that will expire in 5 minutes.

Success Criteria for **FIX:**
a. The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message for order acknowledgement with OrdStatus (Tag 39) and ExecType (Tag 150) set to 0 (New)
b. The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message after 5 minutes for order cancellation, with OrdStatus (Tag 39) and ExecType (Tag 150) set to C (Expired).

8.7   VALID FOR UNCROSSING EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 2 (Valid for Uncrossing)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = B (Good for auction (GFA)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted Valid For Uncrossing with Time In Force set to 2 (Valid for Uncrossing) for each of the following conditions:
a. VFU Order fully trades following the uncrossing.
b. VFU Order partially trades following the uncrossing.
c. VFU Order fails to trade following the uncrossing.

Success Criteria for SBE:
a. The customer confirms the receipt and correct interpretation of the
- Initial Ack (03) message with Ack Type set to 0 (New Order Ack), followed by the
- Ack (03) message with Ack Type set to 16 (VFU/VFC Triggered Ack), followed by the
- Fill (04) message indicating complete fill following the uncrossing
b. The customer confirms the receipt and correct interpretation of the

- Ack (03) message with Ack Type set to 0 (New Order Ack), followed by the
- Ack (03) message with Ack Type set to 16 (VFU/VFC Triggered Ack), followed by the
- Fill (04) message, indicating partial fill of the order, followed by the
- Kill (05) message, to indicate cancellation of the remaining quantity, following the uncrossing, with Kill reason set to 5 (Done for day)

c. The customer confirms the receipt and correct interpretation of the

- Ack (03) message a with Ack Type set to 0 (New Order Ack), followed by the
- Ack (03) message with Ack Type set to 16 (VFU/VFC Triggered Ack), followed by the
- Kill (05) message, to indicate cancellation of the order following the uncrossing, with Kill reason set to 5 (Done for day).

Instruction for FIX: the customer submits a valid and correctly formatted VFU Order with TimeInForce (Tag 59) set to B (Good for auction (GFA)) for each of the following conditions:

a. VFU Order fully trades following the Uncrossing.

b. VFU Order partially trades following the Uncrossing.

c. VFU Order fails to trade following the Uncrossing.

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of the

- initial ExecutionReport (8) message followed by the
- ExecutionReport (8) message indicating triggering of the order at the uncrossing, followed by the
- ExecutionReport (8) message indicating a complete fill following the uncrossing.

b. The customer confirms the receipt and correct interpretation of the:

- initial ExecutionReport (8) message followed by the
- ExecutionReport (8) message indicating triggering of the order at the uncrossing, followed by the
- ExecutionReport (8) message indicating a partial fill following the uncrossing, and at the
- ExecutionReport (8) message for cancellation of the remaining quantity following the uncrossing

c. The customer confirms the receipt and correct interpretation of the

- initial ExecutionReport (8) message followed by the
- ExecutionReport (8) message indicating triggering of the order at the uncrossing, followed by the
- ExecutionReport(8) message indicating order kill message following the uncrossing.

8.8 VALID FOR CLOSING UNCROSSING EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Order Type = 2 (Limit); Time In Force = 7 (Valid for Closing Uncrossing)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); TimeInForce (Tag 59) = 7 (At the Close)
MANDATORY	No

Instruction for SBE: the customer submits a valid and correctly formatted Valid For Uncrossing (Time In Force=2) for each of the following conditions:

a. VFC Order fully trades following the Closing uncrossing.

b. VFC partially trades following the Closing uncrossing.

c. VFC fails to trade following the Closing uncrossing.

Success Criteria for SBE:

a. The customer confirms the receipt and correct interpretation of the

- Initial Ack (03) message with Ack Type set to 0 (New Order Ack), followed by the
- Ack (03) message with Ack Type set to 16 (VFU/VFC Triggered Ack), followed by the
- Fill (04) message indicating complete fill following the closing uncrossing

b. The customer confirms the receipt and correct interpretation of the
- Ack (03) message with Ack Type set to 0 (New Order Ack), followed by the
- Ack (03) message with Ack Type set to 16 (VFU/VFC Triggered Ack), followed by the
- Fill (04) message, indicating partial fill of the order, followed by the
- Kill (05) message, to indicate cancellation of the remaining quantity, following the uncrossing, with Kill reason set to 5 (Done for day)

c. The customer confirms the receipt and correct interpretation of the
- Ack (03) message a with Ack Type set to 0 (New Order Ack), followed by the
- Ack (03) message with Ack Type set to 16 (VFU/VFC Triggered Ack), followed by the
- Kill (05) message, to indicate cancellation of the order following the uncrossing, with Kill reason set to 5 (Done for day).

Instruction for FIX: the customer submits a valid and correctly formatted Valid for Closing Uncrossing Order with TimeInForce (Tag59) set to 7 (At the Close) for each of the following conditions:
a. VFC Order fully trades following the Closing uncrossing.
b. VFC Order partially trades following the Closing uncrossing.
c. VFC Order fails to trade following the Closing uncrossing.

Success Criteria FIX:
a. The customer confirms the receipt and correct interpretation of the
- initial ExecutionReport (8) message followed by the
- ExecutionReport (8) message indicating triggering of the order at the Closing Uncrossing, followed by the
- ExecutionReport (8) message indicating a complete fill following the Closing Uncrossing.

b. The customer confirms the receipt and correct interpretation of the
- initial ExecutionReport (8) message followed by the
- ExecutionReport (8) message indicating triggering of the order at the Closing uncrossing, followed by the
- ExecutionReport (8) message indicating a partial fill following the Closing uncrossing, and at the
- ExecutionReport (8) message for cancellation of the remaining quantity following the Closing uncrossing

c. The customer confirms the receipt and correct interpretation of the
- initial ExecutionReport (8) message followed by the
- ExecutionReport (8) message indicating triggering of the order at the Closing uncrossing, followed by the
- ExecutionReport(8) message indicating order kill message following the Closing uncrossing.

8.9   MARKET ORDER   EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Order Type = 1 (Market)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 1 (Market)
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted New Order (01) message with Order Type set to 1 (Market) in a selected instrument.

Success Criteria for SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: The customer submits a valid and correctly formatted NewOrderSingle (D) message with OrdType (Tag 40) set to 1 (Market)

Success Criteria FIX: The customer confirms the receipt and correct interpretation of the ExecutionReport (8) message.

8.10   CROSS ORDER EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Order Side = 3 (Cross)
REQUIRED FIX MESSAGES	NewOrderSingle (D); with Two NoSides repeating groups
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted New Order (01) message with Order Side set to 3 (Cross) and associated repeating groups provided twice, first for the Buys side, and second for the Sell side, in a selected instrument.

Success Criteria for SBE: The customer confirms the receipt and correct interpretation of the
- two Ack (03) messages, with Ack Type set to 0 (New Order Ack), followed by
- two Fill (04) messages, for execution of each side

Instruction for FIX: The customer submits a valid and correctly formatted NewOrderSingle (D) message with two NoSides repeating groups, first one for Buy side and second for the Sell side

Success Criteria for FIX: The customer confirms the receipt and correct interpretation of the
- two (2) ExecutionReport (8) messages to indicate processing of two sides of the order
- two (2) ExecutionReport (8) messages for execution of each side.

8.11   STOP MARKET / STOP MARKET ON QUOTE ORDER EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Order Type = 3 (Stop-market or Stop-market-on-quote)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = 3 (Stop-market or Stop-market-on-quote)
MANDATORY	No

Instruction for SBE:

a. The customer submits a valid and correctly formatted New Order, with Order Type=3 (Stop-market or Stop-market-on-quote);TimeInForce set to 0 (Day); and Stop Trigger Price = <user defined>).
b. Optiq Analyst will make a trade in the instrument that will trigger the customers stop order.

Success Criteria for SBE:

    a. The customer confirms the receipt and correct interpretation of the Ack (03) with Ack Type set to 0 (New Order Ack), followed by
    b. A Fill (04) message when the stop order is triggered for any trades that occurs and then an order Ack Type set to 3 (Stop Triggered Ack)

Instruction for FIX:

a. The customer submits a valid and correctly formatted New Order with OrdType (Tag 40) set to 3 (Stop-market or Stop-market-on-quote); TimeInForce (Tag 59) set to 0 (Day) and StopPx (Tag 99) = <user defined>.
b. Optiq Analyst will make a trade in the instrument that will trigger the customers stop order.

Success Criteria for FIX:

    a. The customer confirms the receipt and correct interpretation of the ExecutionReport (8) message for Acknowledgment of a new order follows by
    b. An ExecutionReport with ExecType (150) set to 2 (Fill) and then another ExecutionReport(8) with OrderStatus (39) set to S (Stop Triggered Ack).

8.12 STOP LIMIT / STOP LIMIT ON QUOTE ORDER   EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01) ; Order Type = 4 (Stop-limit or Stop-limit-on-quote)
REQUIRED FIX MESSAGES	OrdType (Tag 40) = 4 (Stop limit / Stop on quote limit)
MANDATORY	No

Instructions for SBE:

a. The customer submits a valid and correctly formatted New Order , with Order Type=4 (Stop-limit or Stop-limit-on-quote); Time In Force set to 0 (Day); and Stop Trigger Price = <user defined>).
b. Optiq Analyst will make a trade in the instrument that will trigger the customers stop order.

Success Criteria SBE:

a. The customer confirms the receipt and correct interpretation of the
    a. Ack (03) with Ack Type set to 0 (New Order Ack), followed by
    b. A Fill (04) message when the stop order is triggered for any trades that occurs and then an order Ack Type set to 3 (Stop Triggered Ack)

Instructions for FIX:

a. The customer submits a valid and correctly formatted Stop Limit Order with OrdType (Tag 40) set to 4 (Stop-limit or Stop-limit-on-quote); TimeInForce (Tag 59) set to 0 (Day); and StopPx (Tag 99) = <user defined>.
b. Optiq Analyst will make a trade in the instrument that will trigger the customers stop order.

Success Criteria FIX:

a. The customer confirms the receipt and correct interpretation of the ExecutionReport (8) message for Acknowledgment of a new order follows by

b. An ExecutionReport with ExecType (150) set to 2 (Fill) and then another ExecutionReport(8) with OrderStatus (39) set to S (Stop Triggered Ack).

8.13   MARKET TO LIMIT ORDER EQ FRM SP OPT FUT

REQUIRED SBE MESSAGES	New Order (01); Order Type = 6 (Market to limit)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrdType (Tag 40) = K (Market to limit)
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted Market to Limit Order . New Order (01) message with Order Type set to 6 (Market to limit) and Time In Force set to 0 (Day).

Success Criteria for SBE: The customer confirms the receipt and correct interpretation of the Ack (03) messages with Ack Type set to 0 (New Order Ack).

Instruction for FIX: The customer submits a valid and correctly formatted Market to Limit Order. A NewOrderSingle (D) message with OrdType (Tag 40) set to K (Market to limit) and TimeInForce (Tag 59) set to 0 (Day).

Success Criteria for FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.14   ICEBERG ORDER EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01) ; Order Type = 10 (Iceberg)
REQUIRED FIX MESSAGES	NewOrderSingle (D) ; OrdType (Tag 40) = X (Iceberg)
MANDATORY	No

Instruction for SBE:
a. The customer submits an order message with Order Type set to 10 (Iceberg), and Disclosed Quantity set. For instruments traded in units, turnover (price *qty) must be higher or equal to 10 000 Euros.
b. The customer enters an order message with Order Type set to Stop, or Market to Limit and a Disclosed Quantity set.
c. The customer submits an iceberg order with minimum size (price*qty) lower than 10000 Euros.

Success Criteria SBE:
a. The customer confirms the receipt and correct interpretation of an
- initial Ack (03) message to acknowledge the order, followed by
- Fill (04) if the order, or its part, is executed
b. The customer confirms the receipt and correct interpretation of Reject (7) message with the Error code "2017" (Disclosed Quantity forbidden for this Order Type)
c. The Customer confirms the receipt of the Ack (03) message, with Ack Type set to 14 (Iceberg Transformed to Limit due to Minimum size), to identify that Iceberg order became a Limit Order

Instruction for FIX:

a. The customer submits an order message with OrdType (Tag 40) set to X (Iceberg), a DisplayQty (Tag 1138) set. For instruments traded in units, turnover (price *qty) must be higher or equal to 10 000 Euros.

b. The customer enters an order message with OrdType (Tag 40) set to either Stop or Market to Limit and a DisplayQty (Tag 1138) set

c. The customer submits an iceberg order with minimum size (price*qty) lower than 10 000 Euros.

Success Criteria FIX:

a. The customer confirms the receipt and correct interpretation of an initial ExecutionReport (8) to acknowledge the order, and

- second ExecutionReport (8) if the order, or its part, is executed

b. The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message with the OrdStatus (tag 39) and ExecType (tag 150) set to 8 (Rejected)

c. The Customer confirms the receipt of the ExecutionReport (8) message, with ExecType (tag 150) set to h (Iceberg Transformed to Limit due to Minimum size), to identify that the Iceberg order became a Limit Order,

8.15 STP EQ FRM

REQUIRED SBE MESSAGES	New Order (01)
REQUIRED FIX MESSAGES	NewOrderSingle (D)
MANDATORY	No

Instruction SBE:

a. The Liquidity Provider submits a valid and correctly formatted Buy LP Order and a correctly formatted Sell LP order where Execution instruction position zero (0) set to 1 (Cancel resting order).

b. The Liquidity Provider submits a valid and correctly formatted Buy LP Order and a correctly formatted Sell LP order where Execution instruction position one (1) set to 1 (Cancel Incoming order).

Success Criteria SBE:

a. The customer confirms the receipt and correct interpretation of

- Ack (03) message acknowledging the first Buy order, followed by
- Two messages being sent at the same time
    - o   Kill (05) message for cancellation of the first Buy order with Kill Reason set to 7 (Cancelled by STP)
    - o   Ack (03) message acknowledging entry of the Sell order into the book

Kill message with kill reason=7 (Cancel by STP).

c. The customer confirms the receipt and correct interpretation of Reject (07) message with the Error Code "2179" (Incoming order cancelled due to STP type of Cancel Incoming order).

Instruction FIX:

a. The Liquidity Provider submits a valid and correctly formatted Buy LP Order and a correctly formatted Sell LP order where both orders have STPAggressorIndicator set to 0 (Cancel resting order).

b. The Liquidity Provider submits a valid and correctly formatted Buy LP Order and a correctly formatted Sell LP order where both orders have STPAggressorIndicator set to 1 (Cancel incoming order).

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of the

- ExecutionReport (8) message acknowledging the first Buy order, followed by
- Two messages being sent at the same time
    - ExecutionReport (8) message for cancellation of the first Buy order with ExecType (tag 150) set to 4 (Cancelled) and OrdStatus (tag 39) set to P (Cancelled by STP), and
    - ExecutionReport (8) message acknowledging entry of the Sell order into the book

b. The customer confirms the receipt and correct interpretation of the OrderCancelReject (9) message with Error Code (tag 9955) set as "2179" (Incoming order cancelled due to STP type of Cancel Incoming order).

8.16   MIN QTY ORDER EQ FRM SP

REQUIRED SBE MESSAGES	**New Order (01); Order Type = 2 (Limit); Minimum Order Quantity set**
REQUIRED FIX MESSAGES	**NewOrderSingle (D); OrdType (Tag 40) = 2 (Limit); MinQty (Tag 110) set**
MANDATORY	**No**

Instructions for SBE: The customer submits a valid and correctly formatted Min Qty Order, New Order (01) message, with Order Type set as 2 (Limit); TimeInForce as 0 (Day); Minimum Order Quantity = <user defined>, in a selected instrument for each of the following conditions:

a. There is sufficient qty in the market to satisfy the minimum order quantity requirement.

b. There is not sufficient qty in the market to satisfy the minimum order quantity requirement.

Success Criteria for SBE:

a. The customer confirms the receipt and correct interpretation of Ack (03) message followed by a Fill (04) message for the trade execution

b. The customer confirms their order is rejected, with Reject (07) message, and Error Code set as "2028" (No shares available (IOC/FOK/MinQty))

Instruction for FIX: The customer submits a valid and correctly formatted Min Qty Order, NewOrderSingle (D) message with OrdType (Tag 40) set as 2 (Limit); TimeInForce (Tag 59) set as 0 (Day) and MinQty (Tag 110) = <user defined> in a selected instrument for each of the following conditions:

a. There is sufficient qty in the market to satisfy the minimum order quantity requirement.

b. There is not sufficient qty in the market to satisfy the minimum order quantity requirement.

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of an initial ExecutionReport (8) message and then an ExecutionReport (8) message following the trade execution

b. The customer's order is rejected

8.17   CANCEL REPLACE – PRICE ONLY   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Cancel/Replace (06); Price = <price>
REQUIRED FIX MESSAGES	OrderCancelReplaceRequest (G); Price (Tag 44) = <price>
MANDATORY	No

Instructions for SBE:

a. The client submits a proper formatted Cancel Replace Request message which updates the price of an existing order.

b. The client submits a proper formatted Cancel Replace Request message which updates the price of an order already executed or cancelled.

Make sure the Required fields and, where applicable, the conditionally required fields are populated.

Success Criteria for SBE:

 a. The customer confirms the receipt and correct interpretation of the Ack (03) message.

b. The customer confirms the receipt and correct interpretation of the Reject (07) message.

Instructions for FIX:

a. The client submits a proper formatted Cancel Replace Request message which updates the price of an existing order.

b. The client submits a proper formatted Cancel Replace Request message which updates the price of an order already executed or cancelled.

Make sure the Required fields and, where applicable, the conditionally required fields are populated.

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation an ExecutionReport (8) messages which should indicate the change of price.

b. The client confirms the receipt and correct interpretation of the OrderCancelReject (9) message.

8.18   CANCEL REPLACE – QUANTITY ONLY   EQ FUND FRM SP OPT FUT CMDT
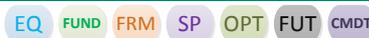
REQUIRED SBE MESSAGES	OrderCancel Replace (06); OrderQty = <quantity>
REQUIRED FIX MESSAGES	OrderCancelReplaceRequest (G); (Tag 38) = <quantity>
MANDATORY	No

Instructions for SBE: The customer submits a valid and correctly formatted Order Cancel/Replace Request message which updates the Quantity of an active order.

Success Criteria for SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message, which should contain the change of quantity.

Instructions for FIX: The customer submits a valid and correctly formatted Order Cancel/Replace Request message which updates the Quantity of an active order

Success Criteria for FIX: The customer confirms the receipt and correct interpretation of the ExecutionReport (8) messages, which should indicate the change of quantity.

8.19   CANCEL REQUEST – INDIVIDUAL ORDER   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Cancel Request (12)
REQUIRED FIX MESSAGES	OrderCancelRequest (F)
MANDATORY	No

Instructions for SBE: The customer submits a valid and correctly formatted Order Cancel Request message for a single order.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Kill (05) message identifying cancellation of the order.

Instructions for FIX: The customer submits a valid and correctly formatted Order Cancel Request message for a single order.

Success Criteria for FIX : The customer confirms the receipt and correct interpretation of the ExecutionReport (8) message identifying cancellation of the order.

8.20   CANCEL REQUEST – REJECT   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Cancel Request (12)
REQUIRED FIX MESSAGES	OrderCancelRequest (F)
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted Order Cancel Request for a single order for an order already filled or cancelled.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Reject (07) message with Error Code set to "2101" (Unknown Order).

Instruction for FIX: The customer submits a valid and correctly formatted Order Cancel Request for a single order for an order already filled or cancelled.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of the Reject (9) message with the Error Code set to "2101" (Unknown Order).

8.21   CLIENT ACCOUNT   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01); Account Type = 1 (Client)
REQUIRED FIX MESSAGES	NewOrderSingle (D); AccountCode (Tag 6399) = 1 (Client)

MANDATORY	**No**

Instruction for SBE: The customer submits a valid and correctly formatted order that is designated to the Client account, and associated short codes filled.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: The customer submits a valid and correctly formatted order that is designated to the Client account, and associated short codes filled.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.22 HOUSE ACCOUNT EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	**New Order (01); Account Type = 2 (House)**
REQUIRED FIX MESSAGES	**NewOrderSingle (D); AccountCode (tag 6399) = 2 (House)**
MANDATORY	**No**

Instruction for SBE: The customer submits a valid and correctly formatted order that is designated to the House account, and associated short codes filled.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: The customer submits a valid and correctly formatted order that is designated to the House account, and associated short codes filled.

Success Criteria for FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.23 LIQUIDITY PROVIDER ACCOUNT EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	**New Order (01); Account Type = 6 (Liquidity Provider); LP Role = 1 (Liquidity Provider or Market Maker)**
REQUIRED FIX MESSAGES	**NewOrderSingle (D); AccountCode (tag 6399) = 6 (Liquidity Provider); LPRole (tag 20021) = 1 (Liquidity Provider or Market Maker)**
MANDATORY	**No**

Instruction for SBE: The customer submits a valid and correctly formatted order that is designated to the LP account type and role.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: The customer submits a valid and correctly formatted order that is designated to the LP account type and role.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.24   RO ACCOUNT EQ FRM

REQUIRED SBE MESSAGES	New Order (01); Account Type = 4 (RO)
REQUIRED FIX MESSAGES	NewOrderSingle (D); AccountCode (tag 6399) = 4 (RO)
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted order that is designated to the RO account.
Client must be assigned to an Best of Book link with an RLP and an instrument.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message

Instruction for FIX: The customer submits a valid and correctly formatted order that is designated to the RO account.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.25   RELATED PARTY ACCOUNT EQ FRM

REQUIRED SBE MESSAGES	New Order (01); Account Type = 7 (Related Party)
REQUIRED FIX MESSAGES	NewOrderSingle (D); AccountCode (tag 6399) = 7 (Related Party)
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted MiFID II compliant order that is designated to the Related Party account, and associated short codes filled.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: The customer submits a valid and correctly formatted MiFID II compliant order that is designated to the Related Party account, and associated short codes filled.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.26 STRUCTURED PRODUCT MARKET MAKER ACCOUNT ^{SP}

REQUIRED SBE MESSAGES	**New Order (01); Account Type = 8 (Structured Product Market Maker)**
REQUIRED FIX MESSAGES	**NewOrderSingle (D); AccountCode (tag 6399) = 8 (Structured Product Market Maker)**
MANDATORY	**No**

Instruction for SBE: The customer submits a valid and correctly formatted order that is designated to the Structured Product Market Maker Account.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Ack (03) message.

Instruction for FIX: The customer submits a valid and correctly formatted order that is designated to the Structured Product Market Maker Account.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) message.

8.27 FULL EXECUTION OUTSIDE THE COLLARS EQ FRM SP

REQUIRED SBE MESSAGES	New Order (01); Collar Breach Confirmation (20)
REQUIRED FIX MESSAGES	NewOrderSingle (D); OrderCancelReplaceRequest (G)
MANDATORY	No

Instructions for SBE:

a. the Optiq Analyst submits a SELL order which is priced above the upper Collar limit. The customer should attempt to trade the order but will be rejected.

b. In response to the Reject (07) message, the customer sends a CollarBreachConfirmation (20) message including same price and quantity of the original order within 30 seconds.

Success Criteria for SBE:

a. The customer confirms the receipt and correct interpretation of the order Ack (03) message, followed by the Reject (07) message with Collar Rejection Type set as 2 (High dynamic collar) and the Error Code set with "2038" (Rejected for dynamic collar. Waiting for Confirmation)

b. The customer confirms the receipt and correct interpretation of the Ack (03) message for the Collar breach confirmation message, followed by the Fill (04) message for the match.

Instructions for FIX:

a. the Optiq Analyst submits a SELL limit order which is priced above the upper collar limit. The customer should attempt to trade the order.

b. In response to the rejection in the ExecutionReport (8) message the customer sends a Cancel/Replace Order (G) message with the same price and the same quantity as the original order within 30 seconds making sure ConfirmFlag (Tag 9930) field will be set up with value equals to 1

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of two ExecutionReport (8) messages, one for Acknowledgement of the order, and second with the status as Rejected, CollarRejType (tag 9962) set as 2 (High dynamic collar) and Error code set with "2038" (Rejected for dynamic collar. Waiting for Confirmation)

b. The order should match. Client confirms receipt of two ExecutionReport (8) message, one as the Acknowledgement of the collar breach confirmation, and second for the match.

8.28 PARTIAL EXECUTION OUTSIDE THE COLLARS EQ FRM SP

REQUIRED SBE MESSAGES	Collar Breach Confirmation (20)
REQUIRED FIX MESSAGES	OrderCancelReplaceRequest (G)
MANDATORY	No

Instructions for SBE:

a. Optiq Analyst submits a SELL orders priced above the upper collar limit. The customer should attempt to trade with a single BUY order but will be rejected.

b. In response to the reject (07) the customer sends a CollarBreachConfirmation (20) including same price and remaining quantity as the second execution within 30 seconds.

 Revision Number: 1.3

Success Criteria for SBE:

a) The customer confirms the receipt and correct interpretation of Order Ack, Order Fill and order rejection message.

b) The customer confirms the receipt and correct interpretation of Order Ack and Order Fill message.

Instruction for FIX:

a. Optiq Analyst submits a SELL limit order which is priced above the upper collar limit. The customer should attempt to trade the order.

b. In response to the rejection in the Execution Report the customer sends a Cancel/Replace Order message (G) with the same price but and the same qty as the original order within x seconds.

Success Criteria for FIX:

    a. The customer confirms the receipt and correct interpretation the Execution message in the Execution Report with the reason "Rejected for collar"

    b. The order should match

8.29   ORDER REJECT FOLLOWING A MODIFICATION – OUTSIDE COLLARS   EQ FRM SP

REQUIRED FIX MESSAGES	NewOrderSingle (D)
REQUIRED SBE MESSAGES	New Order (01)
MANDATORY	No

Instruction for SBE:

a. CTSG submits a SELL order which is priced above the upper Collar limit. The customer submits a BUY order which is inside the collar limits.

b. The customer modifies the price of their BUY order so that it will trade the SELL order (the customer should not confirm the rejected order).

Success Criteria for SBE:

a) The customer confirms the receipt and correct interpretation of Ack (03) message.

b) The customer confirms the receipt and correct interpretation of an Ack message followed by a reject message with error code: 2038 (Rejected for dynamic collar waiting for confirmation).

Instruction for FIX:

a. CTSG submits a SELL order which is priced above the upper Collar limit. The customer submits a BUY order which is inside the collar limits.

b. The customer modifies the price of their BUY order so that it will trade the SELL order (the customer should not confirm the rejected order).

Success Criteria for FIX:

a. The customer confirms the receipt and correct interpretation of the Execution Report message.

b. The customer confirms the receipt and correct interpretation of a first ExecutionReport with Exectype:New followed by another one with OrderStatus: Reject (error code: 2038).

8.30   ORDER MASS CANCELATION – BY INSTRUMENT EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Mass Cancel (13)
REQUIRED FIX MESSAGES	OrderMassCancelRequest (q)
MANDATORY	No

Instruction for SBE: The customer submits a valid and correctly formatted Mass Cancel Request to cancel multiple orders for a given instrument.

Success Criteria for SBE: The customer confirms the receipt and correct interpretation of two MassCancelAck (13) messages, and Kill (05) messages for every order cancelled.

Instruction for FIX: The customer submits a valid and correctly formatted Mass Cancel Request to cancel multiple orders for a given instrument.

Success Criteria for FIX: The customer confirms the receipt and correct interpretation of two OrderMassCancelReport (r) messages, and ExecutionReport (8) messages between the first and second report messages for every order cancelled.

8.31   ORDER EXPIRY – DAY ORDERS EQ FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	New Order (01)
REQUIRED FIX MESSAGES	NewOrderSingle (D)
MANDATORY	No

Instruction for SBE: The customer submits a Day order with Time In Force set to 0 (Day) in a selected instrument. At the end of the trading session the order will be cancelled.

Success Criteria for SBE: The customer confirms the receipt and correct interpretation of the expired orders at the end of the trading session via the Kill (04) message.

Instruction for FIX: The customer submits a Day order with Time In Force set to 0 (Day) in a selected instrument. At the end of the trading session the order will be cancelled.

Success Criteria for FIX: The customer confirms the receipt and correct interpretation of the expired orders at the end of the trading session via the ExecutionReport (8) message.

8.32   TRADE CANCELLATION – INITIATED BY THE EXCHANGE EQ FRM SP FUT CMDT OPT

REQUIRED SBE MESSAGES	Trade Bust Notification (19)
REQUIRED FIX MESSAGES	ExecutionReport (8)
MANDATORY	No

Instruction for SBE :Optiq Analyst will cancel a trade belonging to the customer.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Trade Bust Notification (19) message.

Instruction for FIX :Optiq Analyst will cancel a trade belonging to the customer.

Success Criteria FIX : The customer confirms the receipt and correct interpretation an ExecutionReport (8) message where OrdStatus (Tag 39) and ExecType (Tag 150) are set to H (Cancel Trade).

8.33   INTERNAL MATCHING SERVICE (IMS) EQ FRM

REQUIRED SBE MESSAGES	New Order (01)
REQUIRED FIX MESSAGES	NewOrderSingle (D)
MANDATORY	No

Please note, the customer must be authorized for IMS from their account manager. Their member code must be marked as Principal. The instrument group must allow IMS trades.

Instruction for SBE: The customer submits a valid and correctly formatted buy or sell order to form a trade (submitted via two order messages).

Success Criteria SBE: The customer confirms the receipt and correct interpretation of two Ack (03) messages, followed by Fill (04) messages, where Counterpart Firm ID is set to the ID of the counterpart firm.

Instruction for FIX: The customer submits a valid and correctly formatted buy or sell order to form a trade (submitted via two order messages).

Success Criteria FIX: The customer confirms the receipt and correct interpretation of an ExecutionReport (8) messages, first for submission of the orders, followed by ExecutionReport (8) messages for the trade,, where ContraBroker is set to the ID of the counterpart firm.

8.34   ORDER KILLED EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Kill (05)
REQUIRED FIX MESSAGES	ExecutionReport (8)
MANDATORY	Yes

Instructions SBE: Optiq analyst will cancel one of the customer's orders.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of Kill (05) message.

Instructions FIX: Optiq analyst will cancel one of the customer's orders.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of the ExecutionReport (8) message indicating cancellation of an order.

8.35   REQUEST FOR EXECUTION ^{SP}

REQUIRED SBE MESSAGES	Request For Execution (34)
REQUIRED FIX MESSAGES	RequestForExecution (UM)
MANDATORY	No

Instruction for SBE and FIX: The Market Maker should have an active quotes in an instrument. The Exchange will send to the customer a Request For Execution (34) / (FIX UM) message.

Success Criteria for SBE and FIX: The customer confirms the receipt of the Request For Execution (34) / (FIX UM) message. The customer can respond by either resending a Quote (08) / (FIX i) message with RFEAnswer field set to "Yes" for immediate execution or ignoring the request.

8.36   ORDER MASS CANCEL REPORT (FOR FUTURE USE) ^{FUND}

REQUIRED SBE MESSAGES	Mass Cancel Ack (14)
REQUIRED FIX MESSAGES	OrderMassCancelReport (r)
MANDATORY	No

Instructions SBE: Client submits an Mass Cancel (13) message.

Success Criteria SBE: The client should receive two MassCancelAck (14) messages as a result of sending an OrderMassCancelRequest (q) message.

Instructions FIX: Client submits an OrderMassCancelRequest (q) message.

Success Criteria FIX: The client should receive two OrderMassCancelReport (r) messages as a result of sending an OrderMassCancelRequest (q) message.

8.37   ORDER CANCEL REJECTION EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Reject (7)
REQUIRED FIX MESSAGES	OrderCancelReject (9)
MANDATORY	Yes

Instructions SBE: The customer submits an invalid cancelation of an order. For example, attempt to cancel an order, using an OrderID of an order which has already fully traded.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of the Reject (7) message. In above example, Error Code is set to 2101 (Unknown Order)

Instructions FIX: The customer submits an invalid cancelation of an order. For example, attempt to cancel an order, using an OrderID of an order which has already fully traded.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of the OrderCancelReject (9) message. In above example, the ErrorCode (Tag 9955) is set to 2101 (Unknown Order)

8.38   REJECT   EQ FUND FRM SP OPT FUT CMDT

REQUIRED SBE MESSAGES	Reject (07)
REQUIRED FIX MESSAGES	Reject (3)
MANDATORY	Yes

Instruction for SBE: the client submits an order on a wrong symbol Index for example.

Success Criteria SBE: The customer confirms the receipt and correct interpretation of a Reject (07) message, with Error Code field for this example set to "3013" (Invalid Symbol Index)

Instructions FIX: The customer to submits an invalid message. For example, sends a NewOrderSingle (D) message with MsgType (tag 35) set to = 'Null value'.

Success Criteria FIX: The customer confirms the receipt and correct interpretation of a Reject (3) message with SessionRejectReason (tag 373) for this example set to 4 (Tag specified without a value)

9.   SUBMISSION OF APPLICATION MESSAGES ON TCS

9.1   TRADE OUTSIDE THE BOOK

REQUIRED SBE MESSAGES	Declaration Entry (40); Notice (42)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); TradeCaptureReportAck (AR)
MANDATORY	No

Instructions for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) buy or Sell, with operation type =1 (Declaration of a trade outside the book).
2- CTSG Analyst will confirm by sending a declaration Entry Buy or Sell.

Success Criteria for SBE:
1- DeclarationEntryAck (41) message for BUY or Sell order with Order Type= 1 (Declaration of a trade outside the book).

a) CTSG analyst will get Declaration Notice (42) message with Declaration Status= 1 (New Waiting for Counterparty Confirmation)

2- The customer confirms the receipt of Declaration Notice (42) message with Status = 2 (Confirmed by Counterparty) and then another Declaration Notice with Status = 7 (Filled).

Instructions for FIX:
1- the Customer submits valid and correctly formatted BUY or Sell TradeCaptureReport (AE) message TrdType= 1001, with all mandatory and conditional MIFID II fields properly populated.
2- CTSG Analyst will confirm by sending a declaration Entry Buy or Sell.

Success Criteria for FIX:
1- TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 4 (Pending New).
    a) CTSG analyst will get TradeCaptureReportAck (AR) with TrdRptStatus= 4 (Pending New)

2- the customer confirms the receipt of TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 19 (Filled) will be sent to the client.

9.2   CROSS DECLARATION

REQUIRED SBE MESSAGES	Declaration Entry (40); DeclarationNotice (42)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); TradeCaptureReportAck (AR)
MANDATORY	No

Instructions for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) side=3 with operation type= 1 (Declaration of a trade outside the book).

Success Criteria for SBE:

1- the customer confirms the receipt of DeclarationEntryAck (41) message with Operation type=1 (Declaration of a trade outside the book).
2- the customer confirms the receipt of two DeclarationNotice (42) with status =7 (Filled)

Instruction for FIX:
1- the customer submits valid and correctly formatted TradeCaptureReport (AR) Cross message, with all mandatory MIFID II fields.

Success Criteria for FIX:
1- the customer confirms the receipt of TradeCaptureReportAck (AR) message

2- the customer confirms the receipt of two TradeCaptureReportAck (AR) message with TrdRptStatus(939):Filled

9.3   DECLARATION WITH EXPIRATION ON TIME BASIS

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); Ack (AR)
MANDATORY	Yes

Instructions for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) buy or Sell, with all mandatory and conditional MIFID II fields properly populated.
2- CTSG Analyst will not confirm the declaration.

Success Criteria for SBE:
1- the customer confirms the receipt of declaration entryAck (41) message for BUY/Sell order with Order Type= 1 (Declaration of a trade outside the book).

a) CTSG analyst will get Declaration Notice (42) message for BUY/Sell order with Declaration Status= 1 (New Waiting for Counterparty Confirmation).
b) After 15 minutes customer and CTSG will receive a declaration notice with status=9 (Expiration of a pending declaration).

Instruction for FIX:
1- the Customer submits valid and correctly formatted BUY or Sell TradeCaptureReport message, with all mandatory and conditional MIFID II fields properly populated.
2- CTSG Analyst will not confirm the declaration.

Success Criteria for FIX:
1- The customer confirms the receipt of TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 4 (Pending New).
   a) CTSG analyst will get TradeCaptureReportAck (AR) with TrdRptStatus= 4 (Pending New)

   b) After 15 minutes customer confirms the receipt of TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 14 (Expiration of a pending declaration) will be sent to the client.

9.4 DECLARATION REJECTED DUE TO A MISSING VALUE

REQUIRED SBE MESSAGES	Declaration Entry (40); Reject (46)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); Reject (AR)
MANDATORY	No

Instruction for SBE:
1- the customer submits a Declaration Entry (40) message Buy or Sell side with a mandatory value missing (ex: Symbol Index, EMM.)

Success criteria for SBE:
1- the customer confirms the receipt of DeclarationEntryReject (46) message with the reject code associated.

Instruction for FIX:
1- the customer submits a TradeCaptureReport (AE) message Buy or Sell side with a mandatory value missing (ex: Symbol Index, EMM.)

Success criteria for FIX:
1- The customer confirms the receipt of TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 1 = (Rejected).

9.5 CANCELLATION OF A DECLARATION BEFORE MATCHING

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42); Cancel&Refusal (43)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); Ack (AR)
MANDATORY	No

Instruction for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) buy or Sell, with all mandatory and conditional MIFID II fields properly populated.
2- CTSG Analyst will not confirm the declaration.
3- The client will cancel the declaration by sending a Declaration Cancel and Refusal (43) with Action type = 1 (Declaration Cancellation Request).

Success Criteria for SBE:
1- the customer confirms the receipt of Declaration EntryAck (41) message with Operation Type= 1 (Declaration of a trade outside the book).
2- CTSG analyst will get Declaration Notice (42) message with Declaration Status= 1 (New Waiting for Counterparty Confirmation).
3- Both customer and CTSG analyst will receive a declaration notice (42) with status=5 (Cancelled) the customer have to confirm the receipt of the notice.

Instruction for FIX:
1- the Customer submits valid and correctly formatted BUY or Sell TradeCaptureReport (AE) message, with all mandatory and conditional MIFID II fields properly populated.

2- CTSG Analyst will not confirm the declaration.
3- the client will cancel the declaration by sending a TradeCaptureReport (AE) message with TradeReportTransType=1 (Cancel) and TradeReportType= 6 (Trade Report Cancel)

Success Criteria for FIX:
1- the customer confirms the receipt of TradeCaptureReportAck (AR) message for BUY/Sell order with TrdRptStatus (Tag 939) = 4 (Pending New).
2- CTSG analyst will get TradeCaptureReportAck (AR) with TrdRptStatus= 4 (Pending New)

3- the customer confirms the receipt of TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 2 (Cancelled).

9.6   DECLARATION REFUSAL

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42); Cancel&Refusal (43)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); Ack (AR)
MANDATORY	No

Instruction for SBE:
1- CTSG analyst submits valid and correctly formatted Declaration Entry (40) buy or Sell, with all mandatory and conditional MIFID II fields properly populated.
2- The client will cancel the declaration by sending a Declaration Cancel and Refusal (43) with Action type = 2 (Declaration Refusal).

Success Criteria for SBE:
1- the customer confirms the receipt of Declaration EntryAck (41) message with Operation Type= 1 (Declaration of a trade outside the book) and the Declaration Notice (42) with Status=1 (New Waiting for Counterparty Confirmation).
2- Both customer and CTSG analyst will receive a declaration notice (42) with status=3 (Refused by Counterparty) the customer have to confirm the receipt of the notice.

Instruction for FIX:
1- CTSG analyst submits valid and correctly formatted BUY or Sell TradeCaptureReport (AE) message with Operation Type=1 (Declaration of a trade outside the book), with all mandatory and conditional MIFID II fields properly populated.
2- the client will refuse the declaration by sending a TradeCaptureReport (AE) message with TradeReportTransType= 2 (Declaration Refusal) and TradeReportType= 6 (Trade Report Cancel)

Success Criteria for FIX:
1- the customer confirms the receipt of TradeCaptureReportAck (AR) message for BUY/Sell order with TrdRptStatus (Tag 939) = 4 (Pending New).
2- CTSG analyst will get TradeCaptureReportAck (AR) with TrdRptStatus= 4 (Pending New)

3- the customer confirms the receipt of TradeCaptureReportAck (AR) message with TrdRptStatus (Tag 939) = 2 (Cancelled).

9.7 CANCELLATION OF A MATCHED DECLARATION

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42)
REQUIRED FIX MESSAGES	TradeCaptureReport (AE); Ack (AR)
MANDATORY	No

Instruction for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) buy or Sell operation type=1.
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.
3- the client will cancel the declaration by sending a Declaration Cancel and Refusal (43) with Action type = 1 (Declaration Cancellation Request).
4- The customer submits a DeclarationCandR (43) message with action type =3 (Trade Cancellation Request) to request the declaration cancellation.
5- CTSG analyst reply with a DeclarationCandR (43) message with Status =3 (Trade Cancellation Request)

Success Criteria for SBE:
1- the customer confirms the receipt of Declaration EntryAck (41) message with Operation Type= 1 (Declaration of a trade outside the book).
2- CTSG analyst will get Declaration Notice (42) message for BUY/Sell order with Declaration Status= 1 (New Waiting for Counterparty Confirmation)

3- the customer confirms the receipt of Declaration Notice (42) message with Status = 2 (Confirmed by Counterparty) and then another Declaration Notice with Status = 7 (Filled).

4- the customer confirms the receipt of DeclarationNotice (42) with Status = 4 (Pending Cancellation)

5- the customer confirms the receipt of a Notice with status 5 (Cancelled)

Instruction for FIX:
1- the Customer submits valid and correctly formatted BUY or Sell TradeCaptureReport (AE) message, with all mandatory and conditional MIFID II fields properly populated.
2- CTSG analyst will fill the declaration.
3- The customer submits a valid and correctly formatted TradeCaptureReport in order to cancel the Declaration
4- Ctsg analyst will send a cancel message on the opposite side to reply.

Success Criteria for FIX:
1- customer confirms the receipt of TradeCaptureAck (AR)
2- customer confirms the receipt of tradeCaptureAck (AR) with TrdRptStatus(939):Verified and then another TradeCaptureAck (AR) with TrdRptStatus(939):Filled
3- customer confirms the receipt of TradeCaptureAck (AR) with TrdptStatus (939): pending Cancel.
4- The customer confirms the receipt of TradeCatureAck (AR) with TrdptStatgus (939): Cancel

9.8   FUND ORDER QUANTITY

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42)
REQUIRED FIX MESSAGES	TRadeCaptureReport (AE); TradeCaptureReportAck (AR)
MANDATORY	No

Instructions for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) with operation Type = 4 buy or Sell.
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for SBE:
1- the customer confirms the receipt of Declaration EntryAck (41) message with Operation Type= 1 (Declaration of a trade outside the book).
2- CTSG analyst will get Declaration Notice (42) message with Declaration Status= 1 (New Waiting for Counterparty Confirmation)

3- the customer confirms the receipt of Declaration Notice (42) message with Status = 2 (Confirmed by Counterparty) and then another Declaration Notice with Status = 7 (Filled).

Instructions for FIX:
1- the customer submits a valid and correctly formatted buy or Sell Declaration Entry (AE) with Trade Type = 1002.
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for FIX:
1- The customer confirms the receipt of TradeCaptureReportAck (AR) with PreMatchingIndicator (10042) = 1 (Not pre-matched)

2- The customer confirms the receipt of TradeCaptureReportAck (AR) with PreMatchingIndicator (10042) = 2 (Pre-matched for the next fixing)

9.9   FUND ORDER CASH AMOUNT

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42)
REQUIRED FIX MESSAGES	TRadeCaptureReport (AE); TradeCaptureReportAck (AR)
MANDATORY	No

Instructions for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) with operation Type = 6 buy or Sell.
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for SBE:
1- the customer confirms the receipt of Declaration EntryAck (41) message with Operation Type= 1 (Declaration of a trade outside the book).

2- CTSG analyst will get Declaration Notice (42) message with Declaration Status= 1 (New Waiting for Counterparty Confirmation)
3- the customer confirms the receipt of Declaration Notice (42) message with Status = 2 (Confirmed by Counterparty) and then another Declaration Notice with Status = 7 (Filled).

Instruction for FIX:
1- the customer submits a valid and correctly formatted buy or sell Declaration Entry (AE) with Trade Type = 1003 .
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for FIX:
1- The customer confirms the receipt of TradeCaptureReportAck (AR) with PreMatchingIndicator (10042) = 1 (Not pre-matched)

2- The customer confirms the receipt of TradeCaptureReportAck (AR) with PreMatchingIndicator (10042) = 2 (Pre-matched for the next fixing)

9.10   VWAP TRANSACTION

REQUIRED SBE MESSAGES	Declaration Entry (40); Ack (41); Notice (42)
REQUIRED FIX MESSAGES	TRadeCaptureReport (AE); TradeCaptureReportAck (AR)
MANDATORY	No

Instruction for SBE:
1- the customer submits valid and correctly formatted Declaration Entry (40) with operation Type = 5 buy or Sell.
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for SBE:
1- the customer confirms the receipt of Declaration EntryAck (41) message with Operation Type= 1 (Declaration of a trade outside the book).
2- CTSG analyst will get Declaration Notice (42) message with Declaration Status= 1 (New Waiting for Counterparty Confirmation)
3- the customer confirms the receipt of Declaration Notice (42) message with Status = 2 (Confirmed by Counterparty) and then another Declaration Notice with Status = 7 (Filled).

Instruction for FIX:
1- the customer submits a valid and correctly formatted buy or sell Declaration Entry (AE) with Trade Type = 51.
2- CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for FIX:

1- the customer confirms the receipt of TradeCaptureReportAck (AR).
2- the customer confirms the receipt of TradeCaptureReportAck (AR) with TrdRpStatus (939): Verified followed by another TradeCaptureReportAck (AR) with TrdRpStatus (939): Filled.

9.11   SECONDARY LISTING PLACE TRADE

REQUIRED FIX MESSAGES	Declaration Entry (40); Ack (41); Notice (42)
REQUIRED SBE MESSAGES	TradeCaptureReport (AE); Ack (AR)
MANDATORY	No

Instruction for SBE:

a. the customer submits a Buy or SELL Declaration Operation Type =7 (Declaration of a trade on a secondary listing place) on an instrument which multi listed.
b. CTSG Analyst confirms the declaration by entering a new Buy or Sell declaration.

Success Criteria for SBE:

a. DeclarationEntryAck (41) message for BUY or Sell order with Order Type= 1 (Declaration of a trade outside the book).

b. CTSG analyst will get Declaration Notice (42) message with Declaration Status= 1 (New Waiting for Counterparty Confirmation)

c. The customer confirms the receipt of Declaration Notice (42) message with Status = 2 (Confirmed by Counterparty) and then another Declaration Notice with Status = 7 (Filled).

Instruction for FIX:

1- the Customer submits valid and correctly formatted BUY or Sell TradeCaptureReport (AE) message TrdType= 1001, with all mandatory and conditional MIFID II fields properly populated.
2- CTSG Analyst will confirm by sending a declaration Entry Buy or Sell.

Success Criteria for FIX:

1- the customer confirms the receipt of TradeCaptureReportAck (AR).
2- the customer confirms the receipt of TradeCaptureReportAck (AR) with TrdRpStatus (939): Verified followed by another TradeCaptureReportAck (AR) with TrdRpStatus (939): Filled.

9.12   FUND PRICE INPUT

REQUIRED SBE MESSAGES	Fund Price Input (44)
REQUIRED FIX MESSAGES	FundPriceInput (U44)
MANDATORY	No

Instruction for SBE:

1- the customer submits a correctly formatted Price Input message (44).

Success criteria for SBE:

1- the customer confirms the receipt of FundPriceinputAck (45) message with the reject code associated.

Instruction for FIX:
    1- the customer submits a correctly formatted FundPriceInput (U44).

Success criteria for FIX:
    1- the customer confirms the receipt of FundPriceinputAck (U45) message

10.   SUPPORT

A Support Desk dedicated to the Optiq programme was launched in June 2016, and will be available to customers for the duration of the Optiq implementation programme. It has been set up to answer customers' queries related to the Optiq programme, to send information to customers related to Optiq, to assist customers in their testing and validation on the EUA environment, and to provide follow-up on client conformance testing.

The Optiq Support Desk has been set up to ensure customer readiness and will be the primary point of contact for clients throughout the migration. The scope of the Support Desk will include:

- Answering customer queries about the Optiq programme, such as technical and functional questions, clarifications on the specifications and documentation, questions relative to the migration and associated dates, and questions regarding connectivity.

- Sending information about Optiq to customers, such as the monthly newsletters, regular technical notes, programme Info Flashes and updates to the dedicated Optiq web page.

- Assisting customers in their testing and validation on EUA environment by generating test orders, trades and market data, matching client orders upon request, and facilitating testing on the platform by creating Production-like conditions.

- Coordination and follow-up on customer conformance testing by ensuring that clients have made the required developments for the new Optiq platform and providing support during the conformance testing periods.

SUPPORT DESK INFORMATION

Contact details: Optiq Support Desk

Tel: +33 1 70 48 25 55

Email**: optiq@euronext.com**

Opening hours: Monday – Friday: 09:00 to 18:00 CET

           Revision Number: 1.3

APPENDIX A: REVISION HISTORY

SUMMARY OF CHANGES

Version	Change Description
1.0.0	First release

DOCUMENT HISTORY

REVISION NO.	DATE	AUTHOR	CHANGE DESCRIPTION
1.0	15 November 2017	Euronext (CTSG)	First release for Phase 2
1.1	17 January 2017	Euronext (CTSG)	Second version
1.2	19 March 2018	Euronext (CTSG)	Third version (HA section added)

67 of 67   Revision Number: 1.3