BM&F BOVESPA
The New Exchange

EntryPoint: Order Entry Messaging

Messaging Guidelines

- Equities
- Derivatives
- FX
- BEI (Equities)

Version: 1.7.2
Last modified: 06/18/2012

Contacts

- Services Development Department (**GDS**): handles all requests for connectivity setup and general exchange supported services.
    - bvmfsolution@bvmf.com.br

- Certification and Testing Center (**CTC**): performs certification of all software solutions applying for EntryPoint connectivity.
    - ctc@bvmf.com.br

- Trading Support Department (**GSN**): provides real time connectivity monitoring and troubleshooting.
    - tradingsupport@bvmf.com.br
    - +55 11 2565-5000 (option 2)

Index

1. PREFACE 9

2. MARKET SEGMENTS 10

2.1 ORDER EXECUTION RULES AT BM&FBOVESPA 10

3. NETWORK CONNECTIVITY 11

3.1 PHYSICAL/LINK LAYER OPTIONS 11

3.1.1 RCCF 11

3.1.2 RCB 11

3.2 NETWORK SETUP FOR DMA PROVIDERS 12

3.3 NETWORK SETUP FOR BROKERAGE FIRMS/BANKS 13

3.4 SESSION CONNECTION 14

3.5 AUTHENTICATION 14

3.5.1 Password Renewal 14

3.5.2 Password Policy 14

3.5.3 Password Age 14

3.5.4 Session Lockout 14

3.5.5 Minimum Length 15

3.5.6 Password History 15

3.5.7 Password Strength 15

3.6 CANCEL ON DISCONNECT (COD) 15

3.6.1 COD Type 16

3.6.2 COD Timeout Window 17

3.6.3 COD Limitations 17

4. FIX MESSAGING GUIDELINES 18

4.1 SESSION IDENTIFICATION 18

4.1.1 Data Encryption 18

4.2 EXTENSIONS TO THE OFFICIAL FIX SPECIFICATION 19

4.3 DATA RESTRICTIONS 19

4.4 FIELDS DEPRECATION 20

4.5 BEST PRACTICES 20

5. CERTIFICATION 22

6. ORDER CHARACTERISTICS 23

6.1 ORDER TYPES 23

6.1.1 Market Orders with Protection (OrderType = 1) 23

6.1.2 Limit Orders (OrderType = 2) 24

6.1.3 Stop Orders with Protection (OrderType = 3) 24

6.1.4 Stop Limit Orders (OrderType = 4) 25

6.1.5 Market with Leftover as Limit (OrderType = K) 25

6.2 ORDER VALIDITY TYPES (TIME IN FORCE) 26

6.2.1 Day (TimeInForce = 0) 26

6.2.2 Good till Cancel (GTC) (TimeInForce = 1) 26

6.2.3 Immediate or Cancel (IOC) (TimeInForce = 3) 27

6.2.4 Fill or Kill (FOK) (TimeInForce = 4) 27

6.2.5 Good till Date (GTD) (TimeInForce = 6) 27

6.2.6 At the Close (MOC) (TimeInForce = 7) 28

6.2.7 Good for Auction (MOA) (TimeInForce = A) 28

6.3 ORDER QUANTITIES 29

6.3.1 Disclosed Quantity (Iceberg Orders) 29
6.3.2 Minimum Quantity 29
6.3.3 Trade Related Quantities 29
6.3.4 In-flight Modification and Interpretation of the OrderQty Field 30
6.4 ORDER LIFECYCLE 33
6.5 ORDER CHARACTERISTICS MODIFICATION/REMOVAL 34
6.6 IMPACT OF THE CHANGES ON THE ORDER'S PRIORITY 35
6.7 ORDER IDENTIFICATION 36
6.7.1 Participant Issued Identifiers 36
6.7.2 Exchange Issued Identifiers 37
6.7.3 Order Identifier Rules 39
6.8 AGGRESSOR INDICATOR 39
7. PARTICIPANT IDENTIFICATION 40
7.1 TRADING ON BEHALF 42
8. SECURITY IDENTIFICATION 44
9. ACCESS CATEGORIES 45
10. MEMO 46
11. CLIENT IDENTIFICATION 47
11.1 ACCOUNT NUMBER 47
11.2 ACCOUNT ANNOTATION 47
12. MARKET SEGMENT SPECIFIC RULES 48
12.1 BOVESPA SEGMENT (EQUITIES) 48
12.1.1 Trading Hours 48
12.1.2 Client Identification 48
12.1.3 Orders triggering Instrument Freeze (frozen orders) 48
12.2 BM&F SEGMENT (DERIVATIVES) 49
12.2.1 Message Flow 49
12.2.2 Trade Give-ups 49
12.2.3 Closing a Short Options Position 50
12.2.4 Account Allocation Restrictions for DMA Customers 50
12.3 FOREIGN EXCHANGE (FX) 51
12.3.1 Market Rules 51
12.4 BRAZIL EASY INVESTING (BEI) 52
12.4.1 Access Model 52
12.4.2 Order Validations 53
12.4.3 BEI Message Sequence 54
12.4.4 FX Rate Locking 54
12.4.5 Miscellaneous Fees 54
12.4.6 BEI Specific Fields 55
13. ADVANCED FUNCTIONALITIES 56
13.1 USER-DEFINED SPREADS (UDS) 56
13.1.1 Creation Rules 56
13.1.2 Expiration Date 57
13.1.3 Security Strategy Types 57
13.2 EXERCISE & BLOCKING 58
13.2.1 Exercise 58
13.2.2 Automatic Blocking 59
13.2.3 Blocking Specification 59
13.3 FORWARD DECLARATION/ACCEPTANCE ("TERMO") 60
13.3.1 Forward Types 60

13.3.2 Forward + Cash ("Termo Vista") *61*
13.3.3 Forward + Registered Cash ("Termo Vista Registered") *61*
13.3.4 Security Code *61*
13.3.5 Instrument States *61*
13.3.6 Quote Lifecycle *62*
13.3.7 Contract Details *63*
13.4 SELF-TRADING PREVENTION 64
13.4.1 Party Identification *64*
13.4.2 Investor ID *65*
13.5 MESSAGE RETRANSMISSION 66
13.5.1 Resend Request *66*
13.5.2 Message Replay *67*
14. APPLICATION MESSAGE SCENARIOS 69
14.1 ORDER MANAGEMENT 69
14.1.1 Order Entry, Partial Fill and Complete Fill *69*
14.1.2 Order Cancellation by ClOrdID *70*
14.1.3 Order Cancellation by OrderID *71*
14.1.4 Order Cancellation Attempt of Filled Order *72*
14.1.5 Order Modification *73*
14.2 CANCEL ON DISCONNECT 74
14.2.1 COD Disabled *74*
14.2.2 Cancel On Disconnect Only *75*
14.2.3 Cancel On Logout Only *76*
14.2.4 User Logs Back In before COD Timeout Window elapses *77*
14.3 EXERCISE & BLOCKING 78
14.3.1 Options Exercise *78*
14.3.2 Automatic Blocking *79*
14.3.3 Blocking Specification *80*
14.4 USER-DEFINED STRATEGY 81
14.4.1 UDS Creation *81*
14.4.2 UDS Execution Report *82*
14.5 FORWARD 83
14.5.1 Forward Matching *83*
14.5.2 Forward Declaration Rejection *85*
14.5.3 Forward Acceptance Rejection *86*
14.5.4 Forward Declaration Cancellation *87*
14.5.5 Forward Declaration Cancellation Rejection *89*
14.5.6 Forward Counterparty Refusal *91*
14.5.7 Forward Counterparty Refusal Reject *92*
14.5.8 Forward Expiration *93*
14.5.9 Forward Trade Bust *94*
14.5.10 Cross Forward *96*
14.5.11 Cross Forward Rejection *98*
14.5.12 Forward + Cash ("Termo Vista") *99*
14.5.13 Forward + Registered Cash ("Termo Vista Registered") *101*
14.6 SELF-TRADING PREVENTION 103
14.6.1 Self-Trading prevention on Aggressing Order *103*
14.6.2 Self-Trading prevention on Order Modification *104*
14.6.3 Self-Trading prevention and Partial Fills *105*
14.6.4 Self-Trading prevention on Stop Orders *106*
14.7 MESSAGE REPLAY 107

14.7.1 Retransmission Request 107
14.7.2 Rejection Scenarios 108
14.7.3 Error Scenarios 110
APPENDIX A: GLOSSARY 112
APPENDIX B: EXECTYPE AND ORDSTATUS TRANSITIONS 114
APPENDIX C: QUOTESTATUS TRANSITIONS 116
APPENDIX D: SECURITY STRATEGY TYPES 117
APPENDIX E: ORDER CHARACTERISTICS - ALLOWED COMBINATIONS (EQUITIES) 127
APPENDIX F: ORDER CHARACTERISTICS - ALLOWED COMBINATIONS (DERIVATIVES) 128
APPENDIX G: ORDER CHARACTERISTICS - ALLOWED MODIFICATIONS 129

Figure Index

Figure 1 - BM&FBOVESPA DMA providers' network setup 12
Figure 2 - BM&FBOVESPA-brokerage firms/banks network setup....13
Figure 3 - Order State Transitions....33
Figure 4 - Derivatives Clearinghouse message flow. 49
Figure 5 - FX Clearing House message flow. 51
Figure 6 - Offshore broker connected to Onshore broker....52
Figure 7 - Offshore broker directly connected to BM&FBOVESPA....52
Figure 8 - BEI message sequence....54
Figure 9 - Quote Status Transitions 62
Figure 10 - Order Entry with partial and total fill 69
Figure 11 - Order cancellation using ClOrdID 70
Figure 12 - Order cancellation by OrderID....71
Figure 13 - Attempt to cancel a filled order 72
Figure 14 - Order modification scenario - OrderID is kept for modified order....73
Figure 15 - Do Not Cancel On Disconnect or Logout 74
Figure 16 - Cancel On Disconnect Only....75
Figure 17 - Cancel On Logout Only 76
Figure 18 - User Logs Back In 77
Figure 19 - Option exercise scenario. 78
Figure 20 - Automatic Blocking scenario 79
Figure 21 - Blocking Specification scenario 80
Figure 22 - User-Defined Spread creation scenario....81
Figure 23 - User-Defined Spread Execution Reports scenario....82
Figure 24 - Forward Matching scenario....84
Figure 25 - Forward Declaration Rejection scenario 85
Figure 26 - Forward Acceptance Rejection scenario 86
Figure 27 - Forward Declaration Cancellation scenario....87
Figure 28 - Forward Declaration Cancellation Rejection scenario....89
Figure 29 - Forward Counterparty Refusal scenario....91
Figure 30 - Forward Counterparty Refusal Rejection scenario....92
Figure 31 - Forward Expiration scenario....93
Figure 32 - Forward Trade Bust scenario....94
Figure 33 - Cross Forward scenario 96
Figure 34 - Cross Forward Rejection scenario 98
Figure 35 - Forward + Cash scenario 100
Figure 36 - Forward + Registered Cash scenario 102
Figure 37 - Self-Trading prevention on aggressing order 103
Figure 38 - Self-Trading prevention on order modification....104
Figure 39 - Self-Trading prevention and partial fills 105
Figure 40 - Self-Trading prevention on Stop orders 106
Figure 41 - Message Re-send....107
Figure 42 - User not authorized....108
Figure 43 - Invalid range requested....109
Figure 44 - Re-send already in progress 109
Figure 45 - Error before re-sending....110
Figure 46 - Error during re-sending 111

Change log

Date	Version	Description	Author
February 22nd, 2010	1.0	- Initial version.	AG
April 4th, 2010	1.1	- Various changes in order to accommodate for the backend trading system changes.	AG
September 20th, 2010	1.2	- Harmonized with the Unified Trading Platform.	AG
January 14th, 2011	1.2.1	- Table in Appendix E: updated.	EP
August 25th, 2011	1.3	- Describing Authentication, Session Connection and Cancel on Disconnect. - Added Advanced Functionalities section to describe User-Defined Spreads, Options Exercise and Forward.	AG EP
September 29th, 2011	1.3.1	- Updates in Authentication section.	EP
November 7th, 2011	1.4	- Describing Self-Trading prevention at customer level. - Added Deprecated Fields section.	EP
November 29th, 2011	1.5	- Added BEI (Brazil Easy Investing) section. - Updated NTP references to PUMA.	MARS EP
February 14th, 2012	1.6	- Added information about Aggressor Indicator. - Updated UDS diagrams. - Updated table of Validity Types Availability. - Added “Forward + Registered Cash” (TVR) Scenario. - Updated FX Market rules. - Updated Tables in Appendix E: and 1)a)i)(1)(a)(i)Appendix F:	EP
March 1st, 2012	1.6.1	- Removed reference to tag OrderRestrictions. - Updated list of PartyRole domain values. - Note about PositionEffect field usage. - Note about ThresholdAmount field usage.	EP
April 13th, 2012	1.6.2	- Describing Message Replay service. - Reviewed functionalities’ timeline. - Fixed example in section 6.7.1.3 - Added Appendix G:	EP
April 19th, 2012	1.6.3	- Fixed example in section 6.7.1.3	EP
May 7th, 2012	1.6.4	- Equalized ClOrdID/OrigClOrdID chaining rules in both Equities and Derivatives segments.	EP
May 23rd, 2012	1.7	- Removed Forward Declaration Cancellation by QuoteRequestID. - Updated timeframe availability of order validity “At the Close”. - Added warning about reuse of ClOrdID. - Described use of PartyRole 76 (Desk ID). - Described use of tag Memo.	EP
June 18th, 2012	1.7.2	- Updated Contacts information. - Added note about DMA2 in section 9Access Categories.	EP

1. Preface

EntryPoint is the evolution of BM&FBOVESPA current order entry APIs. It leverages the knowledge base associated with the BELL and MegaDirect APIs but provides an improved, unified message specification allowing seamless access to multiple market segments, such as Equities, Derivatives, and Foreign Exchange.

The unified API provides a number of advantages for the market participants:

- Less development effort, since most of the messaging behavior stays the same across all markets.
- Single point of view for all markets, which eases development of multi market segment applications, such as cross market trading screens.
- Easier construction of inter market trading (e.g.: client side strategies)

EntryPoint is based on the 4.4 version of the Financial Information eXchange ("FIX") Protocol. FIX is a technical specification for electronic communication of trade-related messages. It is an open standard managed by members of FIX Protocol Limited (http://www.fixprotocol.org/). Current users of BELL and MegaDirect will have an easier migration path since EntryPoint draws from these specifications.

This document outlines the BM&FBOVESPA FIX implementation and is provided for third-parties which need trading connectivity through EntryPoint. It is assumed that the reader of this document has basic knowledge of the FIX protocol.

2. Market Segments

BM&FBOVESPA products are structured in four market segments, namely: Derivatives and FX (former BM&F segment), Equities (former Bovespa segment), GLOBEX order routing, and Fixed Income (Brazilian government issued bonds). The following table depicts the current product availability via the EntryPoint interface:

Market Segments			
Segment		Available via EntryPoint	Backend System[1]
Derivatives (Former BM&F Segment)			
➔	Futures[2]	✓	PUMA
➔	Options[2]	✓	PUMA
➔	Forward	✓	PUMA
➔	Spot (Gold)	✓	PUMA
Equities (Former Bovespa Segment)			
➔	Stocks	✓	Mega Bolsa
➔	Options on Stocks	✓	Mega Bolsa
➔	Forward on Stocks	✓	TCS
➔	Exchange-Defined Strategies	Expected Q4/2012	Mega Bolsa
➔	User-Defined Strategies	✓	Mega Bolsa
➔	Corporate issued bonds	Expected Q4/2013	BovespaFIX
Foreign Exchange (FX)			
➔	BRL/USD cash market	✓	PUMA
GLOBEX order routing			
➔	CME Futures	✓	GLOBEX
➔	CBOT Futures	✓	GLOBEX
Fixed Income (FI)			
➔	Government bonds	Expected Q4/2013	Sisbex

2.1 Order Execution Rules at BM&FBOVESPA

BM&FBOVESPA matches orders by price/time priority. Lower offer prices take precedence over higher offers prices, and higher bid prices take precedence over lower bid prices. If there is more than one bid or offer at the same price level, earlier bids and offers take precedence over later bids and offers, respectively.

Under price/time priority of orders, a bid (offer) is filled at the best price by the earliest entered offer (bid) at that price. If additional contract units are needed to fill the bid (offer) then the next oldest offer (bid) at that price is matched until all of the liquidity at that price has been exhausted. Then matches would commence at the next best price until the order is completely filled.

[1] Backend systems are going be migrated to the new PUMA Trading Platform. Timeline: Equities: Q4/2012, Fixed Income (Government and Corporate): Q4/2013.

[2] Encompass Financial Instruments (e.g. exchange/interest rates), Commodities (e.g. Corn, Soybean), and Indices (e.g. Bovespa Index).

3. Network Connectivity

The following sections describe all connectivity options for EntryPoint.

3.1 Physical/Link Layer Options

Market participants can choose from the following connectivity offers.

3.1.1 **RCCF**

RCCF ("Rede de Comunicações da Comunidade Financeira" or Financial Community Communications Network) is an MPLS network that connects all brokerage firms to BM&FBOVESPA, as well as some distributors and other interested clients. This network allows for specific SLAs and contingency features. It is typically used to receive market data and transactional messages (order management).

3.1.2 **RCB**

RCB ("Rede de Comunicação BM&FBOVESPA" or BM&FBOVESPA Communications Network) is a newer communication option available to the BM&FBOVESPA customers. Based on Ethernet over SONET (EoS/EoSDH), it allows participants to choose from a vast array of link speeds and service levels, which contrasts with RCCF, as the latter offers packaged, predefined solutions.

3.2 Network Setup for DMA Providers

DMA Providers may connect to BM&FBOVESPA to receive market data and to route orders to the BM&FBOVESPA broker community. This connection may be established upon previous business agreement with BM&FBOVESPA, and the SLA is dependent on the type of information to be transferred over the network. The following diagram illustrates the possible setups for the network:

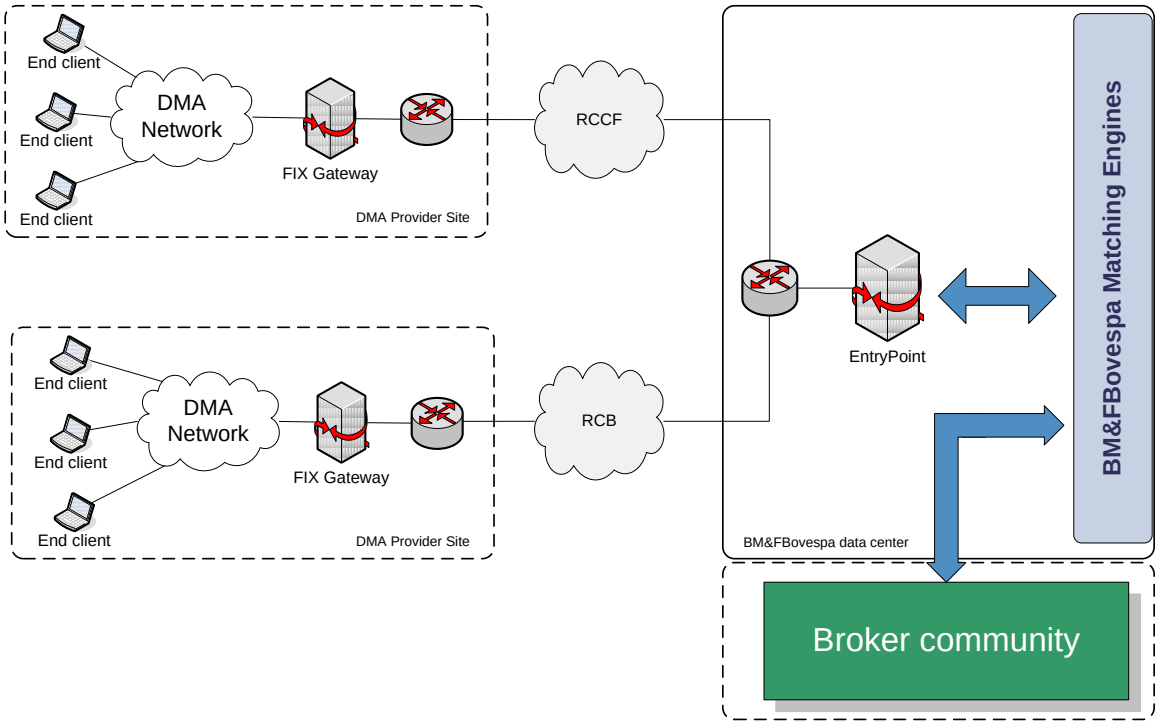

Figure 1 - BM&FBOVESPA DMA providers' network setup

3.3 Network Setup for Brokerage Firms/Banks

Brokerage firms and banks with trading rights at BM&FBOVESPA may connect to receive market data and orders routed from clients (for brokerage firms only), as well as issue their own orders according to previous business agreement with BM&FBOVESPA. The following figure illustrates this setup:

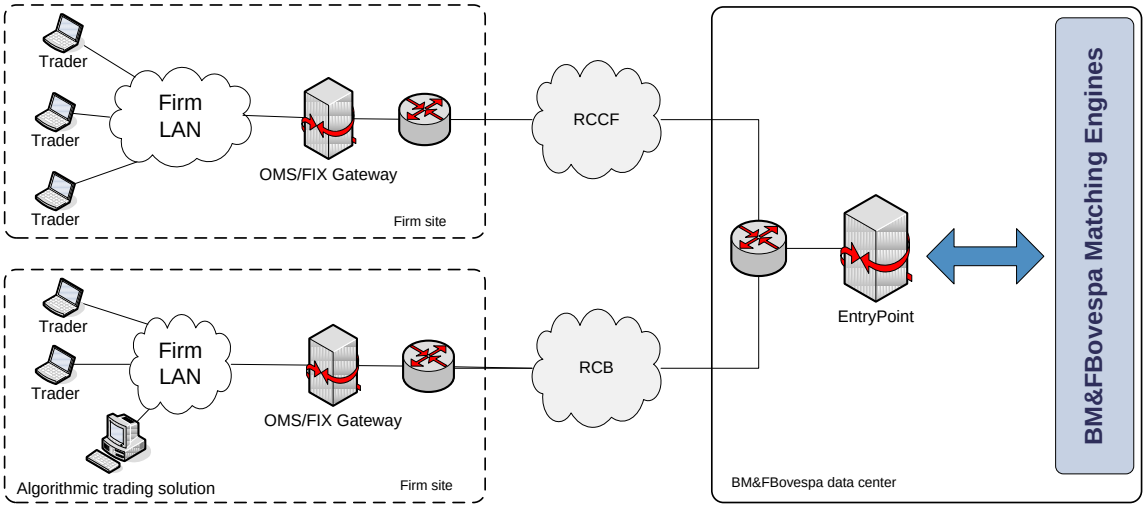

Figure 2 - BM&FBOVESPA-brokerage firms/banks network setup

3.4 Session Connection

All FIX session schedules for Entry Point are activated on a daily basis and, at the end of the session, the connection is terminated by the Border Gateway and the sequence number is reset. This means that at the beginning of every new session, the expected sequence number is 1.

Note that there will be no logout message when the session is terminated. Instead, users will detect a hard disconnection. Nevertheless, users may expect to receive all order expiration messages before the end of the daily session.

The time at which the Exchange starts and ends every session may vary according to the particular fix session. Please contact BM&FBOVESPA for more details on the start time and end time values defined for a particular session.

3.5 Authentication

FIX sessions may require the user to provide authentication data on the Logon message. The following table depicts the fields used to convey such information:

Tag	Tag name	Req'd	Data Type	Comment
95	RawDataLength	N	Length	Required when this message contains authentication data. Used to indicate the number of bytes in the RawData (95) field.
96	RawData	N	Data	Used to convey the password when this message contains authentication data.
925	NewPassword	N	String	Only sent from the client to BM&FBOVESPA. Allows the client to change its password.

3.5.1 Password Renewal

Passwords are initially provided by BM&FBOVESPA Trading Support Department (GSN) and then handed to clients to include in their applications. Users may change the password whenever it's necessary by sending a Logon message and providing the current password in tag RawData (96) and the new one in tag NewPassword (925).

3.5.2 Password Policy

In order to enforce security, some policies are in place and must be considered when changing passwords. The Password Policy comprehends the following aspects:

3.5.3 Password Age

By default, passwords are configured to not expire.

3.5.4 Session Lockout

In case a wrong password is provided, the authentication will fail and the connection will be shut down. A Logout message will be sent to indicate the failure in authentication. During the next 3 minutes the FIX session will be locked and no connection will be accepted within this time. The system allows up to 5 wrong attempts to establish a connection, after what the FIX session is locked and users will need to contact BM&FBOVESPA Trading Support Department (GSN) in order to restore the session.

3.5.5 **Minimum Length**

All passwords need to be at least 8 characters long. Requests for new passwords that don't conform to this requirement will be rejected.

3.5.6 **Password History**

The system records the last 10 passwords assigned to the FIX session. The new password must have not been used before.

3.5.7 **Password Strength**

In order to guarantee that passwords meet some strength requirements, the formation rule determines that all passwords must be composed of characters listed in three out of four categories:

- At least one lowercase character (from a through z)
- At least one uppercase character (from A through Z)
- At least one digit (from 0 through 9)
- At least one special character (non-alphanumeric)

Requests for new passwords that don't conform to this requirement will be rejected.

3.6 Cancel On Disconnect (COD)

Cancel on Disconnect provides the users of the electronic trading platform the option to have their orders automatically canceled by the exchange during logout or when an abnormal disconnection occurs.

When the disconnection is detected, the system will attempt to cancel all non-GT orders, i.e. all orders with validity different of Good till Date (TimeInForce (59) = 6) and Good till Cancel (TimeInForce (59) = 1). Orders associated with the FIX Session entered on behalf will also be canceled if COD is enabled for that FIX Session.

Once the connection is reestablished, user will be notified with Execution Report (35=8) messages indicating the canceled orders.

In order to support Cancel on Disconnect, two optional fields have been added to the Logon (35=A) message layout: CancelOnDisconnectType (35002) and CODTimeoutWindow (35003). The next section depicts how those fields affect COD operation.

COD is available only for the Equities segment. The expected rollout date for Derivatives/FX is Q2/2013.

3.6.1 **COD Type**

In order to enable COD functionality, users must include the tag CancelOnDisconnectType (35002) on every Logon session message, indicating the criteria used to initiate it. If this tag is not present in the Logon message, then the default value is assumed and COD will not be enabled.

Tag	Tag name	Req'd	Data Type	Comment
35002	CancelOnDisconnectType	N	Char (1)	Criteria used to initiate COD by the Border Gateway. If this Tag is not present then COD will not be enabled. Valid values: 0 - Do Not Cancel On Disconnect Or Logout 1 - Cancel On Disconnect Only 2 - Cancel On Logout Only 3 - Cancel On Disconnect Or Logout

3.6.1.1 Do Not Cancel on Disconnect or Logout (default)

If tag CancelOnDisconnectType (35002) is not present in the logon message or if it's assigned 35002=0, COD functionality will not be enabled and no orders will be automatically canceled.

3.6.1.2 Cancel on Disconnect Only

When users want their working orders to be automatically canceled only upon an abrupt disconnection, tag CancelOnDisconnectType (35002) must be assigned with value 35002=1. In this case, when users gracefully terminate the session by sending a logout message, no orders will be canceled.

3.6.1.3 Cancel on Logout Only

When users want their working orders to be canceled only upon a logout, tag CancelOnDisconnectType (35002) must be assigned with value 35002=2. In this case, when an involuntary session disconnection occurs, no orders will be automatically canceled.

3.6.1.4 Cancel on Disconnect and Logout

When users want their orders to be canceled upon either a hard disconnection or an intentional logout, tag CancelOnDisconnectType (35002) must be assigned with value 35002=3. In this case, if by any means the session is terminated, the system will automatically try to cancel all applicable resting orders.

3.6.2 **COD Timeout Window**

The COD functionality was designed to provide a timeout window that allows the user to reconnect before the orders are canceled. The value, in milliseconds, must be set in the Logon message using tag CODTimeoutWindow (35003). The countdown is started as soon as the loss of connectivity is detected. If this tag is not provided, it's assumed 35003=0.

Tag	Tag name	Req'd	Data Type	Comment
35003	CODTimeoutWindow	N	Int (5)	Border Gateway will not trigger COD if the customer reconnects within the timeout window (milliseconds) which starts when the triggering event is detected. Default if not specified is 0. Max allowed value is 60000.

The Border Gateway will not trigger Cancel on Disconnect if the connection is reestablished within the timeout window.

In case of a Border Gateway failure, the backup gateway will resume operations and immediately trigger COD for all eligible sessions (sessions that had COD enabled on the previous logon). Thus, in this scenario, the timeout window is not enforced.

3.6.3 **COD Limitations**

It's important to observe that COD functionality is intended to mitigate potential losses from unexpected disconnections. However, some conditions may prevent the correct operation of the feature and there's no guarantee that all resting orders will be successfully canceled upon a disconnection.

For example, in case the market or the instrument is in a state that does not allow order cancellations, such as *Pre Close* and *Close* states, no orders will be canceled by COD. Likewise, COD will not cancel an order that has been filled during the timeout window.

Upon a situation of disconnection, it's highly advised that firms contact market operations if there is uncertainty about the status of given orders.

Until the migration to the PUMA Trading Platform, COD order cancelation requests that cannot be executed will be rejected by the means of the appropriate Order Cancel Reject message. When COD becomes available in PUMA, there will be only positive cancellation acknowledgments (i.e. Execution Reports).

4. FIX Messaging Guidelines

The following sections describe various messaging rules and aspects of FIX when applied to EntryPoint.

4.1 Session Identification

FIX connections are established based on “Comp IDs” – fields that identify, on the session level, the counterparty in the connection. These IDs do not convey trader or firm information. They are used only on the FIX session level. As per the FIX specification:

	SenderCompID	TargetCompID
A sends directly to B	A	B
B sends directly to A	B	A

The exchange assigned CompIDs follow the formations rules below (FFF, stands for firm mnemonic, XXXX for an alpha-numeric suffix):

Entity	SenderCompID Format
Trading Desk/Locals via exchange provided frontend (e.g. Megabolsa Station)	SFFFXXXX
Trading Desk/Locals via ISV provided frontend	CFFFXXXX
Give Up Agents	RFFFXXXX
DMA1 Connection	CFFFXXXX
DMA2 Connection	PFFFXXXX
DMA3 Connection	YFFFXXXX
DMA4 Connection	XFFFXXXX
Drop Copy: broker connection	DFFFXXXX
Drop Copy: client connection	ZFFFXXXX

FIX Comp IDs and IP addresses for connection are assigned by BM&FBOVESPA to connecting counterparties. The process is differentiated according to the counterparty category (banks, trading firms, DMA providers, vendors, other exchanges). For more details, please contact the BM&FBOVESPA Trading Support Department (GSN).

4.1.1 Data Encryption

BM&FBOVESPA does not support built-in FIX encryption. Security of the connection is provided by the lower layers (MPLS in the case of RCCF, EoSDH in the case of RCB). BM&FBOVESPA market surveillance also performs audits in case there is the suspicion of illegal connection procedures.

4.2 Extensions to the official FIX specification

Despite of the effort to make EntryPoint as adherent to the FIX.4.4 specification as possible, in some scenarios it is necessary to extend and slightly alter the standard specification. Thus, the following might take place:

- **Field addition**: when a given message does not contain an appropriate field to convey a given business information, EntryPoint will derive from the official FIX specification. This might be in the form of adding user defined fields (tags 5000-9999, 20000-39999), fields that belong to the spec but are not part of the message, and imported fields from newer fix versions (e.g., using a FIX.5.0 field in FIX.4.4).

- **Domain changes**: when necessary, field domains can be expanded to account for unpredicted necessities. If the needed values are available in a newer FIX specification, preference is given to import these values into the EntryPoint domain. Domains are naturally reduced to the actual values supported. Thus, market participants should not expect to use all values available in the FIX specification.

- **Message addition**: as newer FIX specifications arrive, EntryPoint might draw from them and include newer official messages as opposed to creating user defined messages.

- **Order of fields**: users should not rely on receiving the fields inside a repeating group in the same order as presented in the specification, with exception of the delimiter, which will be always presented as the first item within the repeating group.

4.3 Data Restrictions

The FIX specification provides few restrictions regarding data types. However, an actual implementation must impose additional restrictions in order to guarantee correct operation. Thus, please observe the following:

- **Maximum length**: EntryPoint defines maximum field lengths for all fields in all messages. This length should not be overrun, even if that seems to work during test or certification. As the order data flows across different systems it is subject to different size limitations. The exchange recommended maximum size accounts for those differences, and guarantees the correct behavior. Keep in mind that the maximum size for a given field may vary across several messages.

- **Field echoing**: due to performance purposes, there is no automatic field echoing provisioning. This means that fields that are part of the official FIX specification but not of EntryPoint are not echoed in reply messages. This is especially relevant to participants that connect to multiple venues through the same application, which might end up sending official tags that will not be echoed.

- **Domain restrictions**: all EntryPoint specified fields are subject to domain restrictions. Thus, participants can only send domain values that are explicitly present in the specification. Unmentioned domain values may cause the message to be rejected by the means of the appropriate business reject message or a Session Level Reject (35=3) message.

4.4 Fields Deprecation

Currently, messages sent by the Exchange, on Order Entry and Drop Copy sessions, include tag DeliverToCompID (128). However, the use of this field in any scenario is highly discouraged and, as the Exchange can stop providing this field at any moment without further notification, no application must create a dependency on it.

Also, with the complete rollout of the PUMA Trading Platform on equities, tag ApplID (1180) currently provided on messages sent on Order Entry and Drop Copy sessions, will be provided only on messages sent on the Drop Copy.

Observe, in the table below, the time frame and sessions where such fields will be provided according to the PUMA rollout plan:

Fields	Derivatives		Equities: Pre-PUMA		Equities: PUMA	
	Order Entry	Drop Copy	Order Entry	Drop Copy	Order Entry	Drop Copy
DeliverToCompID (128)			✓	✓		
ApplID (1180)		✓	✓	✓		✓

4.5 Best practices

In order to ensure correct operation of the FIX connectivity, please observe the following:

- Empty tags are not allowed and will be reject by the border gateways.
- Whitespace on string fields is allowed and has no special treatment. This means that the exchange systems might not trim inbound fields. Exchange provided identifiers (e.g. firm and trader codes, symbols, and account information) should be provided as assigned: for example, if the client account is ‘123’, it should not be sent as ‘000123’ or ‘ 123’.
- Do not code to side effects. For example, the exchange systems might order the message contents increasingly by the tag numbers. However, this behavior is not mandatory by the FIX spec. Thus, avoid coding to undocumented behavior, even if your application works as intended during certification. The application will be more resilient and require less maintenance.
- Avoid undocumented parsing: all exchange issued identifiers have published uniqueness rules, e.g.: OrderID is guaranteed unique across all orders on a given instrument and a specific trading date. In order to achieve the required uniqueness levels, exchange systems might concatenate several pieces of information such as date, symbol, and counter, among others. Client systems should not parse the tag components since the actual composition might change as the systems evolve. IDs must be treated as opaque identifiers which comply with a given uniqueness rule.

- Repeating groups might be shuffled in outbound messages. Consider the message fragment:

...35=D…453=3|448=123|447=D|452=7|448=TRDR|447=D|452=36|448=BVMF|447=D|452=54|…		
Tag Name	Tag Number	Value
NoPartyIDs	453	3
PartyID	448	123
PartyIDSource	447	D
PartyRole	452	7 (Entering Firm)
PartyID	448	TRDR
PartyIDSource	447	D
PartyRole	452	36 (Entering Trader)
PartyID	448	BVMF
PartyIDSource	447	D
PartyRole	452	54 (Sender Location)

The reply to this message might be as the following:

…35=8…453=3|448=123|447=D|452=7|448=BVMF|447=D|452=54|448=TRDR|447=D|452=36|…		
Tag Name	Tag Number	Value
NoPartyIDs	453	3
PartyID	448	123
PartyIDSource	447	D
PartyRole	452	7 (Entering Firm)
PartyID	448	BVMF
PartyIDSource	447	D
PartyRole	452	54 (Sender Location)
PartyID	448	TRDR
PartyIDSource	447	D
PartyRole	452	36 (Entering Trader)

Although the FIX formation rules are still respected, the repeating group ordering has been changed. Client systems must be resilient to that.

- Repeating group ordering: as per the FIX spec, the first repeating group field is always a repeating group counter. In each of the repetitions, the first field is the repeating group delimiter and thus is always required. Participants should not rely on additional rules such as numeric field sorting or ordering as the fields appear in the FIX specification.

5. Certification

Before connecting to BM&FBOVESPA, the counterparty must undergo the certification process, which is described in detail in separate documents: at www.bmfbovespa.com.br, follow 'Trading Platforms' ➔ 'Bovespa (or BM&F) Segment' ➔ 'Certification'.

For network connectivity to the exchange, please contact the Services Development Department (GDS). For certification arrangements, email the Certification and Testing Center (CTC). Check the 'Contacts' section for details.

The network setup is similar for all segments, since connectivity will be provided via a Certification FIX Gateway. The physical link used for certification may vary from the one to be used in production, since it is the application that is being certified, and not the physical layer. Hence, a client application which will run using RCCF or RCB in the production environment may be certified through an Internet VPN connection.

When the participant considers that the application is ready for certification, he will connect to a certification FIX gateway, and will follow the BM&FBOVESPA certification document for order entry. The counterpart will perform a series of tests that are pre-specified by BM&FBOVESPA, and its outcome will be used as evidence of passing certification.

6. Order Characteristics

The behavior of an order can be affected by many parameters, such as order type and validity. This section describes the types and modifiers which can be applied to a given order.

Although EntryPoint strives to maintain a consistent interface across all market segments, sometimes it is not possible to achieve this goal due to constraints such as underlying technology and market regulation. Thus, order concepts are described in the broadest way possible, and market specifics are clearly noted when appropriate.

6.1 Order Types

Order types are determined by the OrdType (40) tag. The following table depicts Order Type availability at the various segments.

Order Types	Market Segments		
	Equities	Derivatives	FX
Market with Protection (40=1)	Q4/2012	Q2/2013	
Limit (40=2)	✓	✓	✓
Stop with Protection (40=3)	Q4/2012	Q2/2013	
Stop Limit (40=4)	✓	✓	
Market to Limit (40=K)	✓	✓	

6.1.1 Market Orders with Protection (OrderType = 1)

Market orders (40 = 1) do not have an associated price. Upon entry, they “sweep” the order book, potentially generating multiple fills at different price levels until one of the following happens:

- The order is completely filled.
- The order reaches a *protection price level* (ProtectionPrice (35001) field), which is automatically calculated by the matching engine. The protection price level represents the worst price that an order can fill. If there is still unfilled quantity and the next fill would occur at a price beyond protection, the market order rests as a limit order with price equal to the protection level price.

For bids, the protection price calculated is by adding an offset to the last trade price. For offers, the offset is subtracted from the last trade. The protection price cannot be specified in the incoming order.

The following tables depict how Market orders behave when the protection price is hit:

Starting Order Book (Last Trade Price: 10, Offset: 2 ➔Protection Price (bid): 12)			
Bids		Offers	
Qty	Price	Price	Qty
		10	500
		11	300
		13	200

A buy market order for one thousand contracts in received. The following takes place:

Msg sent	Msg received	ClOrdId	OrdType	OrderID	Price	Qty	Protection Price	Exec Type	Ord Status	Last Qty	Last Price	Comment
D		ABC1	1		N/A	1000						
	8	ABC1	1	123	N/A	1000	12	New	New			Execution Report confirming receipt is sent back to customer.
	8	ABC1	1	123	N/A	1000	12	Trade	Partially Filled	500	10	Order is partially filled for 500 @ 10.
	8	ABC1	1	123	N/A	1000	12	Trade	Partially Filled	300	11	Second Execution: 300 @ 11.
The next price level (13) is higher than the protection price (12). Thus, the order will rest as a limited order at price 12. Subsequent Execution Reports will have OrdType = Limit.												

6.1.2 **Limit Orders (OrderType = 2)**

Limit orders (40 = 2) specify the worst price at which the order may execute, i.e. an order to buy a security at or below a stated price (defined in tag 44 – Price), or to sell a security at or above a stated price. If the order does not execute, it will remain in the order book.

6.1.3 **Stop Orders with Protection (OrderType = 3)**

Stop orders (40 = 3) have an associated trigger price but no limit price. Whenever a trade crosses the trigger price, the order is automatically inserted in the order book as a limit order. The order price is automatically determined by the trading engine by the addition or subtraction of an offset price in the same spirit of the Market Order with protection.

The following tables depict how Market orders behave when the protection price is hit:

Starting Order Book (Last Trade Price: 10, Offset: 2 ➔Protection Price (bid): 12)			
Bids		Offers	
Qty	Price	Price	Qty
		10	500
		11	300
		13	200

A buy market order for one thousand contracts in received. The following takes place:

Msg sent	Msg received	ClOrd ID	Ord Type	Order ID	Price	Qty	Stop Price	Protection Price	Exec Type	Ord Status	Working Indictor	Last Qty	Last Price	Comment
D		ABC1	3		N/A	1000	10							
	8	ABC1	3	123	N/A	1000	10		New	New	N			Execution Report confirming receipt is sent back to customer.
A trade crossed (quantity = 100) the trigger price. Thus, the order will rest as a limited order at price 12. Subsequent Execution Reports will have OrdType = Limit.														
	8	ABC1	2	123	12	1000		12	New	New	Y			Execution Report is sent back to

														customer.
	8	ABC1	2	123	12	1000		12	Trade	Partially Filled		400	10	Order is partially filled for 400 @ 10.
	8	ABC1	2	123	12	1000		12	Trade	Partially Filled		300	11	Second Execution: 300 @ 11.
The next price level (13) is higher than the protection price (12). Thus, the order will rest as a limited order at price 12. Subsequent Execution Reports will have OrdType = Limit.														

6.1.4 **Stop Limit Orders (OrderType = 4)**

Stop limit orders (40 = 4) are associated with a trigger price – or stop price – at which it becomes a limit order. The order will be inserted into the order book as soon as the first trade occurs at the specified stop price (tag 99 – StopPx). From this point on, it will behave as a regular limit order, with the price defined in tag 44 – Price. The Order Type behavior is similar to that of Market to Limit Orders: after triggering, it will explicitly change to a Limited Order (40 = 2).

In case of illiquid instruments, if a GT Stop Limit Order is accepted, the price variation might cause this order to be triggered outside of the hard limits. In such situation the order price will be adjusted according to the values of the intraday limits.

Example: If an Ibovespa buy Stop Limit Order is triggered at 70,200 points, but the high hard limit is 70089 points, the order will become a limit order at 70,085 points, which is an acceptable price according to instrument tick size (5 points for Ibovespa). This prevents off tick orders.

6.1.5 **Market with Leftover as Limit (OrderType = K)**

Market with leftover as limit orders (40 = K, also known as Market to limit) will behave like a regular market order, and any unexecuted quantity will become a limit order in the order book, with its limit price set at the last executed price. In a partial fill scenario, the OrdType (40) field is changed to ‘2’ (Limit) in order to reflect the new order behavior.

Scenario: Market with Leftover as Limit order is filled twice

Msg sent	Msg received	ClOrdId	OrdType	OrderID	Price	Qty	Exec Type	Ord Status	Last Qty	Last Price	Comment
D		ABC1	K		N/A	7000					
	8	ABC1	K	123	N/A	7000	New	New			Execution Report confirming receipt is sent back to customer.
	8	ABC1	K	123	10.58	7000	Trade	Partially Filled	2000	10.58	Order is partially filled for 2000 @ 10.58.
	8	ABC1	2	123	10.58	7000	Trade	Partially Filled	1000	10.58	Second Execution: 0.58

6.2 Order Validity Types (Time in Force)

The following table depicts Validity Type availability at the various segments.

Validity Type	Market Segments		
	Equities	Derivatives	FX
Day	✓	✓	✓
Immediate or Cancel	✓	✓	
Fill or Kill	✓	✓	
Good Till Date	✓	✓	
Good Till Cancel	✓	✓	
Good for Auction	Q4/2012	Q3/2013	
At the Close	Q4/2012	Q3/2013	

6.2.1 **Day (TimeInForce = 0)**

Day orders (59 = 0) are available in the order book during the day until they execute or are cancelled (either by the customer who submitted it or BM&FBOVESPA market operations). It is considered the default validity when none is specified.

In the Derivatives/FX segments, at the end of the day all orders are cancelled by the matching engine during the cancel orders trading phase, and the customers who submitted them will receive the Execution Reports expiring the orders (ExecType (150) = Expired (C)). In the Equities segment there is no explicit notification: the orders are removed from the matching engine, but no execution reports are sent. Thus, customers must handle equity orders elimination on the client-side[3].

6.2.2 **Good till Cancel (GTC) (TimeInForce = 1)**

Good till cancel orders (59 = 1) never expire. They are inserted in the order book and remain until cancellation by the customer or market surveillance, or until it is fully executed. GTC orders are not restated to client systems at the start of every trading session.

In the Equities Segment, if a stock is affected by corporate actions (e.g. split, reverse split, dividend payment), all outstanding orders on that stock will be cancelled, even if the GTC validity is specified.

[3] The equities behavior will be harmonized to match derivatives on the rollout of the PUMA Trading Platform for the Bovespa segment. The expected timeframe is Q4/2012.

6.2.3 **Immediate or Cancel (IOC) (TimeInForce = 3)**

The Immediate or Cancel (IOC) validity (59 = 3), also known as Fill and Kill (FAK), indicates that the order requires immediate execution, and the unexecuted quantity is automatically cancelled. If there is no counterparty to execute against, the order is acknowledged then cancelled.

The following table depicts the scenario where the incoming order can be matched.

Msg sent	Msg received	ClOrdID	OrderID	Price	Qty	Exec Type	OrdStatus	Last Qty	Last Price	Comment
D		ABC1		10.58	7000					
	8	ABC1	123	10.58	7000	New	New			Execution Report confirming receipt is sent back to customer.
	8	ABC1	123	10.58	7000	Trade	Partially Filled	4000	10.58	Order is partially filled for 4000 @ 10.58.
	8	ABC1	123	10.58	7000	Canceled	Canceled			Order is cancelled.

6.2.4 **Fill or Kill (FOK) (TimeInForce = 4)**

Fill Or Kill (FOK) orders (59 = 4) require that the full amount stated in the order is executed upon entering the order book. If there is not enough quantity on the opposite side to fill the order, the order is acknowledged then cancelled. It is also known as All or Nothing (AON).

Msg sent	Msg received	ClOrdID	OrderID	Price	Qty	Exec Type	OrdStatus	Last Qty	Comment
D		ABC1		10.58	7000				Instrument is in continuous trading mode.
	8	ABC1	123	10.58	7000	New	New		Execution Report acknowledging the order.
	8	ABC1	123	10.58	7000	Cancelled	Cancelled		Execution Report cancelling the order, since there's no opposite side.

6.2.5 **Good till Date (GTD) (TimeInForce = 6)**

The Good till Date (59 = 6) validity causes the order to expire at the end of the trading session of the date stated in the ExpireDate (432) field of the original order submitted by the customer.

In the Derivatives segment, at the end of the trading session of the expiration date, the order are cancelled by the matching engine and customers who submitted the orders receive Execution Reports expiring the orders (ExecType (150) = Expired (C))[4].

[4] Due to change in the PUMA Trading Platform: all expired orders will be notified by the means of an Execution Report. The expected timeframe is Q4/2012 for equities.

6.2.6 **At the Close (MOC) (TimeInForce = 7)**[5]

The At the Close (59 = 7) validity allows the participants to place orders that participate in the closing auction in advance. For example, the order can be placed during continuous trading but will become active just when the closing auction starts. It is also known as Market On Close (MOC).

At the moment of placement, if the order is not rejected, participants will receive an acknowledgment (ExecType=New, OrdStatus=New) indicating that the order is accepted but not active (WorkingIndicator=N).

When the closing auction starts, an Execution Report is sent, notifying that the order is active (ExecType=New, OrdStatus=New, WorkingIndicator=Y).

The 'At the Close' validity can only be combined with Market Orders.

6.2.7 **Good for Auction (MOA) (TimeInForce = A)**

The Good for Auction validity (59=A) indicates that an order is valid for the ongoing auction only. It is also known as Market On Auction (MOA).

Thus, it can only be sent during an auction. Whenever the auction finishes, the order is expired.

The 'Good for Auction' validity can only be associated with Market Orders.

[5] This functionality will be available as soon as the new PUMA Trading Platform rolls out on equities segment. The expected timeframe is Q4/2012

6.3 Order Quantities

EntryPoint supports a number of order quantities which can be used to accomplish determinate trading strategies, such as minimum guaranteed execution and partial order disclosure. Order quantities are discussed in the following sections.

6.3.1 **Disclosed Quantity (Iceberg Orders)**

Disclosed Quantity allows participants to trade a large lot of a given security without exposing the whole lot in the market at once. The MaxFloor (111) field determines the largest amount which is shown in the order book at a time. In example, an order with OrderQty = 10000 and MaxFloor = 500 will show in the order book as a 500 contract (shares) order. After the order is filled for 500 contracts, the matching engine will replenish the quantity back to 500 contracts, until all of OrderQty is consumed.

In the PUMA Trading System, in order to preserve the hidden nature of Iceberg orders, the matching engine will assign a new Order Identifier (SecondaryOrderID) each time the order is replenished. Whilst in Mega Bolsa EntryPoint, the Order Identifier (SecondaryOrderID) remains unchanged.

Participants can disable the iceberg functionality by setting MaxFloor = 0 in the modification messages. This shows the whole remaining quantity in the order book.

6.3.2 **Minimum Quantity**

Orders with minimum quantity must execute at least the quantity stated in field MinQty (110) in every transaction. Orders whose minimum quantity may not be satisfied upon entry in the order book are cancelled.

Minimum quantity can also be specified on modification messages. The behavior is equivalent to the order entry scenario.

6.3.3 **Trade Related Quantities**

EntryPoint provides fields which can be used to track quantity state through executions. Those fields are sent in every Execution Report message:

- CumQty (14): indicates the accumulated quantity of all trades involving the order. Its value grows as subsequent fills take place. If a given trade for a fully filled order is cancelled (trade bust), the CumQty sent in the Execution Report message is set to zero. If a trade of a partially filled order is cancelled, the CumQty will decrease in the same value of the busted quantity. Participants can track the actual executed quantity by subtracting LastQty from the cumulative quantity maintained by the participant's application.

- LeavesQty (151): conveys the amount which is still open for execution. This quantity decreases with every fill. Please note that trade busts **do not** roll back the busted quantity. Thus, LeavesQty does not increase when a bust take place.

- LastQty (32): contains the traded quantity from the last execution. LastQty changes with every fill, and will stay the same between fills.

6.3.4 **In-flight Modification and Interpretation of the OrderQty Field**

The OrderQty field is interpreted by BM&FBOVESPA as the total investor quantity, i.e. the total size of the order. That stands true for order modification requests as well. Hence, the connecting counterparty must take this into consideration when implementing cancel/modification logic, especially regarding in-flight modification scenarios (where the order is executed at the exchange at the same time the counterparty issues a modification request for that same order). The following scenarios represent a high-level overview of the messages exchanged (with the most relevant fields only) for different situations that represent the interpretation of OrderQty:

Scenario 1: Plain modification of previously sent order

In this scenario, an order is sent (BUY 1000 @ 12), and has its quantity increased to 1400 due to a modification request.

Msg sent	Msg received	ClOrdID	Orig ClOrdID	Order ID	Orig ClOrdID	Price	Qty	Ord Status	Exec Type	Cum Qty	Leaves Qty	Comment
D		ABC1				12.00	1000					New Order from trader.
	8	ABC1		ORD_1		12.00	1000	New	New	0	1000	Order is ack'ed by exchange.
Trader issues a modification request to increase quantity to 1400.												
G		MOD1	ABC1	ORD_1	ABC1	12.00	1400					Order qty is increased to 1400 by trader.
	8	MOD1	ABC1	ORD_1	ABC1	12.00	1400	Replaced	Replace	0	1400	Modification is ack'ed by exchange.

Scenario 2: In-flight modification of previously sent order

In this scenario, an order is sent (BUY 1000 @ 12), which partially executes for 200. Concurrently (i.e., before receiving the Execution Report notifying the partial fill of 200), the counterparty issues a modification request to increase its quantity to 1300.

Msg sent	Msg received	ClOrdID	Orig ClOrdID	OrderID	Price	Qty	OrdStatus	Exec Type	Cum Qty	Leaves Qty	Last Qty	Last Price	Comment
D		ABC1			12.00	1000							New Order from trader.
	8	ABC1		ORD_1	12.00	1000	New	New	0	1000			Order is ack'ed by exchange.
The order executes for 200 @ 12.00. The partial fill notification does not reach the trader yet. Trader issues a modification request for the same order, increasing quantity to 1300.													
G		MOD1	ABC1	ORD_1	12.00	1300							Order qty is increased to 1300 by trader.
Trader receives the Execution Report for the partial fill (200 @ 12.00)													
	8	ABC1		ORD_1	12.00	1000	Partially Filled	Trade	200	800	200	12.00	Partial fill is received by trader.
Here, the order is modified in the match engine, with its total investor quantity increased to 1300, even though 200 were already executed.													
	8	MOD1	ABC1	ORD_1	12.00	1300	Replaced	Replace	200	1100			Modification is ack'ed by exchange.

Scenario 3: In-flight modification of previously sent order

In this scenario, an order is sent (BUY 1000 @ 12.00), which partially executes for 800 (remaining quantity = 200). Concurrently, the counterparty issues a modification request trying to decrease the order quantity from the original 1000 to 700.

Msg sent	Msg Received	ClOrd ID	Orig ClOrdID	Order ID	Price	Qty	OrdStatus	Exec Type	Cum Qty	Leaves Qty	Last Qty	Last Price	Comment
D		ABC1			12.00	1000							New Order from trader.
	8	ABC1		ORD_1	12.00	1000	New	New	0	1000			Order is ack'ed by exchange.
The order executes for 800 @ 12.00. The partial fill notification does not reach the trader yet. Trader issues a modification request for the same order, decreasing quantity to 700.													
G		MOD1	ABC1	ORD_1	12.00	700							Order qty is decreased to 700 by trader.
Trader receives the Execution Report for the partial fill (800 @ 12.00).													
	8	ABC1		ORD_1	12.00	1000	Partially Filled	Trade	800	200	800	12.00	Partial fill is received by trader.
	8	MOD1	ABC1	ORD_1	12.00		Cancelled	Cancelled	800	0			Since the order is being modified so that OrderQty < CumQty, the order is cancelled.

In the equities segment, during order modifications (the Order Cancel/Replace Request message), OrderQty is internally translated to represent the order remaining quantity. Thus, orders in this segment are not immune to overfills[6]. BM&FBOVESPA advises participants to 1) Cancel the current order and issue a new one (implies in loss of time priority), or 2) Carefully monitor the LeavesQty field issued on every execution report, and react accordingly if an overfill is detected.

[6] Due to change in the PUMA Trading Platform: overfill protection available in the equities segment. The expected timeframe is Q4/2012.

Example: Equities

Msg sent	Msg received	ClOrdID	OrderID	Price	Qty	OrdStatus	Exec Type	Cum Qty	Leaves Qty	Last Qty	Last Price	Comment
D		ABC1		12.00	1000							New Order from trader.
	8	ABC1	ORD_1	12.00	1000	New	New	0	1000			Order is ack'ed by exchange.
The order executes for 200 @ 12.00. The partial fill notification does not reach the trader yet. Trader issues a modification request for the same order, increasing quantity to 1300. Quantity is translated to LeavesQty. As no fills took place yet, LeavesQty will be set to 1300												
G		MOD1	ORD_1	12.00	1300				**1300 (translated)**			Order qty is increased to 1300 by trader.
Trader receives the Execution Report for the partial fill (200 @ 12.00)												
	8	ABC1	ORD_1	12.00	1000	Partially Filled	Trade	200	800	200	12.00	Partial fill is received by trader.
Here, the order is modified in the match engine, with its total investor quantity increased to 1500. Notice that, although the trader intended to increase quantity by 300, it actually increased 500. Thus, the order is now subject to overfills												
	8	ABC1	ORD_1	12.00	1500	Replaced	Replace	200	1300			Modification is ack'ed by exchange.

6.4 Order Lifecycle

An order typically goes through a number of states during its lifecycle, such as new, replaced, cancelled, and filled, among others. Each of these states is conveyed by the OrdStatus (39) field sent in all Execution Report (35=8) messages. When the participant performs an action to an order, such as modification or cancellation, the outcome of the operation is expressed in the ExecType (150) field. Thus, a successful modification report will have ExecType set to '5' (Replace). Internal matching engine events, such as fills or end of day expiration might also lead to state changes. The following Diagram depicts the basic state transitions common to all of EntryPoint market segments. Please refer to **Appendix B**: for a detailed list of ExecType and OrdStatus transitions.

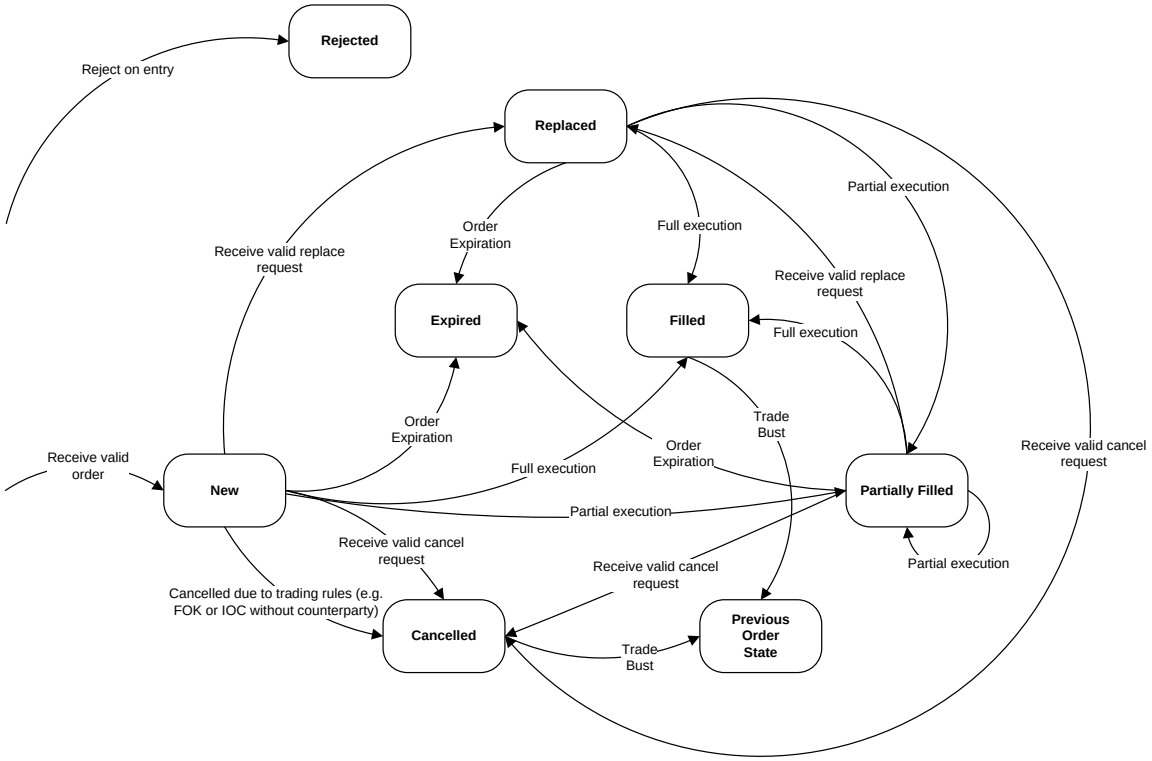

Figure 3 - Order State Transitions

6.5 Order Characteristics Modification/Removal

The various order characteristics behave differently with regard to modification. Some characteristics cannot be modified (e.g. order side), while others can be altered subject to market rules. The following table summarizes how and when various order characteristics can be changed:

Characteristic	Field	Tag	Add	Remove	Change
Order Type	OrdType	40			✓
Validity	TimeInForce	59			✓
Expire Date	ExpireDate	432	✓ (if modifying to GTD)	✓ (if modifying from GTD)	✓ (if TimeInForce is GTD)
Price	Price	44	✓ (if modifying to Limit or Stop Limit)	✓ (if modifying from Limit or Stop Limit)	✓ (if OrdType is Limit or Stop Limit)
Asset	Symbol	55			
Order Side	Side	54			
Exercise Block	PositionEffect	77	✓		
Stop Price	StopPx	99	✓ (if modifying to stop limit)	✓ (if modifying from stop limit)	✓ (if OrdType is Stop Limit)
Memo	Memo	5149	✓		✓
Minimum Quantity	MinQty	110	✓		
Order Quantity	OrderQty	38			✓
Disclosed Quantity	MaxFloor	111	✓	✓ (set MaxFloor to 0)	✓
Account/ Give Up Link	Account	1	✓	✓ (set AccountType to 38) [7]	✓[7]
Entering Trader	PartyRole(36) + PartyID	452 + 458			
Executing Trader	PartyRole(12) + PartyID	452 + 458	✓		
Entering Firm	PartyRole(7) + PartyID	452 + 458			
Sender Location	PartyRole(54) + PartyID	452 + 458			
Clearing Firm	PartyRole(4) + PartyID	452 + 458	✓		✓
Investor ID	PartyRole(5) + PartyID	452 + 458	✓		✓

[7] Account Change/Removal might be unavailable to some participants due to specific market rules.

6.6 Impact of the changes on the order's priority

The changes in the orders may impact the priorities. The changes and the respective impacts are shown in the table below:

Characteristic	Impact on the priority
Price	Priority Loss
Stop price triggering	Priority Loss
Stop price limit	Priority Loss
Increase Quantity	Priority Loss
Decrease Quantity	Keeps priority
Minimum quantity	Priority Loss
Order Type	Keeps priority
Validity	Keeps priority
Account [8]	Keeps priority

[8] For DMA participants this parameter cannot be changed.

6.7 Order Identification

EntryPoint supports a number of order identifiers which allows participants to keep track of order events during the whole order lifecycle.

6.7.1 Participant Issued Identifiers

Participant issued identifiers are assigned by market participants through the order lifecycle. They are discussed on the following subsections.

6.7.1.1 ClOrdID

The ClOrdID (11) field is the primary client side order identifier. It is initially assigned at order entry, and can be subsequently changed through the order lifecycle in modifications and cancelation requests. It must be unique among all active orders on a given instrument sent via a specific FIX session.

ClOrdID can be recycled after a given order reaches the end of its lifecycle (cancelled/completely filled). Although supported, this practice is not recommended, since it hinders troubleshooting.

6.7.1.2 OrigClOrdID

The OrigClOrdID (41) field is used in conjunction with the ClOrdID field and allows the client to implement client side order chaining, that is, to keep a history of client initiated order events. Each Modification/Cancellation request must have an associated OrigClOrdID. The following table depicts how chaining maintain order relation across subsequent operations.

Msg sent	Msg received	ClOrdID	Orig ClOrdID	OrderID	Price	Qty	Ord Status	Exec Type	Cum Qty	Leaves Qty
D		ABC1			12.00	1000				
	8	ABC1		ORD_1	12.00	1000	New	New	0	1000
G		MOD1	ABC1	ORD_1	12.00	1200				
	8	MOD1	ABC1	ORD_1	12.00	1200	Replaced	Replace	0	1200
G		MOD2	MOD1	ORD_1	12.00	1400				
	8	MOD2	MOD1	ORD_1	12.00	1400	Replaced	Replace	0	1400

6.7.1.3 ClOrdID/OrigClOrdID Chaining Rules

On outbound messages, EntryPoint echoes the ClOrdID/OrigClOrdID assigned in the inbound message:

Msg sent	Msg received	ClOrdID	OrigClOrdID	Price	Qty	ExecType
D		NEW1		12.00	1000	
	8	NEW1		12.00	1000	New
Rejected modification						
G		MOD1	NEW1	12.00	1200	
	9	MOD1	NEW1	12.00	1200	Rejected
Successful modification						
G		MOD2	NEW1	12.00	1400	
	8	MOD2	NEW1	12.00	1400	Replace

This behavior also allows participants to send the same ClOrdID/OrigClOrdID on all messages in a given order chain:

Msg sent	Msg received	ClOrdID	OrigClOrdID	Price	Qty	ExecType
D		ORD1		12.00	1000	
	8	ORD1		12.00	1000	New
Rejected modification						
G		ORD1	ORD1	12.00	1200	
	9	ORD1	ORD1	12.00	1200	Rejected
Successful modification						
G		ORD1	ORD1	12.00	1400	
	8	ORD1	ORD1	12.00	1400	Replace

6.7.1.4 Rapid Firing

Rapid firing consists in sending a stream of Modification/Cancellation requests without waiting from the acknowledgement of previous operations:

Msg sent	Msg received	ClOrdID	OrigClOrdID	Price	Qty	ExecType
D		NEW1		12.00	1000	
	8	NEW1		12.00	1000	New
Client sends two "rapid fire" modifications, both accepted						
G		MOD1	NEW1	12.00	1200	
G		MOD2	MOD1	12.00	1400	
	8	MOD1	NEW1	12.00	1400	Replace
	8	MOD2	MOD1	12.00	1400	Replace

Rapid firing is currently not supported in the equities segment. Additionally, rapid firing is not supported on Derivatives/FX connections which are under control of the LiNe credit control system.[9]

6.7.2 Exchange Issued Identifiers

Exchange issued identifiers are discussed on the following subsections.

6.7.2.1 OrderID

The OrderID (37) field is one of the exchange issued order identifiers. It is assigned by the matching engine on successful order entry and it remains the same during the entire order lifecycle. Uniqueness is guaranteed for the combination of the order entry date (TradeDate (75) field), and Security. When multiple identifiers are available, OrderID has the highest precedence.

6.7.2.2 SecondaryOrderID

The SecondaryOrderID (198) field is an alternate identifier issued by the exchange systems. Assigned upon order acceptance, it can be used on subsequent modifications and cancellation operations. Uniqueness is determined by the combination of the order entry date (TradeDate (75) field) and Security. Differently from the OrderID, the SecondaryOrderID changes for every client initiated event, and when a disclosed quantity order is replenished. Changing allows SecondaryOrderID to properly hide disclosed orders through multiple replenishments. The following tables present the SecondaryOrderID behavior on various scenarios:

[9] Due to change in the PUMA Trading Platform: rapid firing is going to be available on all segments, provided that the session is not making use of the LiNe credit control system. The expected timeframe is Q4/2012.

Example: Order is received, partially filled and completely filled (no change to SecondaryOrderID).

Msg sent	Msg received	ClOrdID	Symbol	OrderID	Secondary OrderID	OrdStatus	Exec Type	Comment
D		ABC1						New Order from trader.
	8	ABC1	WDLH08	1	1	New	New	Order is ack'ed by exchange.
	8	ABC1	WDLH08	1	1	Partially filled	Trade	Partial fill is received by trader.
	8	ABC1	WDLH08	1	1	Filled	Trade	Order is filled.

Example: Disclosed order is received, partially filled and completely filled (SecondaryOrderID changes upon replenishment).

Msg sent	Msg received	ClOrdID	Symbol	OrderID	Secondary OrderID	OrdStatus	ExecType	Comment
D		ABC1						New Order from trader.
	8	ABC1	WDLH08	1	1	New	New	Order is ack'ed by exchange.
	8	ABC1	WDLH08	1	1	Partially filled	Trade	Partial fill is received by trader.
Order is partially filled, and quantity is replenished.								
	8	ABC1	WDLH08	1	2	Partially filled	Trade	Partial fill is received by trader.
Order is partially filled, and quantity is replenished again.								
	8	ABC1	WDLH08	1	3	Filled	Trade	Order is filled.

Example: Order is received, and then modified (SecondaryOrderID changes upon modification).

Msg sent	Msg received	ClOrdID	Symbol	OrderID	Secondary OrderID	OrdStatus	ExecType	Comment
D		ABC1						New Order from trader.
	8	ABC1	WDLH08	1	1	New	New	Order is ack'ed by exchange.
Trader modifies order quantity.								
	8	ABC1	WDLH08	1	2	Replaced	Replace	Order was modified.
Order is filled.								
	8	ABC1	WDLH08	1	2	Filled	Trade	Order is filled.

In the Derivatives and FX segments market data feeds, the OrderID (37) field actually contains the SecondaryOrderID value for a given order.

6.7.3 **Order Identifier Rules**

The following rules apply to the order identifiers:

- ClOrdID/OrigClOrdID should be unique per FIX session and instrument. Uniqueness is checked among standing orders only.

- Participants can modify/cancel orders by OrderID, SecondaryOrderID, and OrigClOrdID. If more than one of them is present, OrderID has a priority over SecondaryOrderID, which has more priority than OrigClOrdID. FIX rules are observed, that is, ClOrdID/OrigClOrdID must be present on all modifications and cancellations requests.

- If OrderID or SecondaryOrderID are present on the Modification/Cancellation request, the engine uses them to look up the order. However, ClOrdID uniqueness rules must still be enforced. This means that a modification with a good OrderID but duplicated ClOrdID must be rejected. If the participant provides a valid OrderID, non-duplicate ClOrdID, and an invalid SecondaryOrderID/OrigClOrdID, the operation still completes since there is no harm to the lifecycle for subsequent operations. However, the engine will send the correct SecondaryOrderID/OrigClOrdID on the reply.

- If an order is rejected upon entry, the rejection Execution Report contains a newly created OrderID.

- If a modification is rejected due to the order being unknown, the engine echoes whatever OrderID/SecondaryOrderID is present in the incoming message.

- In case OrderID/SecondaryOrderID is not provided in the incoming message, field OrderID/SecondaryOrderID is set to 'NONE'.

6.8 Aggressor Indicator[10]

This Boolean tag is returned in the Execution Report message to indicate whether the order initiator is an aggressor or not in the trade.

Possible values are:

- Y = Order initiator is aggressor
- N = Order initiator is passive

[10] This field will be available for the Equities segment from Q4/2012.

7. Participant Identification

In EntryPoint, participants are identified by the use of the Parties Component Block, a multipurpose identification construct. The component block contains the NoPartyIDs (453) repeating group. Each repetition contains one piece of relevant participant data. The relevant fields in the NoPartyIDs repeating group follows:

- PartyID (448): contains the actual participant identification
- PartyRole (452): qualifies the PartyID value. Thus, according to the PartyRole value, PartyID can represent a trader or firm, among other available roles.
- PartyIDSource (447): Identifies the issuer of the PartyID code. Currently, all participant codes are issued by BM&FBOVESPA, thus PartyIDSource is always set to 'D' (Proprietary/Custom Code).

The following table describes all available participant domains for the PartyRole field.

Party Role	Domain	Description	Applicable Segments		
			Equities	Derivatives	FX
Clearing Firm	4	Indicates the clearing member that will clear the trade.	N/A	Optional	N/A
Investor ID	5	Used for Self-Trading prevention at customer level. See section 13.4 for details.	Optional[11]	Optional	Optional
Entering Firm	7	Broker identifier as assigned by BM&FBOVESPA.	Required	Required	Required
Executing Trader	12	Identifies the trader which is performing an action on behalf of another. Only used when trading on behalf. See section 7.1 for details.	Optional	Optional	N/A
Contra Firm	17	Broker identifier as assigned by BM&FBOVESPA used to indicate the counterparty brokerage firm in a Forward deal.	Required for forward deals, N/A for other securities	N/A	N/A
Entering Trader	36	Trader identifier. BM&FBOVESPA assigned for desk traders, free format for DMA.	Required	Required	Required
Foreign Firm	46	Broker identifier as assigned by BM&FBOVESPA used to indicate the offshore brokerage firm in orders sent to BEI.	Required only in orders sent to BEI	N/A	N/A
Sender Location	54	Identifies the order originator and DMA category. Desk traders always set this to 'BVMF', DMA connections must use the value assigned by BM&FBOVESPA.	Required	Required	Required

[11] This functionality will be available as soon as the new PUMA Trading Platform rolls out on equities segment. The expected timeframe is Q4/2012.

Desk ID	76	Participants may use this field to identify the client associated with the given account number. This information may be used to correlate the order entry messages with the messages at the back-office and clearing systems.	Optional	Optional	Optional
Originating Market	99	BM&FBOVESPA assigns this identifier only in the Execution Reports for orders executed in BEI. **The use of this Party Role is reserved to the Exchange. Participants should not include it in order entry messages.**	N/A	N/A	N/A
Order Origination Session	1001	BM&FBOVESPA may assign this identifier in the Trade Cancel Reports. **The use of this Party Role is reserved to the Exchange. Participants should not include it in order entry messages.**	N/A	N/A	N/A

The following table illustrates an example of a DMA provider (e.g. “XYZ”) sending a New Order Single to BM&FBOVESPA, entered by trader “ABC”:

Msg sent	Msg received	ClOrdId	Price	Qty	NoPartyIDs repeating group
D		ABC1	10.58	7000	NoPartyIDs = 3

PartyID	PartyIDSource	PartyRole
XYZ	D	54 (Sender Location)
ZZZ	D	7 (Entering Firm)
ABC	D	36 (Entering trader)

7.1 Trading on Behalf[12]

A desk trader in the role of 'desk supervisor' can trade on behalf of other desk traders and DMA clients. In order to do so, the supervisor must be registered in the exchange along with a visibility configuration which determines the set of participants that he represents. Provided that all previous conditions are met, the supervisor can send, modify, and cancel orders on behalf.

Whenever an on behalf operation is performed, the reply messages always go back to the order originator. Thus, if Supervisor S sent an order on behalf of trader T, the acknowledgment execution report is sent to S. T won't get a direct reply from the on behalf operation. However, if T has access to a drop copy session, T will receive the copy acknowledgment. Conversely, if the order was originally sent by T, all on behalf replies will flow back to T. S may get them via drop copy, if enabled.

Scenario 1: supervisor S sends an order on behalf of trader T

<table>
<tr><th>Msg Sent</th><th>Msg received</th><th>ClOrdID</th><th>Symbol</th><th>PartyIDs</th><th>Comment</th></tr>
<tr><td>D</td><td></td><td>ABC1</td><td></td><td>NoPartyIDs = 4
<table>
<tr><th>Party ID</th><th>PartyID Source</th><th>PartyRole</th></tr>
<tr><td>S</td><td>D</td><td>12 (Executing trader)</td></tr>
<tr><td>T</td><td>D</td><td>36 (Entering trader)</td></tr>
<tr><td>123</td><td>D</td><td>7 (Entering firm)</td></tr>
<tr><td>BVMF</td><td>D</td><td>54 (Sender Location)</td></tr>
</table></td><td>New Order from trader.</td></tr>
<tr><td></td><td>8</td><td>ABC1</td><td>WDLH08</td><td>Same as above</td><td>Order is ack'ed by exchange.</td></tr>
<tr><td colspan="6">Order control remain with S, and T cannot perform any operations upon the order</td></tr>
</table>

[12] This functionality will be available as soon as the PUMA Trading Platform rolls out on the various market segments.

Scenario 2: trader T sends an order, and supervisor S later modifies it

<table>
<tr><th>Msg sent</th><th>Msg received</th><th>ClOrdID</th><th>Symbol</th><th>PartyIDs</th><th>Comment</th></tr>
<tr><td>D</td><td></td><td>ABC1</td><td></td><td>NoPartyIDs = 3
<table>
<tr><th>Party ID</th><th>PartyID Source</th><th>PartyRole</th></tr>
<tr><td>T</td><td>D</td><td>36 (Entering trader)</td></tr>
<tr><td>123</td><td>D</td><td>7 (Entering firm)</td></tr>
<tr><td>BVMF</td><td>D</td><td>54 (Sender Location)</td></tr>
</table></td><td>New Order from trader.</td></tr>
<tr><td></td><td>8</td><td>ABC1</td><td>WDLH08</td><td>Same as above</td><td>Order is ack'ed by exchange.</td></tr>
<tr><td>G</td><td></td><td>ABC2</td><td>WDLH08</td><td>NoPartyIDs = 4
<table>
<tr><th>Party ID</th><th>PartyID Source</th><th>PartyRole</th></tr>
<tr><td>S</td><td>D</td><td>12 (Executing trader)</td></tr>
<tr><td>T</td><td>D</td><td>36 (Entering trader)</td></tr>
<tr><td>123</td><td>D</td><td>7 (Entering firm)</td></tr>
<tr><td>BVMF</td><td>D</td><td>54 (Sender Location)</td></tr>
</table></td><td>S modifies an order previously sent by T.</td></tr>
<tr><td></td><td>8</td><td>ABC2</td><td>WDLH08</td><td>Same as above</td><td>Execution report flows back to T. T remains in control of the order, and both S and T can modify or cancel the order on following operations.</td></tr>
</table>

Creating a user defined spread on behalf of a trader is also possible.

Scenario 3: supervisor S requests a security definition on behalf of trader T

<table>
<tr><th>Msg sent</th><th>Msg received</th><th>SecurityReqID</th><th>PartyIDs</th><th>Comment</th></tr>
<tr><td>c</td><td></td><td>ABC1</td><td>NoPartyIDs = 4
<table>
<tr><th>Party ID</th><th>PartyID Source</th><th>PartyRole</th></tr>
<tr><td>S</td><td>D</td><td>12 (Executing trader)</td></tr>
<tr><td>T</td><td>D</td><td>36 (Entering trader)</td></tr>
<tr><td>123</td><td>D</td><td>7 (Entering firm)</td></tr>
<tr><td>BVMF</td><td>D</td><td>54 (Sender Location)</td></tr>
</table></td><td>Security Definition Request from trader.</td></tr>
<tr><td></td><td>d</td><td>ABC1</td><td>Same as above</td><td>Security Definition creation is confirmed by exchange.</td></tr>
</table>

8. Security Identification

In the order entry messages, the only required field to uniquely identify a security is Symbol (55). This tag conveys the human readable security identifier and it's available in the Security List message.

In order to trade securities listed in other venues (e.g. Globex); the SecurityExchange (207) tag should be used to specify the market to which the security belongs, using its proper MIC[13] code. If SecurityExchange it's not provided, BVMF is assumed as a default venue.

In order to ease migration for current BELL users, SecurityID (48) and SecurityIDSource (22) are still accepted as part of the order entry inbound messages. However, those tags are not required and are not validated by the exchange systems. For the participants benefit, the tags will be echoed back in the outbound messages.

Participants that are starting a new EntryPoint development effort can omit SecurityID and SecurityIDSource from the order entry messages.

[13] Market Identifier Code, an International Standard (ISO 10383) used to uniquely identify exchanges.

9. Access Categories

All four DMA categories are available in the equities and derivative segments. Each category has a new alpha-numeric code which indicates that a given connection belongs to a specific category and replaces the former Bovespa numeric ranges. The new alpha-numeric code must be sent in every message as a Sender Location Party Role.

The following table depicts all access categories, their associated codes and the correspondent Bovespa three digit numbers:

Access Category	Market Segment	Sender Location	Former Bovespa Numeric Range
Desk traders	Equities	BVMF	770-999
	Derivatives	BVMF	
Local	Equities	AUTO	N/A
	Derivatives	AUTO	
Give up Agent	Equities	REPS	310-359, 510-559
DMA1	Equities	DMA1	300-309, 360-399, 400-499, 500-509, 560-599
	Derivatives	DMA1	
DMA2	Equities	Provider Code	600-649
	Derivatives	Provider Code	
DMA3	Equities	DMA3	650-699
	Derivatives	DMA3	
DMA4	Equities	COLO0/COLO1	700-769
	Derivatives	COLO0/COLO1	

Although all categories share a large body of common behavior, the following differences apply:

- Desk traders and give up agents must specify a valid trader ID on all inbound operations. The trader code must be sent in a PartyID (448) field, along with an associated PartyRole (452) = 36 (Entering Trader).
- Only Desk Traders may modify the Account tag that was initially provided in the New Order Single.
- In the Derivatives segment, Desk Traders may omit the Account tag.

DMA Providers (DMA2), sponsored by multiple Firms, must use different FIX sessions to submit orders from each Firm.

10. Memo

In order to provide a field that participants can use to submit a comment or a description about the current request, most of the messages in EntryPoint have been equipped with a customized tag called Memo (5149).

This tag is defined as a free format text field (limited in up to 50 characters) that may be used to convey client's relevant information.

The use of the Memo (5149) field is convenient because its content is always echoed in the reports. Additionally, as the information might have meaning only to its publisher, the content entered on this field is not visible to the counterparty.

Observe that the scope of tag Memo (5149) is restricted to the Order Entry scenario, which means that the information may be available around the Order Entry and Drop Copy gateways only. There is no guarantee that the text entered in tag Memo (5149) will reach other systems, such as in the clearing or post-trading areas. In this aspect, it is not recommended to use tag Memo (5149) as a key to correlate messages from the trading with data collected in the post-trading systems, for example.

If the participant needs to have the information reflected outside the scope of the trading environment, it is advised to consider using the PartyRole “76 - Desk ID”[14], that is also a free format text field, but which content can be used to add a description or comment to the client’s account number and therefore offered to external systems.

[14] Refer to the **Client Identification** section, in this document, for more information about the use of tag PartyRole = 76 (Desk ID).

11. Client Identification

11.1 Account Number

Client Identification should be sent in the Account (1) field. Exchange replies such as Execution Reports and Order Cancel Rejects will also echo the client identification in the Account (1) field.

The AccountType (581) tag acts as a qualifier of the account. For example, setting AccountType to '38' in a modification indicates that the account information should be removed from the order[15]. If AccountType is missing, the Account tag is interpreted as a regular account.

Tag	Tag name	Req'd	Data Type	Comment
1	Account	N	Int (12)	Account mnemonic.
581	AccountType	N	Int (2)	Type of Account associated with an order. Absence of this Tag causes Account to be interpreted as Regular Account. Valid values: 38 - Remove Account Information 39 - Regular Account 40 - Give Up Link Identifier

11.2 Account Annotation

There are scenarios where participants need to include an annotation in the order entry message exclusively to identify the client associated with a given account number. In most cases, this information is also used to correlate the order entry messages with the data in the back-office and clearing systems.

Although, in EntryPoint, the Account (1) field cannot be used to convey any type of text information (only numeric values are accepted), it has been implemented an efficient alternative to support this functionality.

In this context, users are advised to take advantage of PartyRole "76 - Desk ID" which provides a powerful and consistent method to allow participants to annotate the account.

Observe the example below:

Msg	Account	ClOrdID	PartyIDs	Comment
D	1234	ABC1	NoPartyIDs = 4 Party ID / PartyID Source / PartyRole 123 / D / 7 (Entering firm) T / D / 36 (Entering trader) BVMF / D / 54 (Sender Location) JOHN / D / 76 (Desk ID)	Field Account is numeric only. PartyRole "Desk ID" is used as a label to the account number.

Differently from the information provided in the Memo (5149) field, which may also be used to enter specific client's information, the PartyRole (452) "76 - Desk ID" is guaranteed to circulate from the trading through post-trading environments.

[15] This functionality might be unavailable due to Market Rules (e.g. DMA participants cannot remove the account information). Please, refer to section Market Segment Specific Rules for market specific rules regarding account handling.

12. Market Segment Specific Rules

The following sections describe market specific rules.

12.1 BOVESPA Segment (Equities)

This section describes specific trading rules for the equities market.

12.1.1 Trading Hours

For a list of equities trading hours, sessions, and holidays, please visit: www.bmfbovespa.com.br and follow Markets ➔ Equities ➔ Calendar and Hours.

12.1.2 Client Identification

In the equities segment, all orders must be sent with an Account (1) field. Unspecified orders are rejected upon entry.

12.1.3 Orders triggering Instrument Freeze (frozen orders)

Orders that trigger an instrument freeze will be accepted by using the "suspended" state. The execution report indicating the suspension should be considered as an acknowledgement of order acceptance, i.e., it has the semantics of a 'New' execution report. When the instrument freeze is lifted, EntryPoint will send one or more fill notifications, or a cancellation execution report if the order is rejected as the instrument 'thaws'. The following table illustrates the first scenario:

Order sent followed by freezing, partial fill and subsequent thawing of instrument

Message received (ClOrdID)	Message Sent (ClOrdID)	Exec Type	Ord Status	Order Qty	Cum Qty	Leaves Qty	Last Qty	Comment
New Order (X)				10,000				Order is sent by client system.
	Execution(X)	Suspend	Suspend	10,000	0	10,000		Order is accepted by the exchange, causing an instrument freeze.
	Execution(X)	Trade	Partially filled	10,000	6,000	4,000	6,000	Order is partially filled (quantity executed = 6,000)
	Execution(X)	Trade	Filled	10,000	10,000	0	4,000	Order is filled.

12.2 BM&F Segment (Derivatives)

This section describes specific trading rules for the derivatives market.

12.2.1 Message Flow

The following diagram depicts the overall message flow in the derivatives segment.

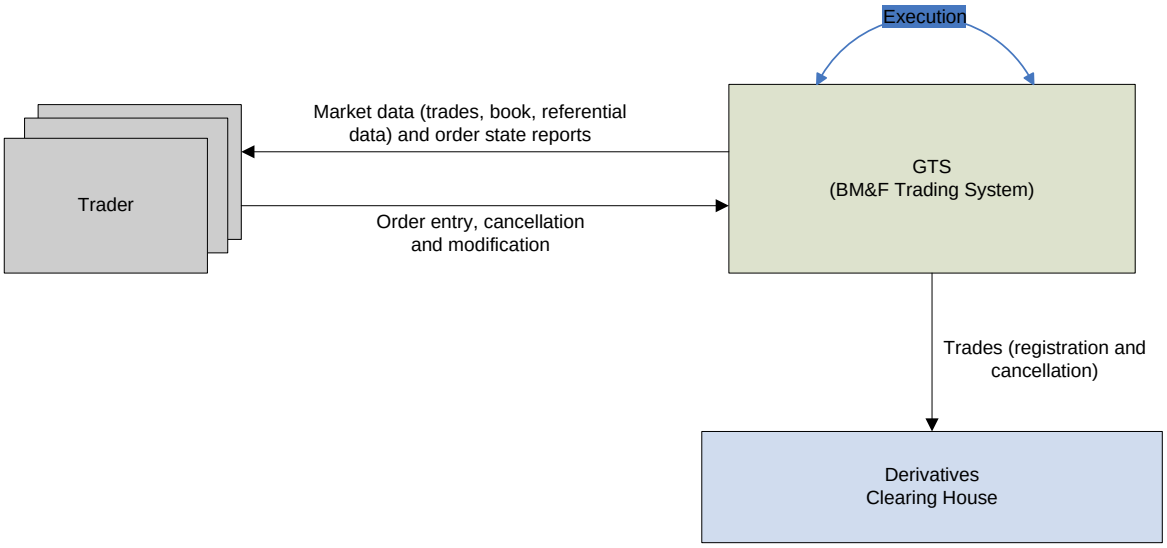

Figure 4 - Derivatives Clearinghouse message flow.

12.2.2 Trade Give-ups

A trade may be given up to another firm, i.e. the firm that carries the position is a firm other than the executing firm (the firm that puts the order in the market). Give-ups may be done post-trade (via the "BM&FBOVESPA Serviços" website) or pre-trade, indicating the give up in the order message. The give-up is uniquely identified by what is called in BM&FBOVESPA a "give-up link number".

The give-up indication is done in the order message by providing the give-up number in the Account (1) field, and setting AccountType (581) to '40' (Give up link number). Once the trade is made, the take up firm (the firm the trade was given up to) will receive notification and will accept or reject the trade. If the take up firm rejects the trade, the position is carried by the executing firm.

Example: customer "1234" was assigned a give-up link number, with entering firm = "GHI" and give-up firm is "DEF". The give-up link number is "9898". Trader "ABC" is the trader that puts the order in the market.

Ms sent	ClOrdID	Price	Qty	Account	Account Type	NoPartyIDs repeating group
D	ABC1	10.58	7000	9898	40	

PartyID	PartyIDSource	PartyRole
ABC	D	36 (Entering trader)
GHI	D	7 (Entering firm)

12.2.3 Closing a Short Options Position

All derivatives options are outright, that is, there is no implicit netting if the participant buys and sells the same amount of a given option. Should a participant wish to close (net) a short position, he may do so by buying the same amount of the same option, and set the PositionEffect (77) field to 'C' (Close).

Field PositionEffetct (77) must be used only with Derivative options. If this tag is assigned with other security types, the message may not be rejected. However, the participant's request might end up in an inconsistent state and might not be processed correctly.

12.2.4 Account Allocation Restrictions for DMA Customers

DMA originating orders should always be specified, that is, a valid account or give up link should be sent in the Account (1) tag.

Orders originated by DMA customers without account allocation or give-up code information will be rejected by EntryPoint. In addition, orders that are already available in the order book may not have their allocation account or give-up code modified. For changing these order characteristics pre-trade, the DMA customer will first need to cancel the order, and then issue a new order with the desired account.

12.3 Foreign Exchange (FX)

The following diagram depicts the overall message flow in the FX segment.

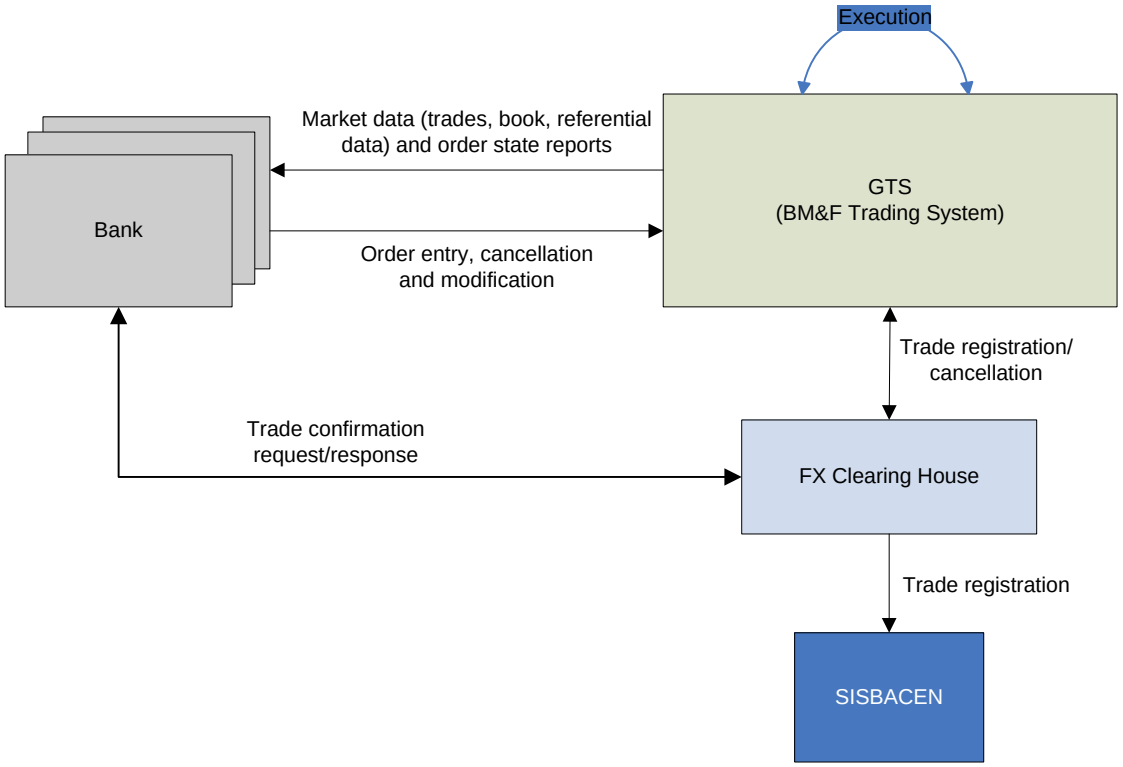

Figure 5 - FX Clearing House message flow.

12.3.1 Market Rules

The following applies to the FX segment:

- As determined by the current legislation, FX negotiation is restricted to banks. Thus, DMA is not available.
- All FX orders must contain an associated client. Post trade specification is not allowed.
- Self trading is forbidden. If an incoming order can be matched, but the counterparty order contains the same client, the incoming order is rejected before matching takes place.
- Market data is provided as a blind screen, that is, the participating party is not specified in the message, i.e. the book information will not contain bank/broker information.
- Only Limit orders are supported (OrdType (40) = 2).

12.4 Brazil Easy Investing (BEI)

BEI allows foreign investors to place orders for equities listed in the BM&FBOVESPA Trading System using their native currency. The system converts these offshore-priced orders to orders in onshore currency (BRL), performs validation and routes them to the BM&FBOVESPA Trading System.

Real-time FX rates provided by FX Liquidity Providers (FXLPs) are used to convert orders from offshore currency to onshore currency (BRL). When the BM&FBOVESPA Trading System sends a successful equity execution report, BEI generates the necessary conversions back to the offshore currency, and also generates an FX Execution Report.

The system also provides FX conversion of BM&FBOVESPA Market Data and disseminates this information to its customers.

Some other notes regarding BEI:

- Although buy and sell orders are converted to the investor's local currency, all trades are still performed using the Brazilian currency
- It is important to point out that the CMN Resolution 2689 and Law 4131, as applicable, shall be completely fulfilled for investments in the Brazilian market, therefore Brazil residents will not be able to use BEI for sending buy/sell orders.

12.4.1 Access Model

Customers will be able to connect to BEI using one of the two following DMA models:

12.4.1.1 DMA 1 - Traditional Access Model

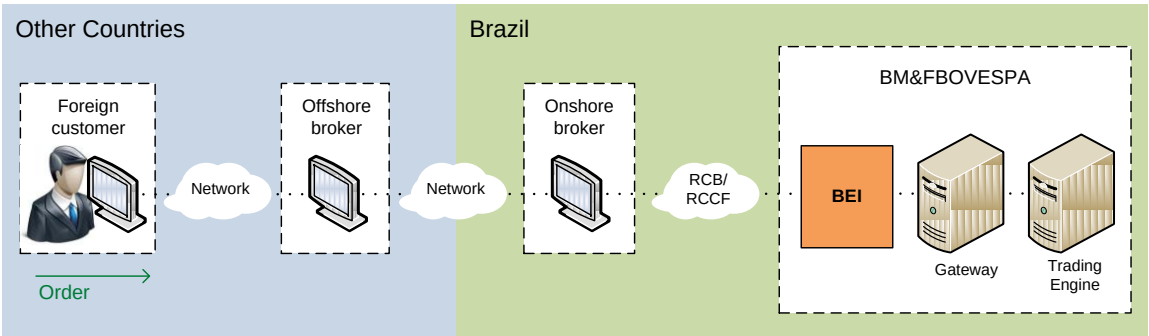

Figure 6 - Offshore broker connected to Onshore broker

12.4.1.2 DMA 3 - Direct Access

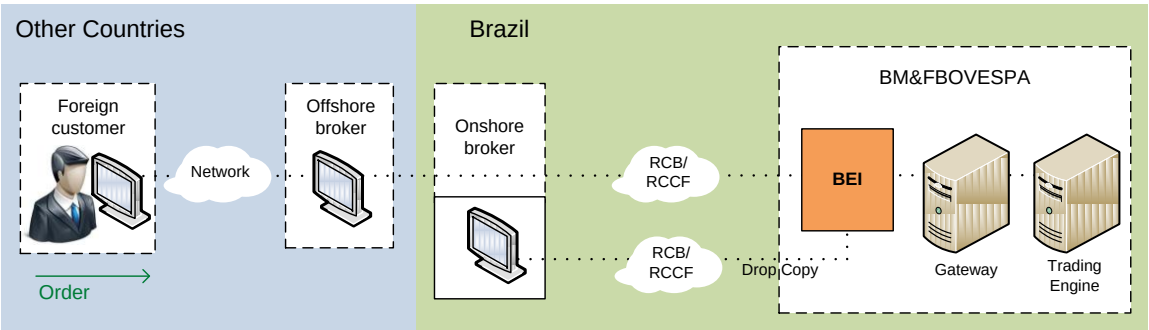

Figure 7 - Offshore broker directly connected to BM&FBOVESPA

12.4.2 Order Validations

To be accepted by the system, the buy or sell order must meet the following parameters:

- It must have the FX rate available, otherwise it will be rejected;
- It must be a Limit order (tag 40=2);
- It must have Time in Force (tag 59) equal to 3 or 4 – Only FAK (Fill And Kill) and FOK (Fill Or Kill) orders will be accepted.

An order may be rejected in case the BEI Trading System detects that the given order could potentially trigger an auction.

The following table describes the parameters used to prevent an auction:

Auction Prevention	Description of Auction Trigger	ERROR MESSAGE
First Trade of the Day	BEI reads a UMDF incremental stream to determine if the first trade of a security has been done in BM&FBOVESPA.	Liquidity Violation
Security Trading Status	A Security Trading Status of Price Indication is used to indicate a symbol that is currently in an auction.	Symbol in Auction
MDEntryPx	The price of an equity order has an absolute variation greater than or equal to 3% of the last trade price executed in the BM&FBOVESPA Trading System.	Price Range Violation
Quantity	The quantity of an equity order for a symbol is greater than or equal to 5 times the average amount of shares traded over the last 30 trading sessions.	Lot Size Violation
Stock Capital	The size of the equity order as a percentage of total Social Capital is greater than the % Social Capital parameter set for the day.	Exceeds Share Ownership Limit
Liquidity	The symbol has been flagged for exceeding the BM&FBOVESPA inactivity limit.	Liquidity Violation

12.4.3 BEI Message Sequence

BEI will then convert the orders to BRL, perform the initial limit validations and forward them to the BM&FBOVESPA Trading System.

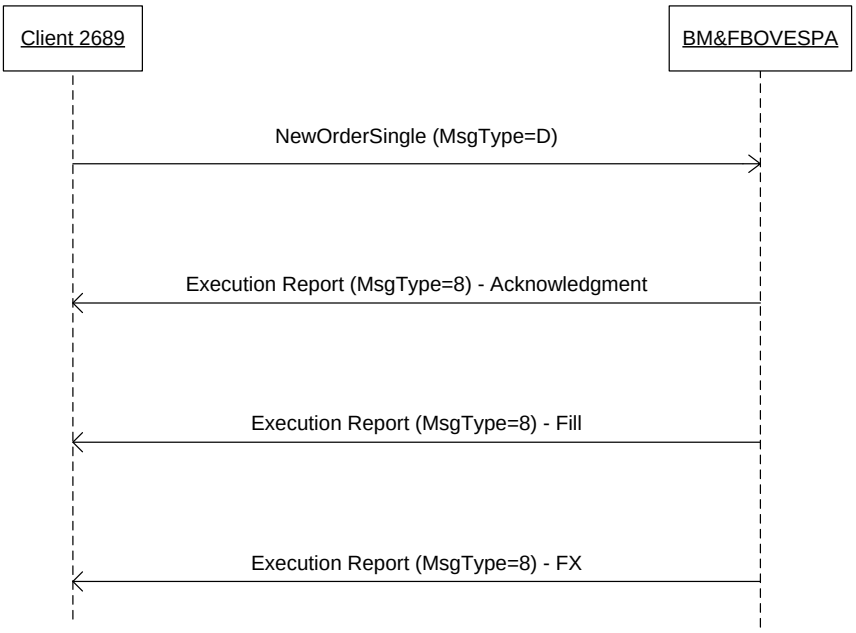

Figure 8 - BEI message sequence

12.4.4 FX Rate Locking

The FX rate used for converting the order value is locked at the moment the order enters BEI, i.e. all further conversions performed for that specific order are calculated based on the same FX quote. When BEI receives a full or partial Execution Report from BM&FBOVESPA, it converts the data to the offshore currency using the same FX rate previously locked and generates the respective Execution Reports to the participants.

12.4.5 Miscellaneous Fees[16]

The Onshore Broker may include, in the Execution Report sent to the customer, the fees incorporated in the operation. Such information will be conveyed by the *MiscFeesGrp* component group that is detailed in the section (12.4.6.2). The fees are described below:

Fee	Description
IOF	Fixed percentage value of foreign exchange business when BRL are bought/sold for buying/selling shares in Brazil. Charged at the purchase of shares at 0%.
BVMF Trade Fees	Fixed percentage of the total or partial fulfillment value of an Equity trade. General investors charged at 0.0285%.
BVMF Settlement Fees	Fixed percentage value for the business settlement. General investors are charged at 0.060%.
Onshore Broker Commission	Rates charged (by order or average value) by the local brokers for their services.

[16] Fees amount will be provided in BRL as indicated by tag 138 (MiscFeeCurr)

12.4.6 BEI Specific Fields

12.4.6.1 New Order Single (35=D)

Tag	Field Name	Req'd	Comments
15	Currency	Y	Required on BEI to indicate offshore currency of the order
452	PartyRole	Y	46 (Foreign Firm) is used to provide the Offshore broker identification

12.4.6.2 Equities Trade Execution Report (35=8)

Tag		Field Name	Req'd	Comments
15		Currency	Y	Required on BEI to indicate offshore currency of the order
→	452	PartyRole	Y	Identifies the type or role of the PartyID (448) specified. Conditionally required if NoPartyID > 0 7 = Entering Firm 36 = Entering Trader 46 = Foreign Firm 54 = Sender Location
35022		ExchangeOrderID	Y	BM&FBOVESPA Order ID
35023		ExchangeExecID	Y	BM&FBOVESPA Execution ID
35024		LastPxInIssuedCurrency	Y	BRL Price per share or contract bought or sold
35025		PriceInIssuedCurrency	N	BRL limit price per share or contract of converted offshore unit
35026		ExchangeSecondaryOrderID	N	BM&FBOVESPA Secondary Order ID
136		NoMiscFees	N	Number of miscellaneous fees
→	137	MiscFeeAmt	N	Miscellaneous fee value
→	138	MiscFeeCurr	N	Currency of miscellaneous fee. Valid value: BRL = Brazilian Real
→	139	MiscFeeType	N	Indicates type of miscellaneous fee 96 = IOF Fee 97 = Trading Fee 98 = Settlement Fee 99 = Onshore Broker Commission
→	891	MiscFeeBasis	N	Defines the unit for a miscellaneous fee 0 = Absolute

12.4.6.3 FX Trade Execution Report (35=8)

BEI sends an additional Execution Report related to the FX transaction executed by the Brazilian broker, which will include the following fields:

Tag	Field Name	Req'd	Comments
820	TradeLinkID	Y	Execution ID of corresponding equity trade
5975	OrderLinkID	Y	Order ID of the order corresponding to the Execution described in TradeLinkID
5001	ExchangeQuoteID	Y	Unique ID generated for identifying a new Quote and modified Quote

13. Advanced Functionalities

13.1 User-Defined Spreads (UDS)

User-Defined Spreads provide users of the electronic trading platform the ability to create strategies composed by their choice of leg instruments, leg ratio and leg side. The main purposes of implementing this functionality are:

1. All or Nothing semantics, which guarantees that the participant will get fills on all strategy legs (respecting the aforementioned leg ratios) or none at all.
2. Allow customer to create customized spreads and have them immediately active (vs. calling operations staff to create the spread and have them available next day);
3. Reduce the number of pre-listed instruments since market participants have the possibility to create spreads on demand, base on actual needs, as opposed to the exchange trying to foresee what instruments are needed;
4. Improves the quality of and the instrument listing since spreads without activity are eliminated.

Currently, the creation of User-Defined Spreads is available only in the Equities segment. The estimative for provisioning this functionality in the Derivatives segment will be announced in an opportune date.

13.1.1 Creation Rules

There are some constraints that are enforced by the system and must be observed during the creation of a UDS, such as:

- Instruments used to create a UDS must reside on the same engine. The first listed instrument will be used to determine the engine. In addition, instruments listed in the Black List cannot be used as strategy legs.
- The system does not allow user-defined strategies that use the same instrument as different legs. For example:
  - UDS-1: Buy ACME4; Sell ACME4
  - UDS-2: Buy ACME4; Sell 2 ACME3; Buy ACME4
- The system also does not allow a strategy to be created as the opposite of an existing one. For example:
  - UDS-1: Buy ACME4; Sell ACME3
  - UDS-2: Sell ACME4; Buy ACME3

  In this case, instead of creating UDS 2, the brokerage firm should sell UDS-1 to achieve the same effect.
- All strategies are created from a buyer's perspective. In the previous example, selling UDS-1 means to sell ACME4 and to buy ACME3, thus doing the opposite of the strategy creation.
- The system does not allow strategies with underlying legs of different Tick Sizes.

13.1.2 Expiration Date

A UDS is valid for at least seven days. If no activity occurs during this timeframe, the instrument will be deleted.

13.1.3 Security Strategy Types

Please refer to **Appendix D:** for a detailed list of strategy types and examples, but note that currently only the following combinations are supported by the trading platform:

- Cash – Cash
- Option – Option
- Cash – Option

These security types may be arranged to create strategies with up to 5 legs.

The full list of spread types will be supported when the rollout of the PUMA Trading Platform for the Equities segment is completed. By then, it will be possible to create spreads with up to 40 legs.

13.2 Exercise & Blocking

The Options Exercise & Blocking functionality allows market participants to manage their positions for Share Options and Index Options on the PUMA Trading Platform.

Option position is the balance resulting from one or more operations with options from the same series, executed on behalf of the same investor and through the same brokerage firm. Depending on the nature of the balance, the position may be writing or holding and depending on the collateral provided, covered or naked.

Exercise & Blocking is currently available in the Derivatives segment through the BELL interface. The estimative for provisioning this functionality to the Derivatives segment will be announced in an opportune date.

13.2.1 Exercise

Exercise may be defined as whenever holders of options contracts put into effect their right to buy or sell the option's underlying asset at the strike price.

During the trading session, BM&FBOVESPA receives exercise requests, as a Position Maintenance Request (35=AL), and validates business rules prior the execution of the request. If the request is valid, BM&FBOVESPA creates trades on the exercise instrument and updates the current client's position.

If at any time an exercised trade is busted by market operations, the Issuer and the Holder positions are reallocated at the system and the Issuer will be again eligible to be exercised.

13.2.1.1 Exercise Instrument

Every option (except Index) traded at BM&FBOVESPA has one correspondent non-tradable "exercise instrument".

For American Options, the exercise instrument is created in D+1 from the acquisition date. For European Options, the exercise instrument is created only at maturity date to prevent exercising prior to maturity.

A holder position is only eligible to exercise at D+1 from the acquisition date. Any exercise request from a position acquired at the same day will be immediately rejected by the Exchange.

13.2.1.2 Threshold Amount[17]

The value of tag ThresholdAmount (834), in the PositionMaintenanceRequest (35=AL), may be used to indicate the minimum earnings an options contract holder expects to profit by exercising his position.

[17] This functionality will be available as soon as the new PUMA Trading Platform rolls out on equities segment. The expected timeframe is Q4/2012.

13.2.2 Automatic Blocking

Automatic Blocking is also known as Blocking by Purchase. It occurs when clients prevent the assignment of a portion or the entirety of their positions, upon prior purchase of an equity option from the same series previously issued. The position can be partially or totally blocked, depending on the quantity issued and the quantity bought. To consider a position blocked, the following conditions must be considered:

- Account number must be the same
- Option series must be the same
- Brokerage Firm must be the same
- Quantity does not need to be the same, but the quantities bought and already exercised will determine if the position is partially or totally blocked

All automatic blocking will be notified with a Position Maintenance Report (35=AM) being sent to the Participant right after the purchase.

13.2.3 Blocking Specification

The Blocking Specification functionality has been developed to provide the ability to the system, whenever necessary, to prevent the assignment of an Options contract position. It allows the customer to send an Allocation Instruction (35=J) message associated to a particular trade in order to mimic an Automatic Blocking.

13.3 Forward Declaration/Acceptance ("Termo")

The Forward (also known as "Termo") Declaration/Acceptance model allows participants to record an out of band, pre arranged deal, in the exchange environment.

Forward contracts are also available in the Derivatives segment. However, they are traded in the open order book model. The declaration/acceptance model is currently restricted to the Equities segment.

13.3.1 Forward Types

There are four types of forward contracts that can be entered. The following table describes each one of these contracts:

Type	Description
Common forward	Forward trade to be physically and financially settled at the agreed face value.
Flexible forward	Forward trade that has as a specific feature that differentiates it from common forward; the possibility of enabling the forward purchaser to replace underlying stock of the initially agreed contract.
Dollar forward	Forward trade whose contractual price will be corrected daily by the variation of the average foreign exchange rate of the Brazilian Real (BRL) against the US dollar (USD), as of the trade day to the closing day, excluding first and last.
Index points forward	Forward trade that allows the secondary trading of forward contracts, in which the financial settlement amount is calculated by converting the value of the index points into local currency.

13.3.2 Forward + Cash ("Termo Vista")

An alternative modality of forward contract is the Forward + Cash, also known as "Termo Vista", which is a type of transaction that involves an operation in the forward market with its inclusion on the cash market, inverting the buyer and seller, i.e., the forward buyer becomes the cash seller, and the forward seller becomes the cash buyer.

13.3.3 Forward + Registered Cash ("Termo Vista Registered")

Similarly, Forward + Registered Cash also involves an operation in the cash market. The difference is that, in the Forward + Registered Cash modality, the customer indicates the id of a previous cash trade in the declaration message.

At the end of the forward negotiation, a cash trade is executed inverting the buyer and seller, i.e., the forward buyer becomes the cash seller, and the forward seller becomes the cash buyer. Exactly how it happens in the Forward + Cash modality.

13.3.4 Security Code

Every security allowed to be traded at the exchange forward market has one correspondent non-tradable symbol: e.g. ACME4 has a non-tradable instrument ACME4T ("T" means Termo). It is not possible to buy or sell it, except by sending and receiving a declaration. The security codes used in the forward market are:

Type of forward	Letter	Example
Common	T	ACME4T
Flexible	S	ACME4S
Dollar forward	D	ACME4D
Index points	T	ACME51T

13.3.5 Instrument States

Forward instruments will be in Forward-specific groups. The group schedule has the following states:

- Closed
- Open (scheduled to open simultaneously with the underlying)
- Forbidden

A declaration can only be accepted if the Forward instrument is in the Open state.

13.3.6 Quote Lifecycle

Every action taken in a Forward deal such as Declaration, Acceptance, Cancellation, Refusal or Expiration is confirmed by a Quote Status Report (35=AI) message.

The outcome of the operation is expressed in the QuoteStatusReportType (35005) field which can be New, Accept, Reject or Expired. The actual status of the Quote is conveyed by the QuoteStatus (297) field and can assume values such as Pending, Accepted, Cancelled, Quote Not Found, Pass or Expired. Please refer to **Appendix C:** for a detailed list of QuoteStatusReportType and QuoteStatus transitions.

The following diagram depicts the Quote state transition according to the agent that triggered the action and its respective outcome:

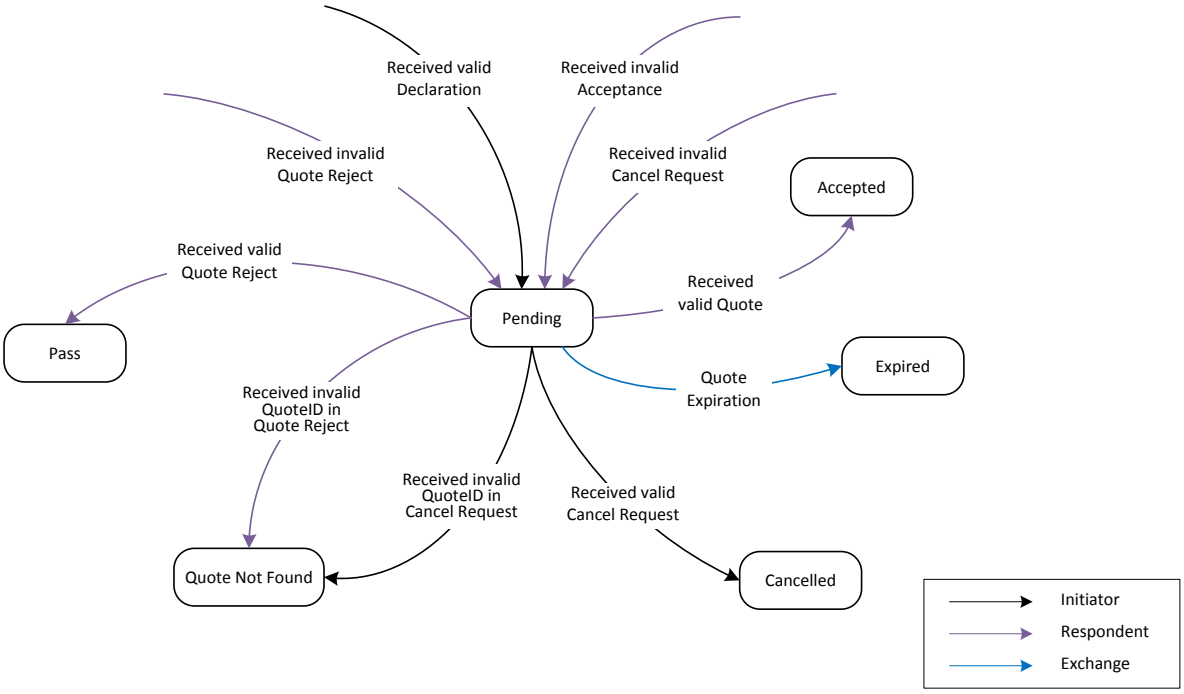

Figure 9 - Quote Status Transitions

13.3.6.1 Declaration

In the Declaration, the Forward deal is entered by the Initiator and received by the counterparty. It contains all the information (e.g. interest rate, price, quantity) that needs to be analyzed by the Respondent. Either buyer or seller can enter the declaration.

13.3.6.2 Cancelation

Before the Forward being accepted by the Respondent, the Initiator can send a Cancelation and terminate the deal.

13.3.6.3 Acceptance

In the Acceptance, the Respondent has the possibility of accepting or rejecting the Forward deal. After the respondent accepts the Forward deal, BM&FBOVESPA generates trade execution reports for the Initiator and Respondent on their respective FIX sessions. In order to fulfill the deal, the system might generate more than one trade execution report per counterparty.

13.3.6.4 Refusal

If the Respondent doesn't agree with the terms presented in the Declaration, the Forward can be refused and the Initiator will be notified. The Initiator will need to send a new Declaration in order to reintroduce the deal.

13.3.6.5 Expiration

By the end of the day, all Declarations that have not been accepted are expired and the Forward deal is automatically terminated by the Exchange.

13.3.7 Contract Details

The following table describes some of the fields used in the FIX messages. These fields represent important concepts in a Forward deal and their meaning are presented below:

Field	Description
PrivateQuote (1171)	When trading a Forward contract, this field must be set as "Y" to specify that this quote is private, i.e. available to a specified counterparty only.
SettlType (63)	Determines who has the power to anticipate the settlement on the deal. Can be Buyer (Regular), Seller or Mutual. Mutual means agreed between the parties.
DaysToSettlement (5497)	Deadline for completing the Forward deal.
FixedRate (5706)	Interest to be paid by the forward buyer and received by the forward seller, in proportion to the agreed days to settlement.
ExecuteUnderlyingTrade (35004)	Specifies if a simultaneous trade of the underlying security is to be performed. Used to indicate Termo Vista.

Due to system's limitations, it's advised that a Firm should not send two identical Forward contracts to the same Counter Firm during the same day.

13.4 Self-Trading Prevention

Self-Trading Prevention at customer level is a functionality that aims to restrict matching between buying and selling orders from the same customer, regardless of Broker/Firm.

For this purpose, the customer must be identified with a unique Investor ID, included within the order message. The use of this unique identifier is optional and it is up to the customer to provide this information within the Parties block in the FIX message.

Note that Investor ID is not the same as the customer's account number nor is there necessarily a one-to-one relationship mapping between Account and Investor ID values.

13.4.1 Party Identification

As presented below, PartyID (448) field must be used to convey the unique customer identifier used by Self-Trading Prevention and PartyRole (452) must be assigned with value 5 – "Investor ID".

Tag		Tag Name	Data Type	Value
453		NoPartyIDs	NumInGroup	
→	448	PartyID	String	Investors must provide here their unique customer identifier in order to enable Self-Trading prevention.
→	447	PartyIDSource	Char	D
→	452	PartyRole	Int	5

It's important to note that Self-Trading Prevention at customer level works only if both aggressor (incoming) and aggressed (resting) orders are assigned with the same unique Investor ID.

However, two orders – on opposite market sides – with the same unique customer identifier can rest in the book simultaneously, as long as there is no potential match between them.

Self-Trading Prevention rules at the customer level do not apply for auction, match events that trigger an auction, orders entered on-behalf by GSN and UDS legs.

13.4.2 Investor ID

In order to guarantee the oneness on Investor IDs, BM&FBOVESPA adopted the following convention to define the customer identifier for each participant:

- Brazilian residents and corporate investors must use the 8 leftmost digits of their CNPJ;
- A Brazilian resident and individual investor uses the whole CPF as a unique customer identifier;
- Non-resident investors must use a six-digit code extracted from their individual investor ID. The whole code is formatted as AAAAA.BBBBBB.CCCCCC.X-Y, where only the CCCCCC part is used.

The table below presents some examples of Investor IDs:

Investor	Document Type	Document Number	Unique Customer Identifier
Corporate resident	CNPJ	01.234.567/0001-23	01234567
Individual resident	CPF	012.345.678-90	01234567890
Non-resident investor	Investor ID	01234.567890.123456.7-8	123456

Note: All Investor ID values above should be provided in tag PartyID (448) as numeric only (i.e. exclude alphanumeric characters such as dashes and dots).

Self-Trading Prevention is currently available in the Derivatives segment. The provision of this functionality to the Equities segment in the EntryPoint API is planned to Q4/2012.

13.5 Message Retransmission

13.5.1 Resend Request

When using the ResendRequest (35=2) functionality to request the retransmission of a set of application messages, the maximum number of messages allowed in the request will be limited by the system. This limitation is configurable and intended to prevent performance degradation in the system due to intensive use of the Resend Request feature.

The limit will be set to 10,000 messages per request. Should the client need the retransmission of a larger number of application messages, it is highly recommended to use the Message Replay service.

If the range of the Resend Request (35=2) exceeds the stipulated limit, the system will accept the request, however, only the limited number of messages will be retransmitted.

In this case, the SequenceReset (35=4) message sent at the end of the retransmission will contain a custom tag PossMissingApplMsg (35033) = Y to indicate that some application messages are possibly missing.

Tag PossMissingApplMsg (35033) conveys important information regarding whether the Resend Request was completely satisfied or the client might connect to the Message Replay gateway in order to recover the complete set of messages.

Tag	Tag name	Req'd	Data Type	Comment
35033	PossMissingApplMsg	N	Boolean	Returned when the range of messages informed in a Resend Request is greater than the maximum range permitted. Possible values: Y = Indicates that the range of messages retransmitted after a Resend Request may not include all the application messages contained in the original range requested. N = No application messages are missing.

In order to simplify implementation, clients should consider always request the retransmission of application messages to the Message Replay service, instead of using the Resend Request functionality, even if the number of messages requested is lesser than the stipulated limit.

13.5.2 Message Replay[18]

BM&FBOVESPA has implemented a new service dedicated mainly to support the requests for the retransmission of large amounts of messages. This feature will be particularly appreciated by late joiner Firms who need to get up to date with all operations performed by their clients during the current trading session.

The FIX component block ApplicationSequenceControl will be assigned to all application messages being resent to the client through the Message Replay service. The reason is to preserve the original values contained in the messages prior to the retransmission.

Tag ApplID (1180) conveys the original TargetCompID (56) and tag ApplSeqNum (1181) the original MsgSeqNum (34).

Tag	Tag name	Req'd	Data Type	Comment
1180	ApplID	Y	String (50)	Original TargetCompID of message. Identifies the session with which a message is associated. Assigned by Message Replay plug-in when resending application message.
1181	ApplSeqNum	Y	String (9)	Original MsgSeqNum of message. Assigned by Message Replay plug-in when resending application message.

Message Replay consists of a separate gateway to which participants must establish a FIX session connection. The retransmission is requested using a set of FIX 5.0 messages which have been adapted to the FIX4.4 specification in order to be used in the standard FIX session layer.

In the request is necessary to inform the rage of the messages to be replayed, based on the value of tag MsgSeqNum (34), and also the identification of the FIX session from which the messages were originally transmitted.

Find below the main aspects of the messages systems will need to handle in order to use this functionality.

13.5.2.1 ApplicationMessageRequest (35=BW)

Customers may send this message to request the retransmission of messages previously sent on a given FIX session indicated by tag RefApplID (1355).

The messages to be replayed are based on the tag MsgSeqNum (34) range specified in tags ApplBegSeqNum (1182) and ApplEndSeqNum (1183).

Tag		Tag name	Req'd	Data Type	Comment
1351		NoApplIDs	Y	NumInGroup (1)	Specifies number of application id occurrences. It must be always 1.
→	1355	RefApplID	Y	String (50)	Reference to the FIX session identifier.
→	1182	ApplBegSeqNum	Y	Seqnum (9)	Beginning range of application sequence numbers.
→	1183	ApplEndSeqNum	Y	Seqnum (9)	Ending range of application sequence numbers. Zero means sequence number of last message in transmission.

[18] This functionality will be available in the Equities segment as soon as the new PUMA Trading Platform rolls out. The expected timeframe is Q4/2012.

13.5.2.2 ApplicationMessageRequestAck (35=BX)

This message is sent by BM&FBOVESPA to acknowledge an ApplicationMessageRequest (35=BW). It provides only a status on the request (i.e. whether successful or not), this message does not provide the actual content of any message to be resent.

Tag	Tag name	Req'd	Data Type	Comment
35021	ApplResponseStatus	Y	Int (1)	Used to indicate the status for each Application Message Request. Valid values: 0 - Request Successfully Processed 1 - User Not Authorized For Application 2 - Invalid Range Requested 3 - Prior Application Request In Progress 4 - Application Temporarily Unavailable

13.5.2.3 ApplicationMessageReport (35=BY)

This message is used for three different purposes:

- to indicate a gap fill;
- to indicate that the last message has been sent;
- to indicate that an error occurred during message retransmission.

The purpose of the Application Message Report is indicated in tag ApplReportType (1426).

Tag	Tag name	Req'd	Data Type	Comment
1426	ApplReportType	Y	Int (1)	Type of report. Valid values: 0 - Reset ApplSeqNum to new value specified in tag ApplNewSeqNum (1399) 3 - Application Message resend completed 4 - Application Message resend error

A Sequence Reset gap fill is sent when there's a set of administrative messages within the range requested. The system does not replay administrative messages, but an Application Message Report is sent with tag ApplNewSeqNum (1399) indicating the expected sequence number for the next application message.

14. Application Message Scenarios

The following sections provide examples of the most common application message scenarios. In all scenarios, if a message is malformed or fails specific business level conditions, it will be rejected with either a Session Reject (invalid tag for message, invalid body length, etc) or Business Message Reject message (e.g., conditionally required field missing).

14.1 Order Management

14.1.1 Order Entry, Partial Fill and Complete Fill

In this example, an order is sent by the client institution. This order is partially filled and is completely filled afterwards.

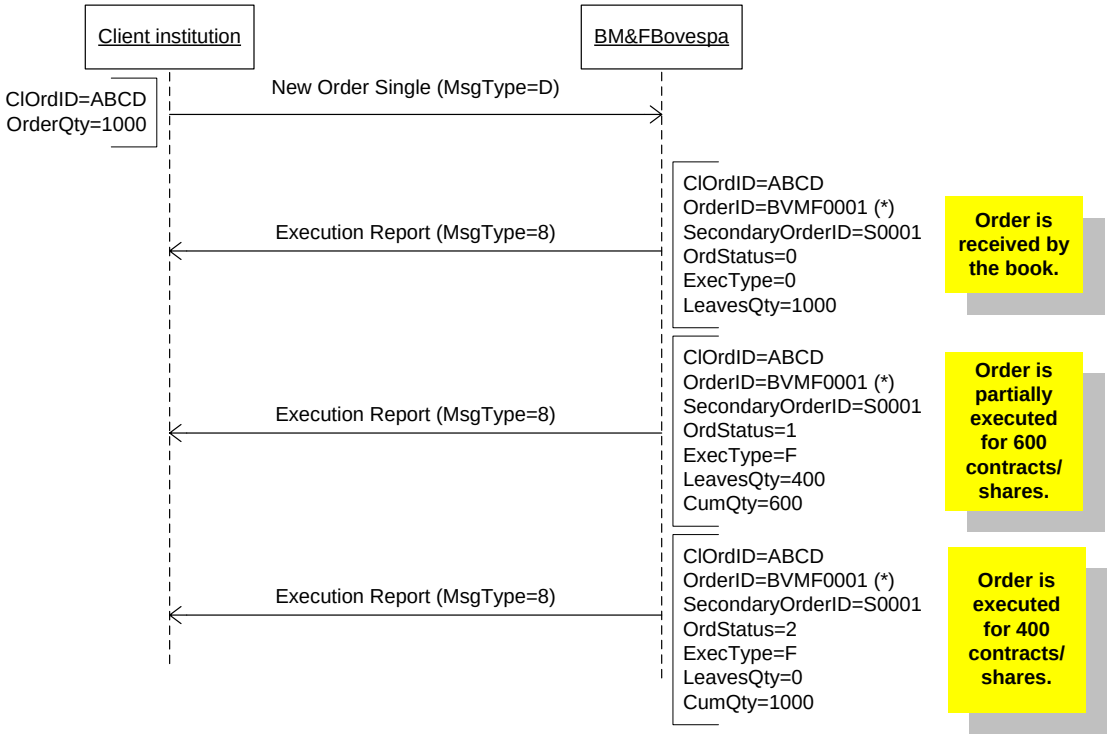

Figure 10 - Order Entry with partial and total fill

14.1.2 Order Cancellation by ClOrdID

In this example, the client institution issues an order, and cancels it afterwards referring to its ClOrdID. The ClOrdID was generated by the issuer of the order, and must be unique for that FIX session and instrument. BM&FBOVESPA correlates the ClOrdID issued by the client with its own internal order ID per instrument, sent to the client in the tag OrderID in the Execution Report messages.

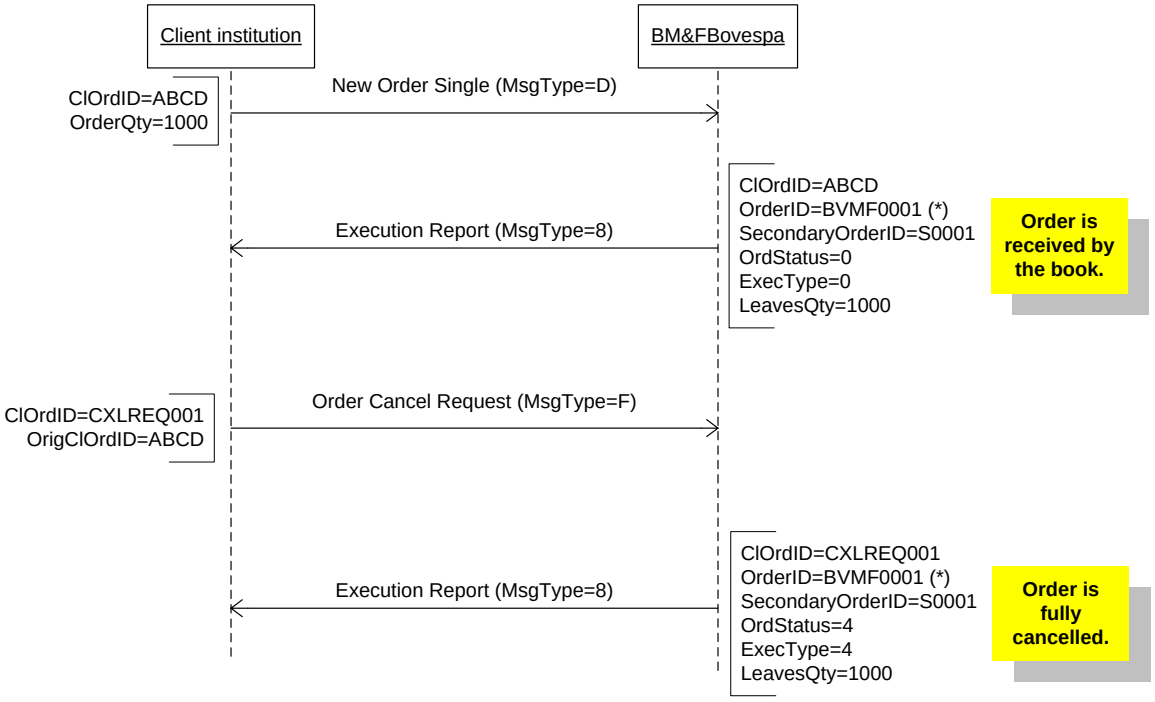

Figure 11 - Order cancellation using ClOrdID

14.1.3 Order Cancellation by OrderID

Once an order is accepted by BM&FBOVESPA, it is assigned a unique internal identifier by instrument, sent to the client in the tag OrderID in each Execution Report message. The client may take action on that order using the OrderID instead of the OrigClOrdID.

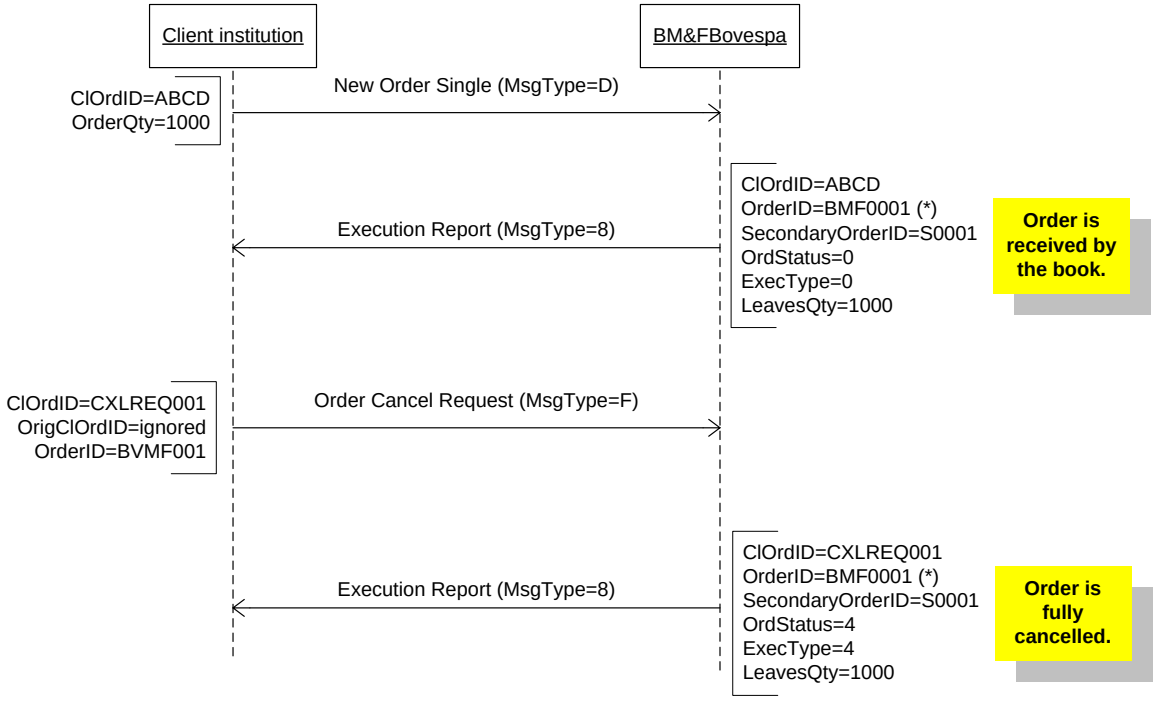

Figure 12 - Order cancellation by OrderID

14.1.4 Order Cancellation Attempt of Filled Order

In this example, the client issues a new order, this order is filled, and the client attempts to cancel the filled order. The cancel request will be rejected.

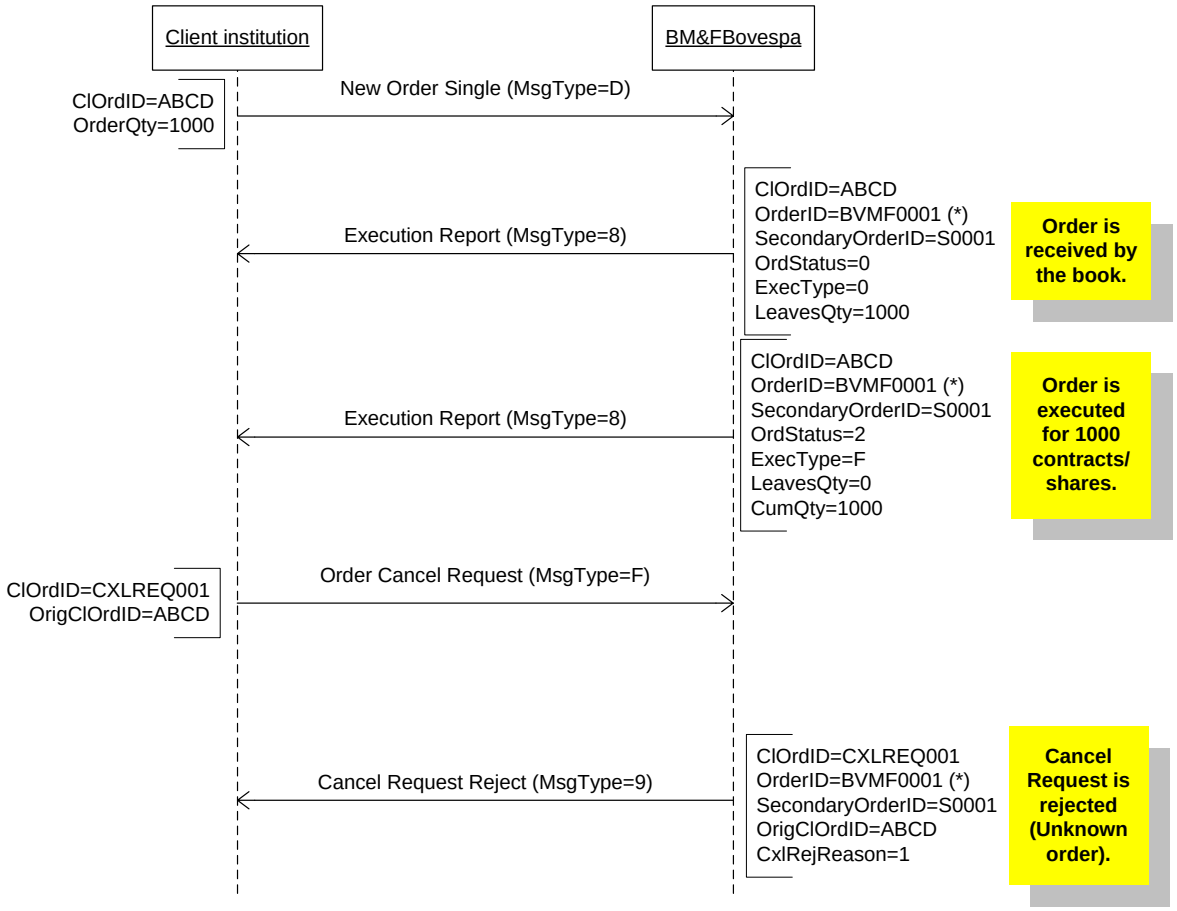

Figure 13 - Attempt to cancel a filled order

14.1.5 **Order Modification**

This example illustrates the modification of an order issued by the client. Notice that an order that is modified keeps the BM&FBOVESPA order ID (OrderID) of the cancelled order.

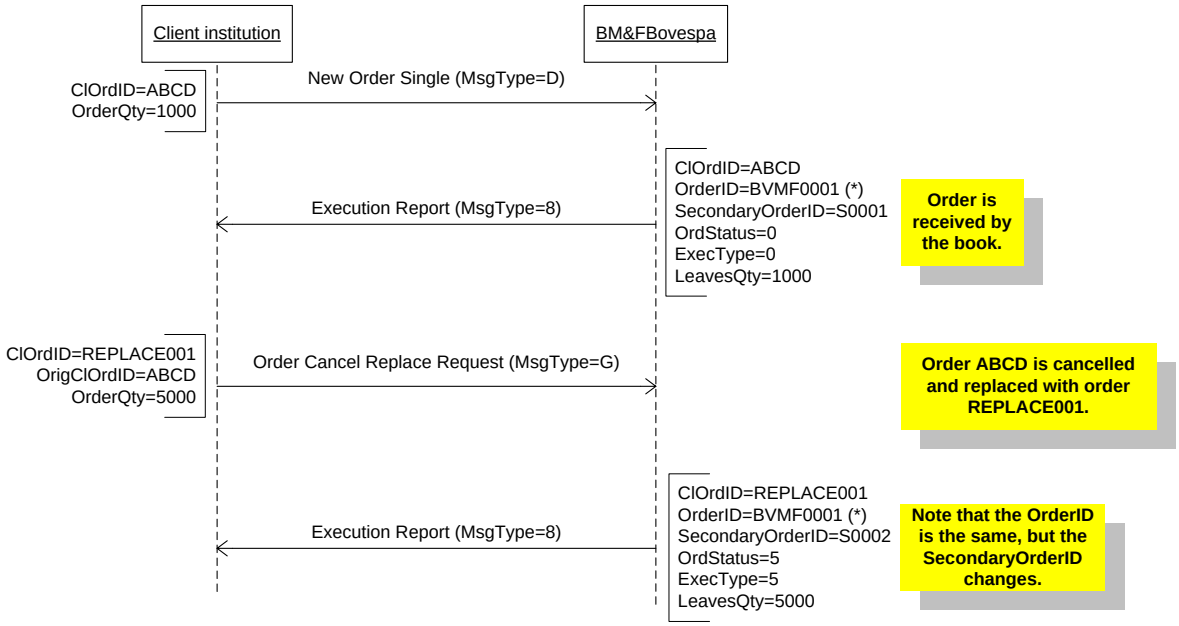

Figure 14 - Order modification scenario - OrderID is kept for modified order.

14.2 Cancel On Disconnect

14.2.1 COD Disabled

In the example below, the user logs on to the Border Gateway with CancelOnDisconnectType set as “Do Not Cancel on Disconnect or Logout” (35002=0) and CODTimeoutWindow set as 0 seconds (35003=0). Later, the user logs out and the Border Gateway does not send any request for cancellation to Trading System. User logs back onto Border Gateway with CancelOnDisconnectType set as “Do Not Cancel on Disconnect or Logout” (35002=0) and CODTimeoutWindow set as 0 seconds (35003=0). At some point, the system detects a disconnection and the Border Gateway does not send any request for cancellation to Trading System.

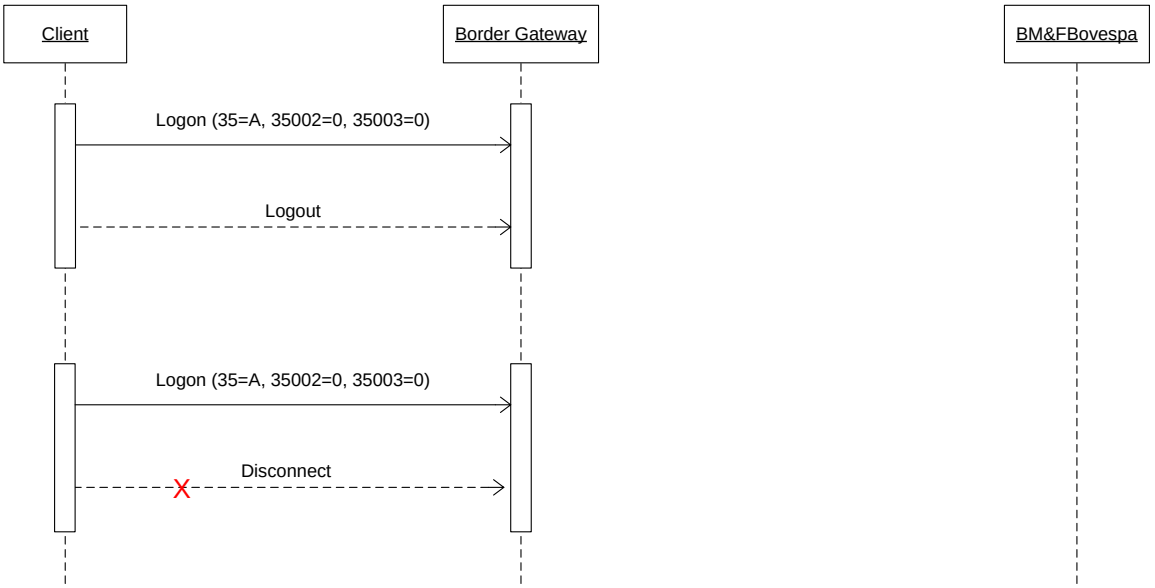

Figure 15 - Do Not Cancel On Disconnect or Logout

14.2.2 Cancel On Disconnect Only

In the next example, the user logs on to the Border Gateway with CancelOnDisconnectType set as “Cancel on Disconnect only” (35002=1) and CODTimeoutWindow set as 30 seconds (35003=30000). The user voluntarily logs out from the system and COD is not triggered because the user chose to cancel on disconnect only. Then, the user logs back in using the same COD parameters and later the Border Gateway detects a disconnection. The user is not able to reconnect during the next 30 seconds. Border Gateway then sends a request for cancellation of all user non-GT orders on Trading System. As a result, two resting orders are canceled and the respective Execution Reports are sent to the Border Gateway.

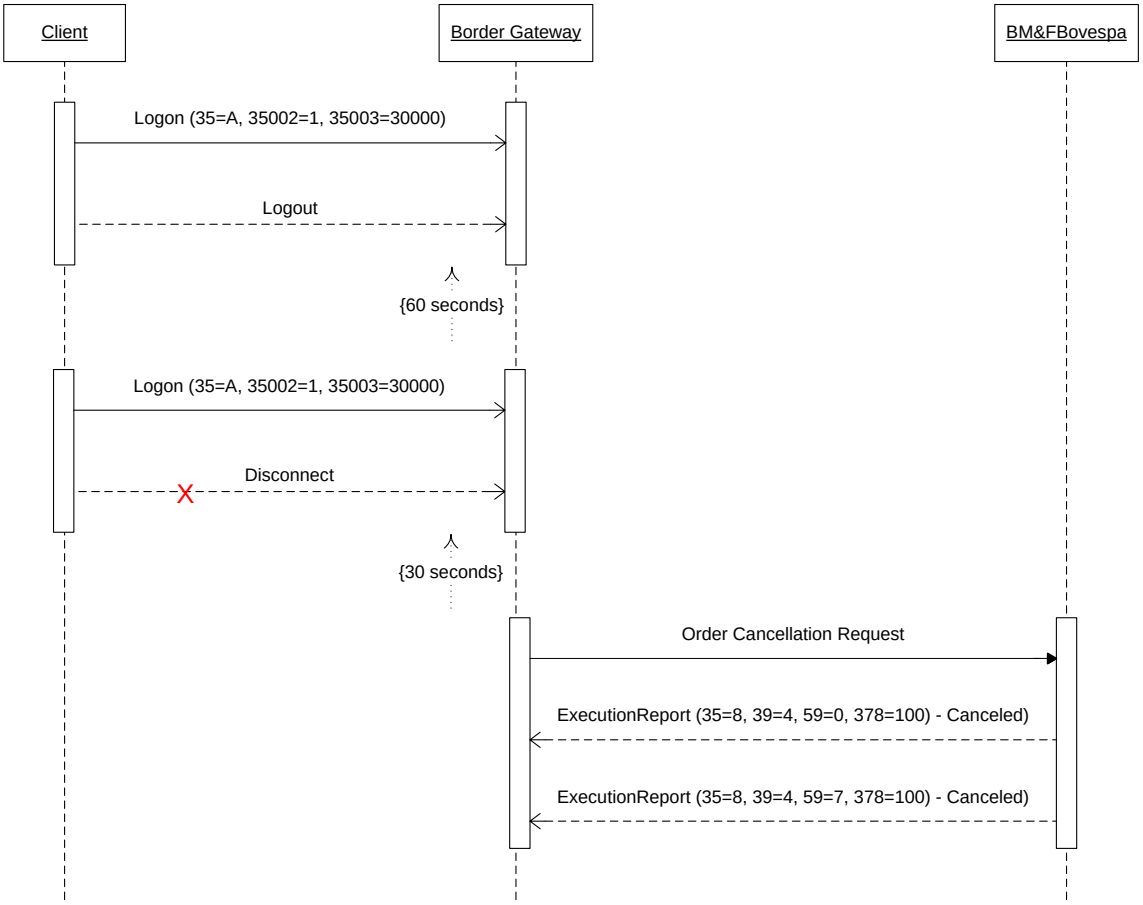

Figure 16 - Cancel On Disconnect Only

14.2.3 **Cancel On Logout Only**

In the example below, the user logs on to the Border Gateway with CancelOnDisconnectType set as “Cancel on Logout Only” (35002=2) and CODTimeoutWindow set as 30 seconds (35003=30000). At some point, the Border Gateway detects a disconnection. The system doesn’t trigger the order cancellations given that the user chose to cancel on logout only. One minute later, the user logs back in using the same COD parameters. The user voluntarily logs out and does not reconnect within the next 30 seconds. Border Gateway then sends a request for cancellation of all user non-GT orders on Trading System. As a result, two resting orders are cancelled and the respective Execution Reports are sent to the Border Gateway.

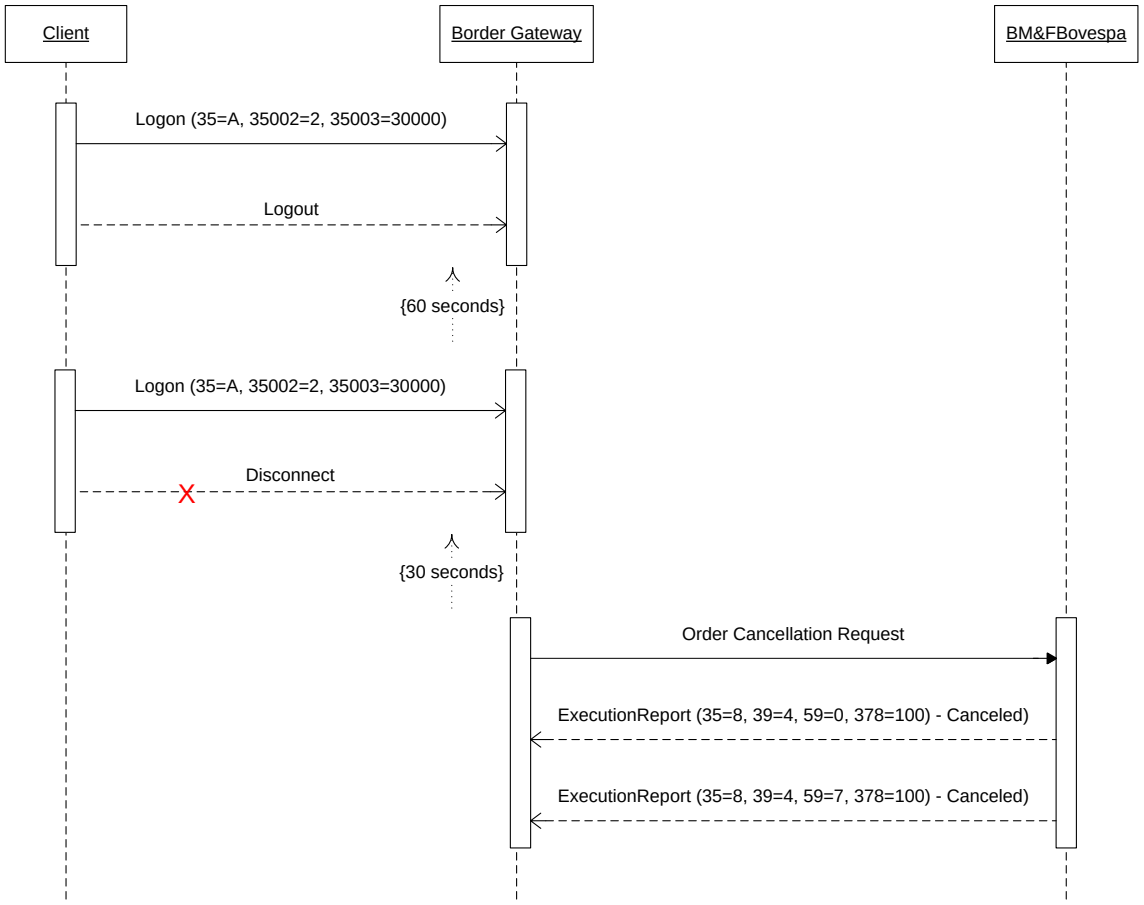

Figure 17 - Cancel On Logout Only

14.2.4 User Logs Back In before COD Timeout Window elapses

In this example, the user logs on to the Border Gateway with CancelOnDisconnectType set as “Cancel on Disconnect Only” (35002=1) and CODTimeoutWindow set as 30 seconds (35003=30000). At some point, the Border Gateway detects a disconnection and the COD starts the countdown to trigger the order cancelations as soon as the timeout expires. Meanwhile, the user reconnects before the timeout expires and, as a result, the Border Gateway does not send any cancellation request to Trading System.

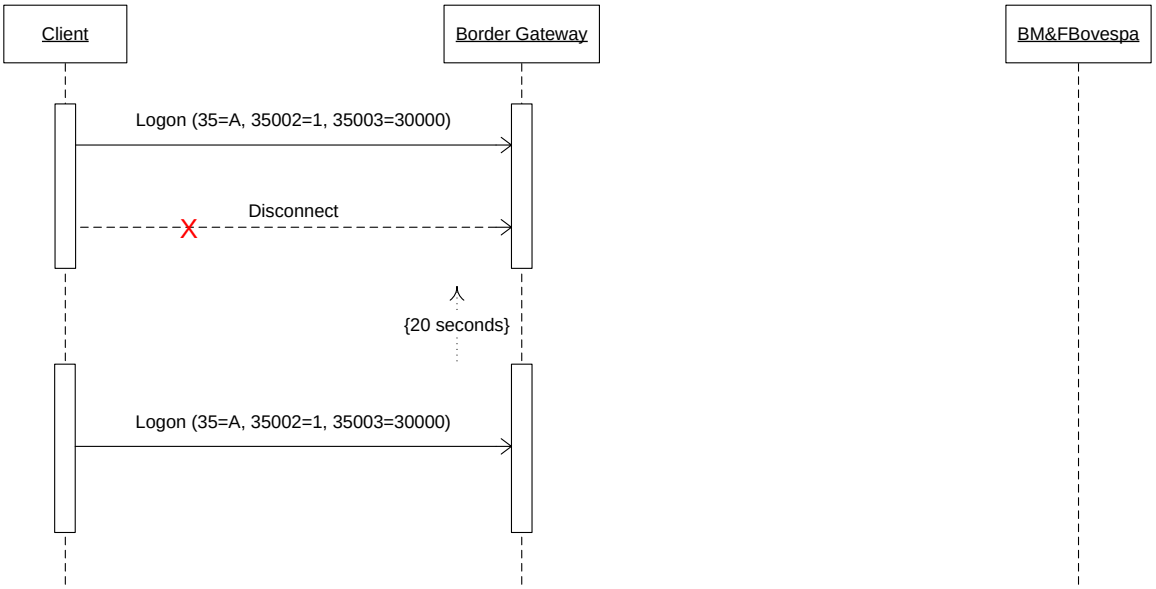

Figure 18 - User Logs Back In

14.3 Exercise & Blocking

14.3.1 Options Exercise

In this example, the client submits a Position Maintenance Request in order to exercise an equity options contract position. BM&FBOVESPA processes the request and, if the Position Maintenance Request is processed successfully, it sends to the client a Position Maintenance Report with tag PosMaintStatus (722=3 Completed).

Additionally, BM&FBOVESPA sends one or more Execution Reports (35=8) to the client and all counterparties involved in the transaction. Each Execution Report (35=8) contains tag OrderCategory (1115) with the proper value according to the side that is exercising its position (1115=100) and the side that is being assigned by the Exercise (1115=101).

As a position can be exercised against many counterparties, it's important to note that a single Exercise request may generate many Execution Reports that will be sent also to the counterparties involved in the transaction.

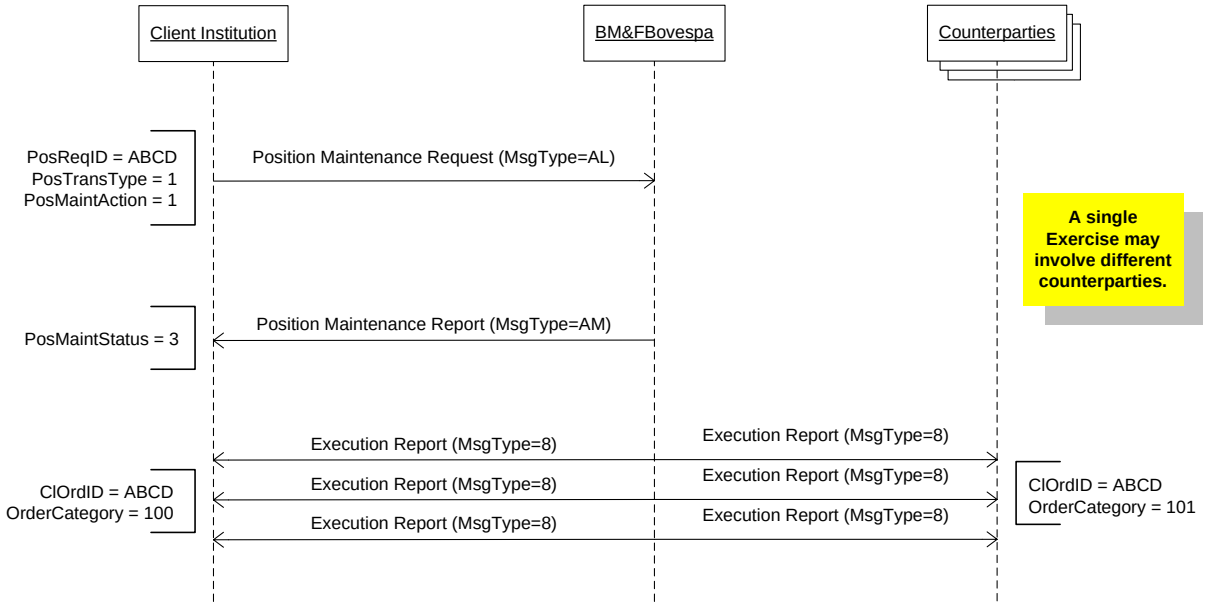

Figure 19 - Option exercise scenario.

14.3.2 Automatic Blocking

When an equity option's purchase occurs in the matching engine, BM&FBOVESPA checks whether the client has a position on the same options contract that can be blocked by the purchase and updates client's position. If the operation resulted in a blocked position, BM&FBOVESPA sends a Position Maintenance Report to notify the client.

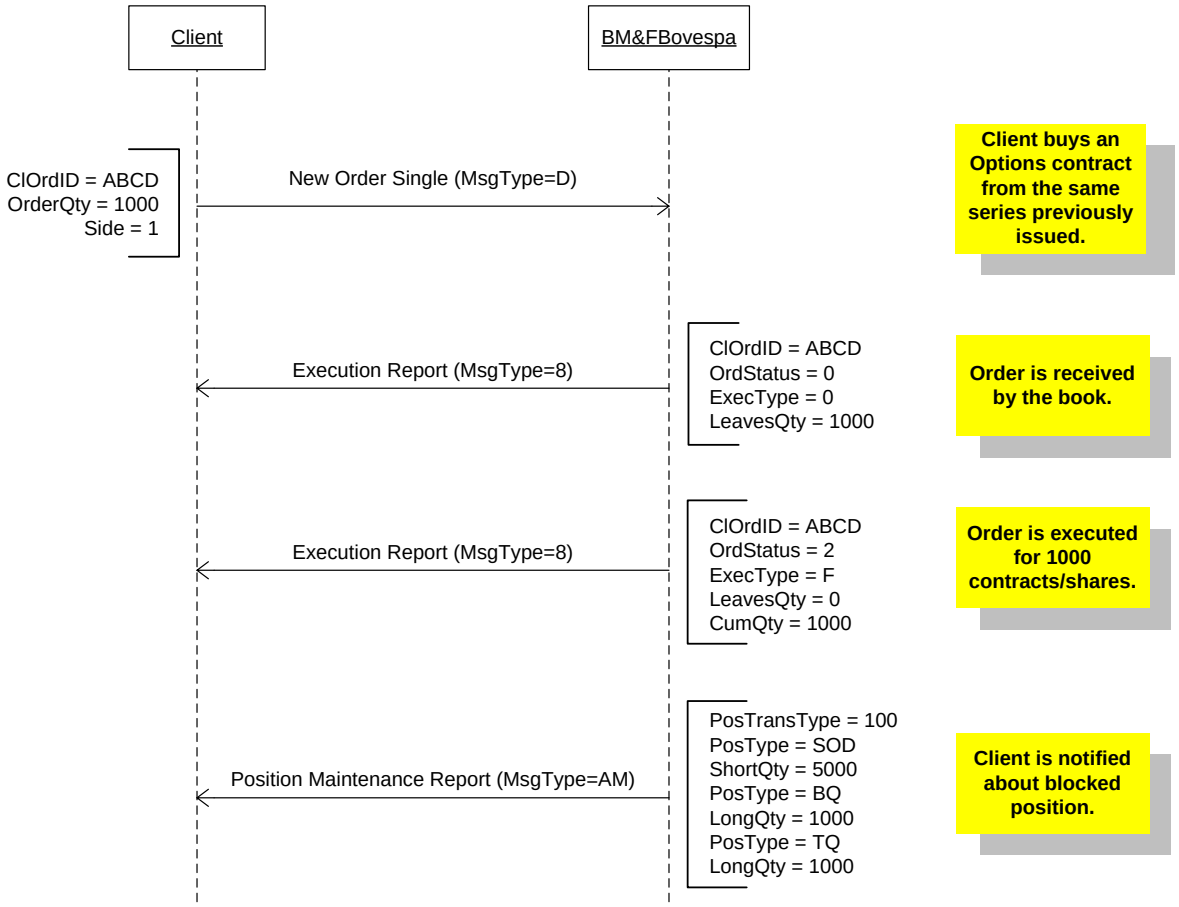

Figure 20 - Automatic Blocking scenario

14.3.3 **Blocking Specification**

This example illustrates a client wishing to Block an equity options contract position, i.e. to prevent a position of being assigned. Client submits an Allocation Instruction in order to Block an options contract position. BM&FBOVESPA processes the request and, in case the Allocation Instruction is processed successfully, client will receive an Allocation Report confirming the operation.

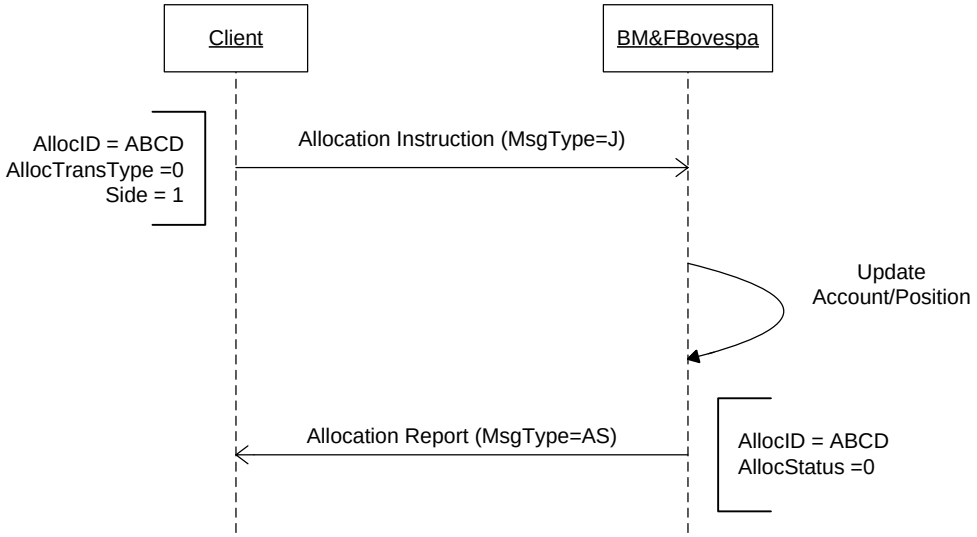

Figure 21 - Blocking Specification scenario

14.4 User-Defined Strategy

14.4.1 UDS Creation

This example illustrates the creation of a new instrument by the client. Client submits a Security Definition Request. If the Security Definition Request is accepted, BM&FBOVESPA sends the client a Security Definition with tag Security Response Type (323 = 1 Accept security proposal as-is).

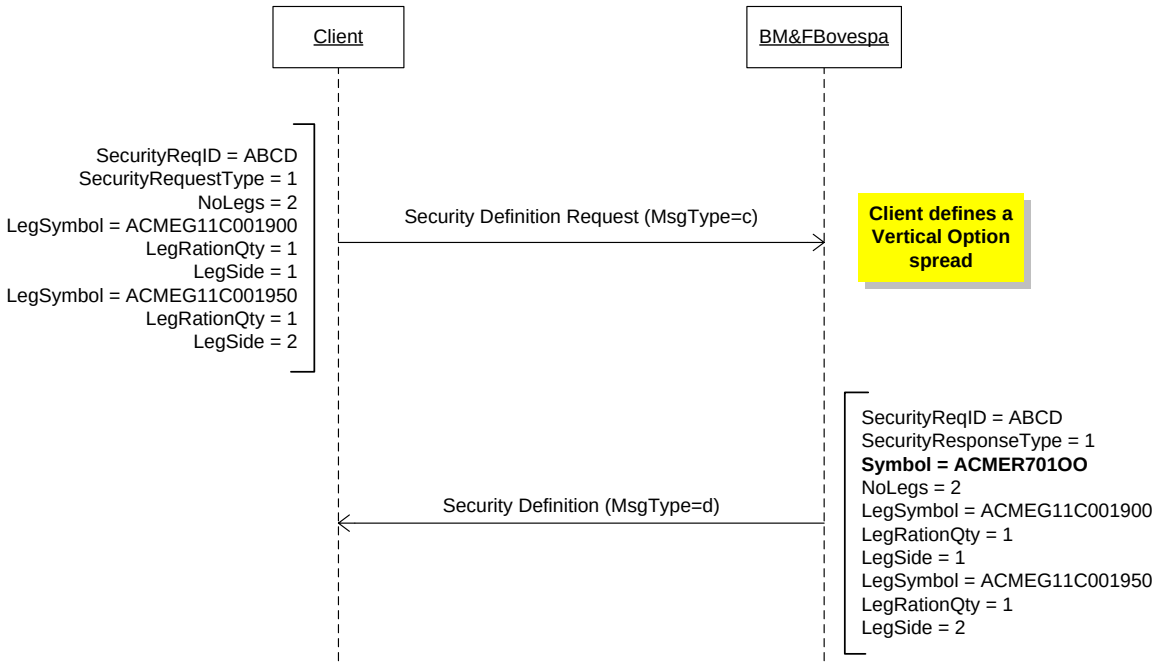

Figure 22 - User-Defined Spread creation scenario

14.4.2 UDS Execution Report

This example illustrates the flow of messages generated when a UDS is traded. The client places a New Order Single using the instrument previously created. BM&FBOVESPA sends a single Execution Report to acknowledge the receipt of the order. When a match occurs, BM&FBOVESPA sends an Execution Report notifying the UDS' order fill (MultilegReportingType = 3). In addition, it sends Execution Reports for the fills of each leg (MultilegReportingType = 2).

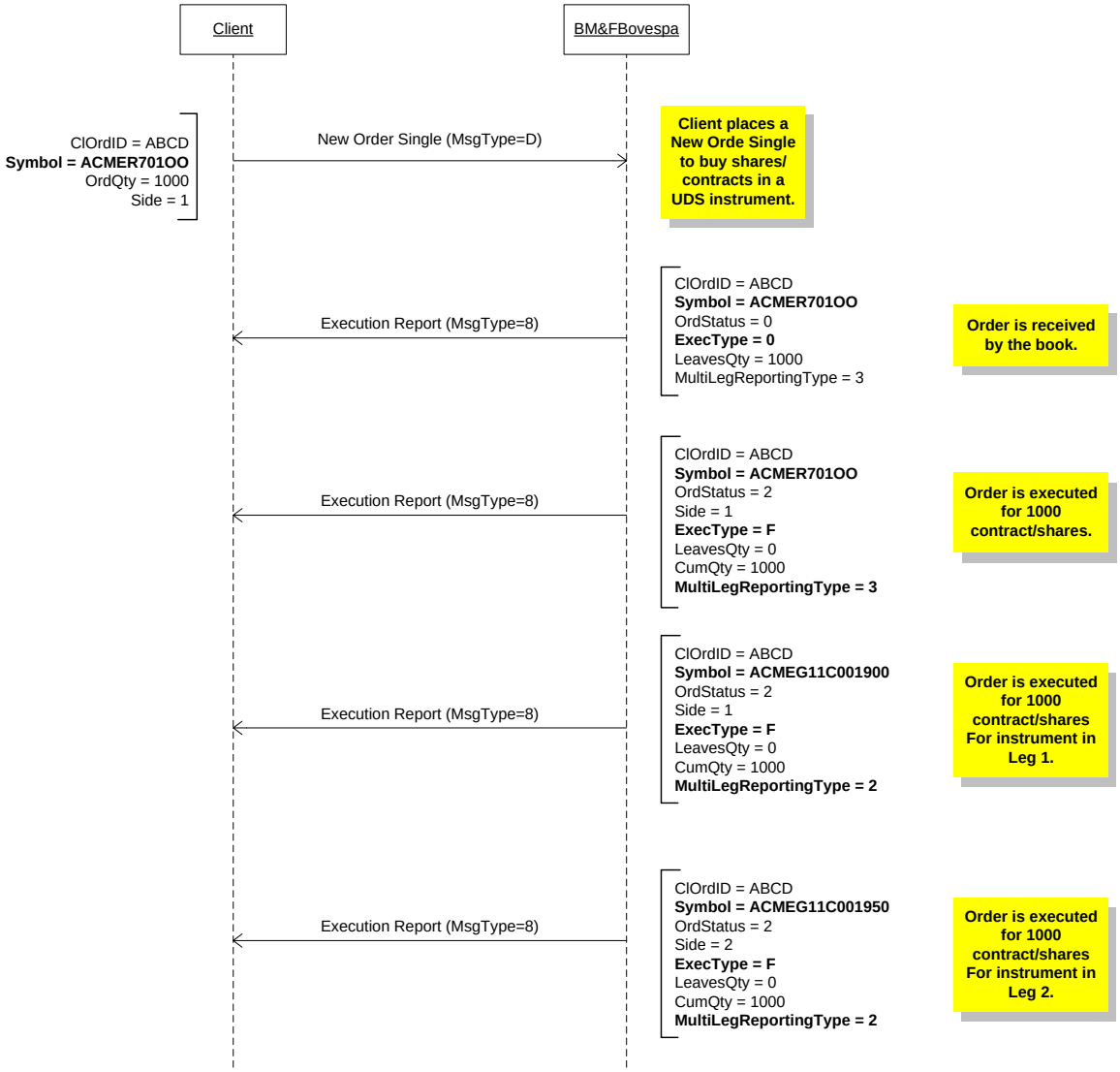

Figure 23 - User-Defined Spread Execution Reports scenario

14.5 Forward

14.5.1 Forward Matching

In the example below, the Initiator sends a Quote Request (35=R) message. BM&FBOVESPA acknowledges the Quote Request with a Quote Status Report message (35=AI) indicating that the Quote Request is in a pending state (297=10). The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote Request ID, Account etc. BM&FBOVESPA then forwards the Quote Request (35=R) to the Respondent's default FIX session based on the Contra Firm ID after removing the Client Account information in Tag 1.

Respondent decides to accept the Declaration and responds back with a Quote message (35=S) with all of the same key details of the deal as contained in the Quote Request (35=R) and with their Client Account. BM&FBOVESPA acknowledges this acceptance with a Quote Status Report message (35=AI) indicating that the Quote (35=S) submitted by the Respondent has been accepted. The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote ID, Account etc. BM&FBOVESPA then forwards the Respondent's Quote message (35=S) to the Initiator's original FIX session after substituting the Client Account information of the Respondent with that of the Initiator so that the Initiator knows that his declaration has been accepted.

Finally, BM&FBOVESPA generates two Execution Reports – one each for the Initiator and Respondent on their respective FIX sessions.

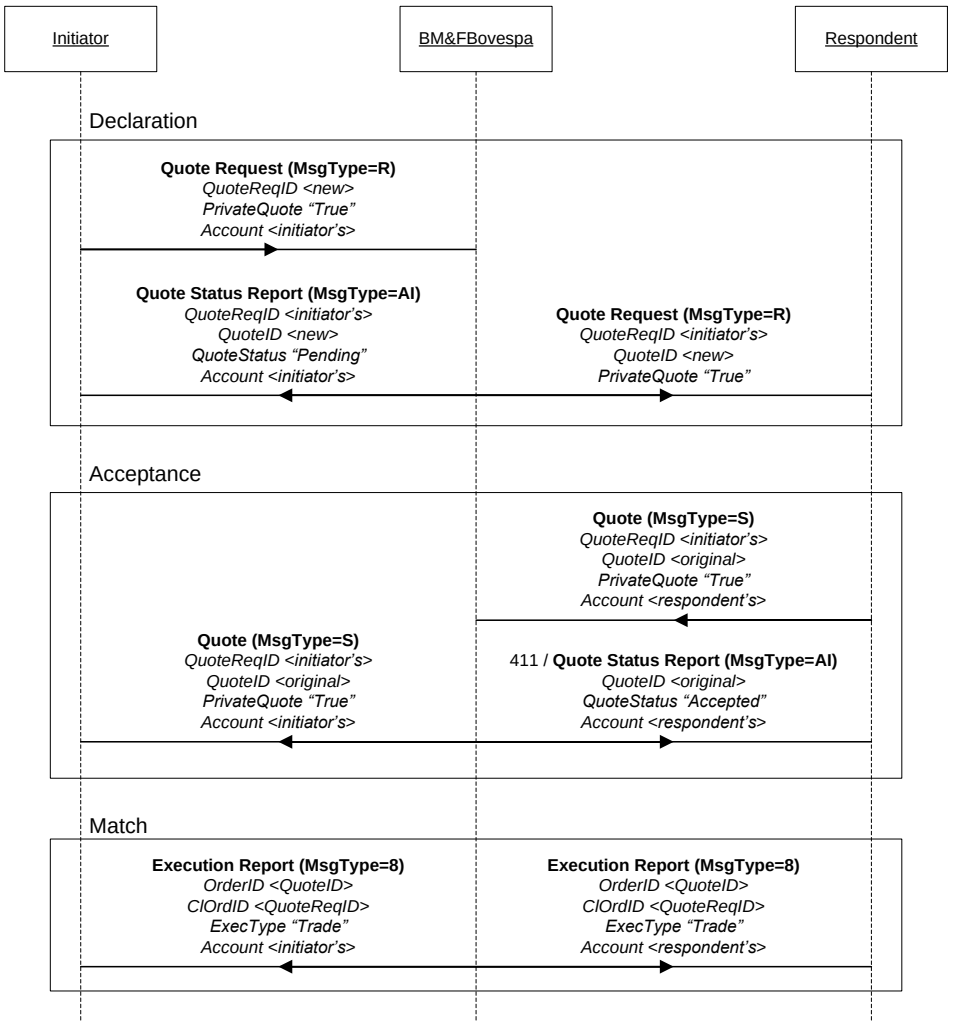

Figure 24 - Forward Matching scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	QuoteReqID (131)	QuoteID (117)	Side (54)	Account (1)	Firm (452=7)	Contra Firm (452=17)
1	Quote Request (R)		ABC	--	1	12345	100	200
2		QuoteStatus Report (AI)	ABC	DEF	1	12345	100	200
3		QuoteRequest (R)	ABC	DEF	1	--	100	200
4	Quote (S)		ABC	DEF	2	67890	200	100
5		QuoteStatus Report (AI)	ABC	DEF	2	67890	200	100
6		Quote (S)	ABC	DEF	2	12345	200	100
7		ExecutionReport (8)	--	--	1	12345	100	200
8		ExecutionReport (8)	--	--	2	67890	200	100

14.5.2 Forward Declaration Rejection

In this example, Initiator sends Declaration as a Quote Request message (35=R) without indicating DaysToSettlement (5497). BM&FBOVESPA rejects this Quote Request with a Quote Request Reject message (35=AG) since DaysToSettlement (5497) is a required field. No Quote ID will be present in this Quote Request Reject message, since the Quote Request itself was never accepted in the first place. The Quote Request Reject message used to reject Quote Requests submitted by the initiator simply echoes all of the information which was present in the incoming Quote Request such as Quote Request ID, Account, and Order Quantity.

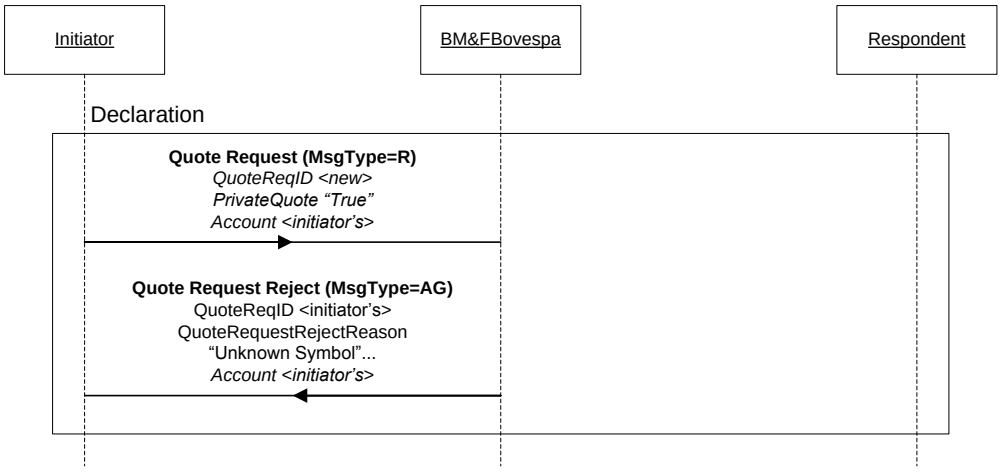

Figure 25 - Forward Declaration Rejection scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	QuoteReqID (131)	QuoteRequest RejectReason (658)	Comment
1	QuoteRequest (R)		ABC	--	
2		QuoteRequestReject (AG)	ABC	99	Reject

14.5.3 Forward Acceptance Rejection

Respondent decides to accept the declaration and responds back with a sell side Quote message (35=S) without confirming the FixedRate (5706). BM&FBOVESPA in turn sends a Quote Status Report message (35=AI) indicating that the Quote (35=S) submitted by the respondent has been rejected since FixedRate is a required tag by using the Quote Request Reject Reason (300) for the error code and Text (58). The Quote Request itself remains in a pending state (297=10) and the Respondent can again attempt to resubmit the Quote. The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote ID, Account etc.

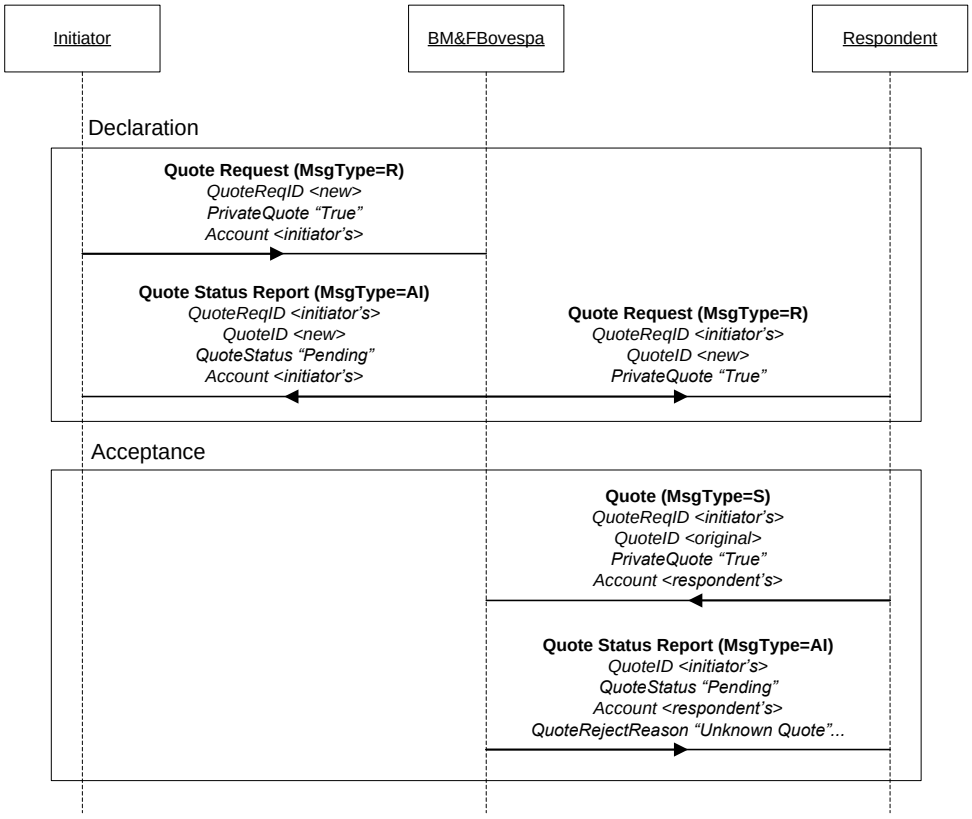

Figure 26 - Forward Acceptance Rejection scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	Account (1)	Firm (452=7)	Contra Firm (452=17)	Quote Status (297)	Comment
1	Quote Request (R)		12345	100	200		
2		QuoteStatus Report (AI)	12345	100	200	10	Pending
3		QuoteRequest (R)	--	100	200		
4	Quote (S)		67890	200	100		
5		QuoteStatusReport (AI)	67890	200	100	10	Pending

14.5.4 Forward Declaration Cancellation

In order to cancel a Declaration, Initiator sends a Quote Cancel message (35=Z). BM&FBOVESPA cancels the pending Quote Request and sends a Quote Status Report (35=AI) to the Initiator indicating that the Quote Request has been cancelled (297=17). BM&FBOVESPA also forwards the Quote Cancel message (35=Z) to the Respondent's default FIX session based on the Contra Firm ID indicating that the Quote Request has been cancelled and is no longer pending.

The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote ID and Account since the Quote Request was found and cancelled. This chain is now finished and the Initiator needs to submit a new Quote Request to begin the dialog again.

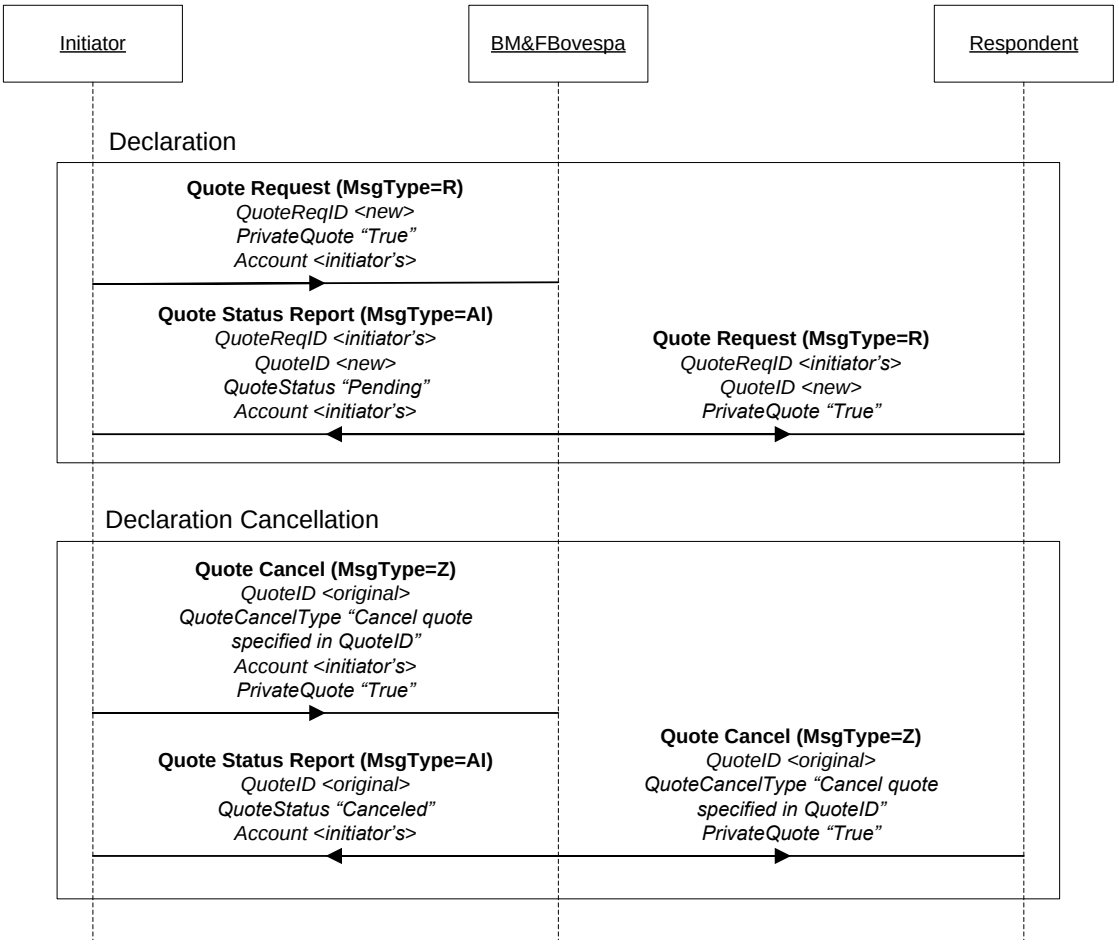

Figure 27 - Forward Declaration Cancellation scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	Quote Status (297)	Account (1)	Firm (452=7)	Contra Firm (452=17)	Comment
1	Quote Request (R)		--	12345	100	200	
2		QuoteStatus Report (AI)	10	12345	100	200	Pending
3		QuoteRequest (R)	--	--	100	200	
4	QuoteCancel (Z)		--	12345	100	200	
5		QuoteStatus Report (AI)	17	12345	100	200	Cancelled
6		QuoteCancel (Z)	--	--	100	200	

14.5.5 Forward Declaration Cancellation Rejection

Initiator sends a Quote Cancel message (35=Z) to cancel the pending Quote Request. BM&FBOVESPA rejects this Quote Cancel message (35=Z) since it contains the wrong Quote ID, for example, and sends a Quote Status Report (35=AI) to the Initiator indicating that the Quote Request is still pending (297=10). The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote ID and Account. The Initiator can again attempt to resubmit a well formed Quote Cancel message to cancel the pending Quote Request.

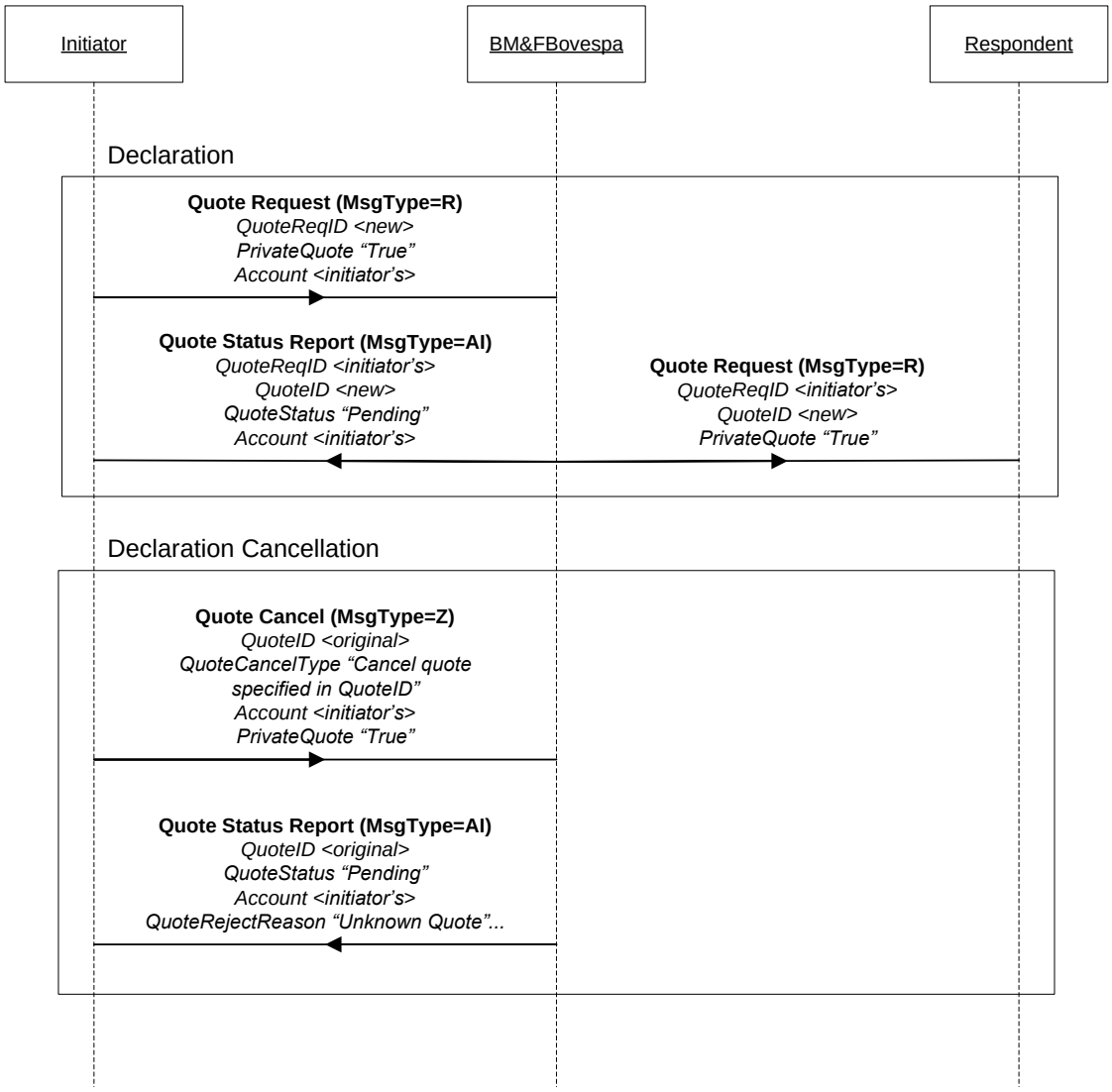

Figure 28 - Forward Declaration Cancellation Rejection scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	QuoteReqID (131)	QuoteID (117)	Quote Status (297)	Account (1)	Comment
1	Quote Request (R)		ABC		--	12345	
2		QuoteStatus Report (AI)	ABC	DEF	10	12345	Pending
3		Quote Request (R)	ABC	DEF	--	--	
4	Quote Cancel (Z)		--	XYZ	--	12345	
5		QuoteStatus Report (AI)	NONE	XYZ	9	12345	Quote Not Found

14.5.6 Forward Counterparty Refusal

In this example, the Respondent does not agree with the proposed terms of the deal and decides to reject the declaration. The Respondent replies with a Quote Request Reject message (35=AG) which indicates that he has decided to Pass (658=10) on this particular Quote Request (35=R). BM&FBOVESPA then acknowledges this by sending a Quote Status Report message (35=AI) back to the Respondent confirming that the Quote Request (35=R) has been passed upon (297=11). BM&FBOVESPA also forwards the Quote Request Reject message (35=AG) back to the Initiator's original FIX session to inform them that their Quote Request (35=R) was passed upon (297=11) by the Respondent. This chain is now finished and the Initiator needs to submit a new Quote Request to begin the dialog again.

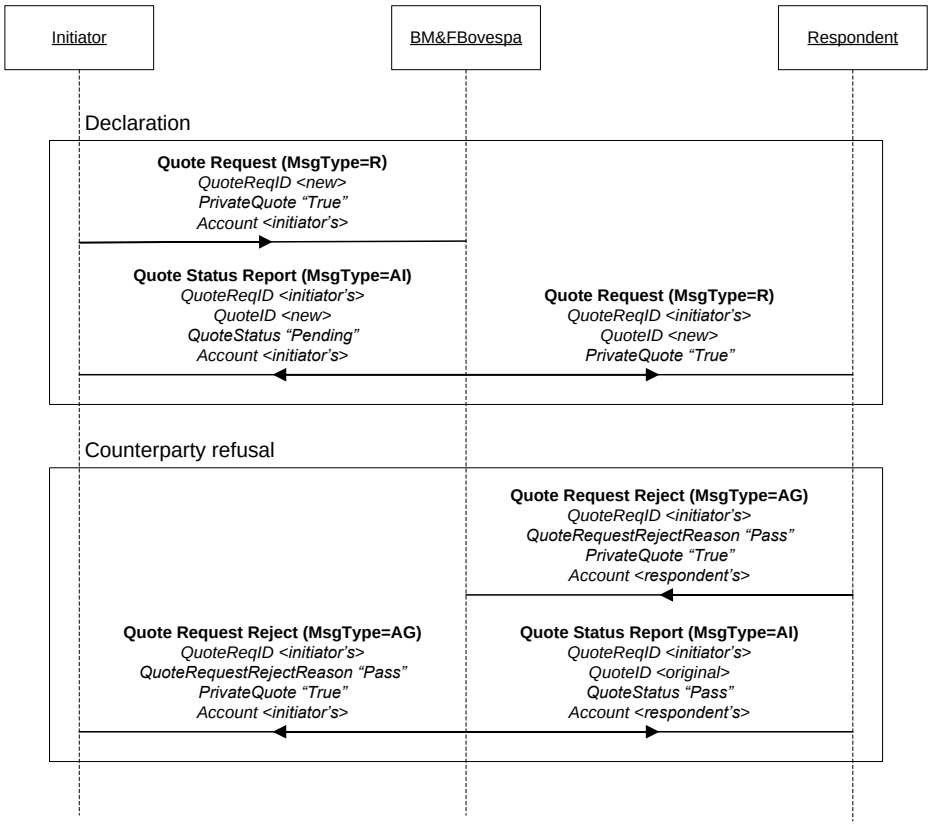

Figure 29 - Forward Counterparty Refusal scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	Quote Status (297)	Account (1)	Firm (452=7)	Contra Firm (452=17)	Comment
1	QuoteRequest (R)		--	12345	100	200	
2		QuoteStatusReport (AI)	10	12345	100	200	Pending
3		QuoteRequest (R)	--	--	100	200	
4	QuoteRequest Reject (AG)		--	67890	200	100	
5		QuoteStatusReport (AI)	11	67890	200	100	Pass
6		QuoteRequestReject (AG)	--	12345	200	100	

14.5.7 Forward Counterparty Refusal Reject

In this scenario, the Quote Request Reject message sent by the Respondent gets rejected because it has been sent with an invalid QuoteReqID, for example. BM&FBOVESPA then sends a Quote Status Report message (35=AI) back to the Respondent indicating that the Quote Request (35=R) could not be found (297=9). The Quote Status Report message sent to Respondent simply echoes all of the information which was present in the corresponding incoming message. The Quote Reject Reason (300) and Text (58) fields in the Quote Status Report message are used to convey the rejection details. The Respondent can again attempt to resubmit a well formed Quote Request Reject message to pass on the pending Quote Request.

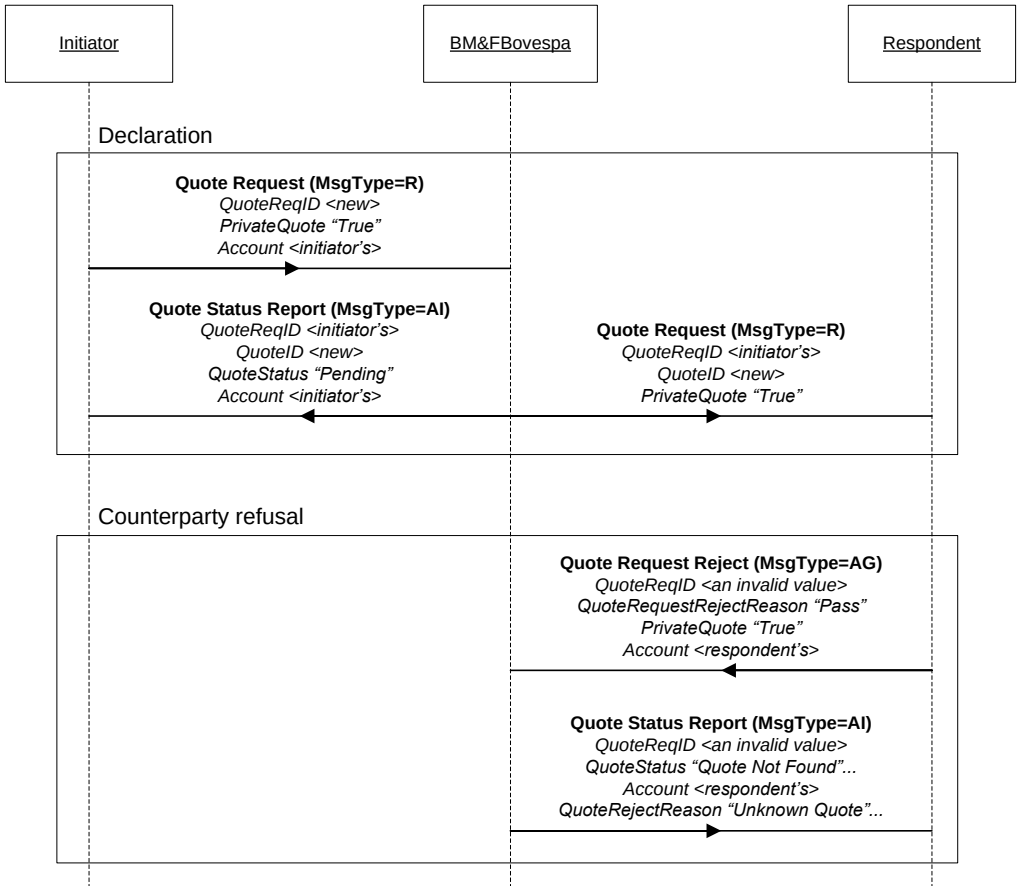

Figure 30 - Forward Counterparty Refusal Rejection scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	Quote Status (297)	Quote RejectReason (300)	Account (1)	Comment
1	QuoteRequest (R)		--	--	12345	
2		QuoteStatusReport (AI)	10	--	12345	Pending
3		QuoteRequest (R)	--	--	--	
4	QuoteRequest Reject (AG)		--	--	67890	
5		QuoteStatusReport (AI)	9	1	67890	Quote not Found

14.5.8 Forward Expiration

In case the Respondent does not reply back to the Quote Request (35=R) submitted by the Initiator until the end of the trading session, the pending Quote Request (35=R) will be eliminated and BM&FBOVESPA will send a Quote Status Report message (35=AI) to both parties, Initiator and Respondent, informing them that the Quote Request has expired (297=7). This chain is now finished and the Initiator needs to submit a new Quote Request to begin the dialog again.

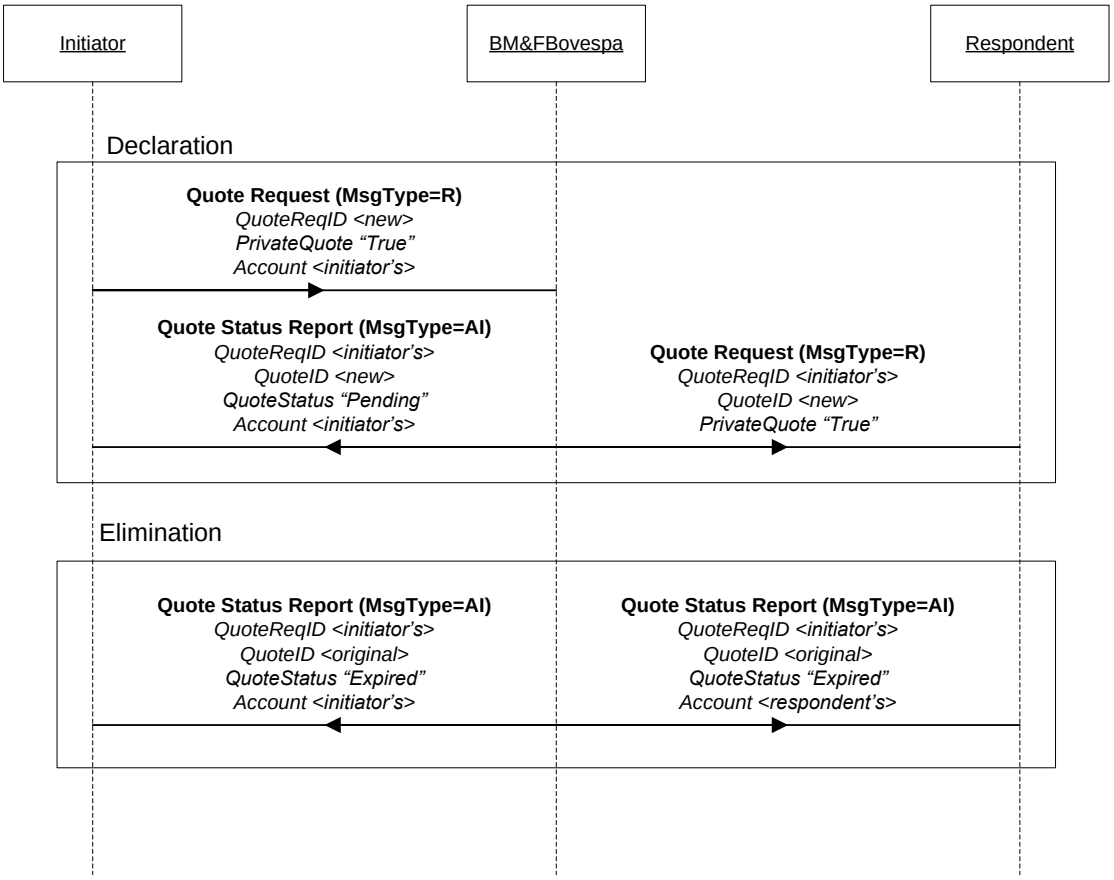

Figure 31 - Forward Expiration scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	QuoteReqID (131)	QuoteID (117)	QuoteStatus (297)	Account (1)	Comment
1	QuoteRequest (R)		ABC	--	--	12345	
2		QuoteStatus Report (AI)	ABC	DEF	10	12345	Pending
3		QuoteRequest (R)	ABC	DEF	--	--	
4		QuoteStatus Report (AI)	ABC	DEF	7	12345	Expired
5		QuoteStatus Report (AI)	ABC	DEF	7	--	Expired

14.5.9 **Forward Trade Bust**

This example illustrates the system behavior when trades are cancelled by Market Ops after a successful Forward deal has been completed. In this case, trade cancel reports are sent by BM&FBOVESPA to the Initiator and Respondent on their original FIX sessions respectively.

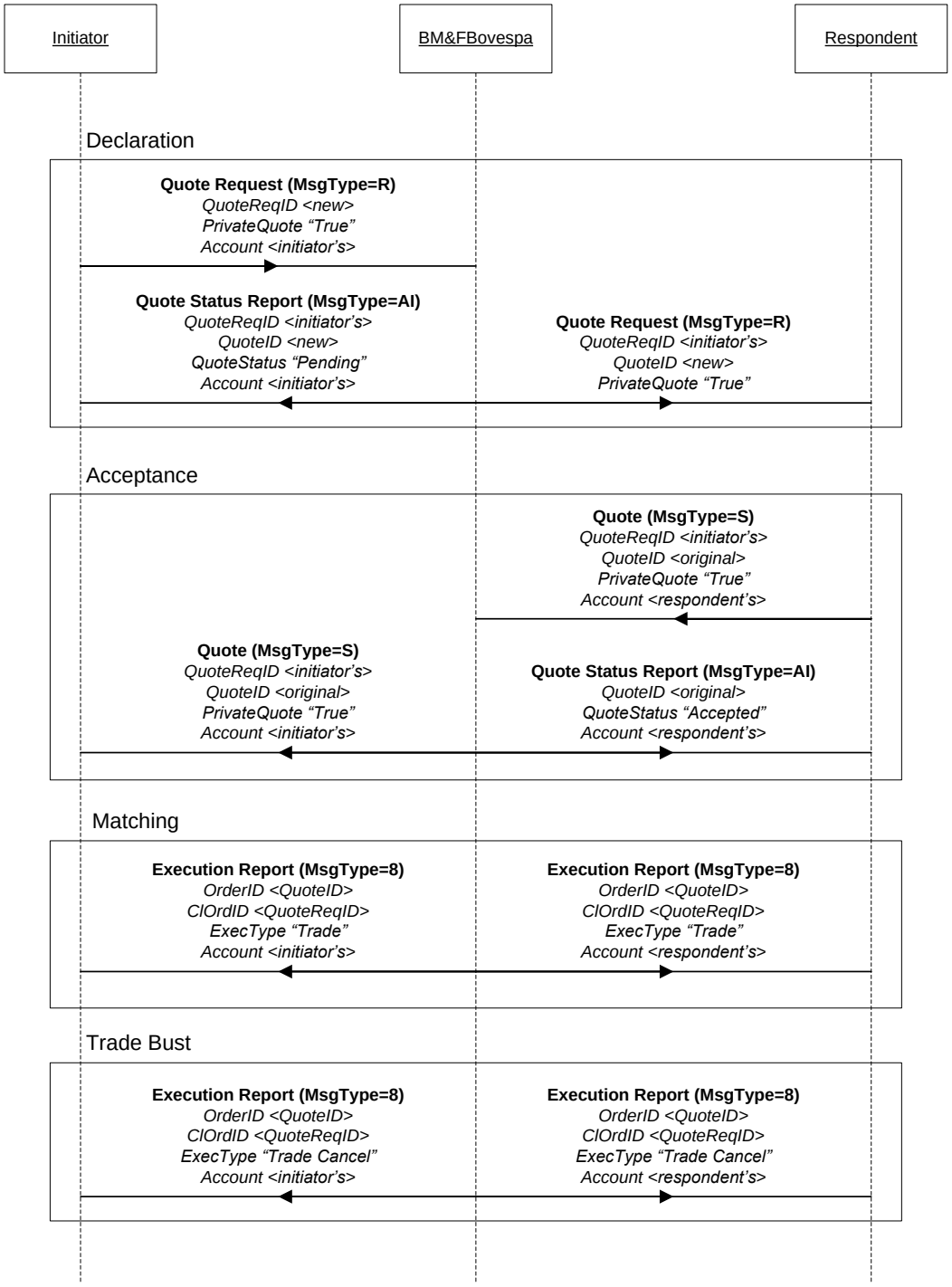

Figure 32 - Forward Trade Bust scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	QuoteReqID (131)	QuoteID (117)	Account (1)	Comment
1	QuoteRequest (R)		ABC	--	12345	
2		QuoteStatusReport (AI)	ABC	DEF	12345	Pending
3		QuoteRequest (R)	ABC	DEF	--	
4	Quote (S)		ABC	DEF	67890	
5		QuoteStatusReport (AI)	ABC	DEF	67890	Accept
6		Quote (S)	ABC	DEF	12345	
7		ExecutionReport (8)	--	--	12345	Fill
8		ExecutionReport (8)	--	--	67890	Fill
9		ExecutionReport (8)	--	--	12345	Trade Cancel
10		ExecutionReport (8)	--	--	67890	Trade Cancel

14.5.10 Cross Forward

Initiator sends a two sided cross declaration as a Quote Request message (35=R). BM&FBOVESPA acknowledges the Quote Request with two Quote Status Report messages (35=AI) – one for each side – indicating that the Quote Request has been accepted (297=0). Then BM&FBOVESPA publishes two trade execution reports to the Initiator's original FIX session – one for each side.

The second side of a Cross Forward Quote Request only needs to contain minimal information – i.e. only fields which are different from the first side, such as Account, for example, need to be repeated in the second side, since it will be assumed that the absent fields in the second repeating group default to the same values as mentioned in the first repeating group.

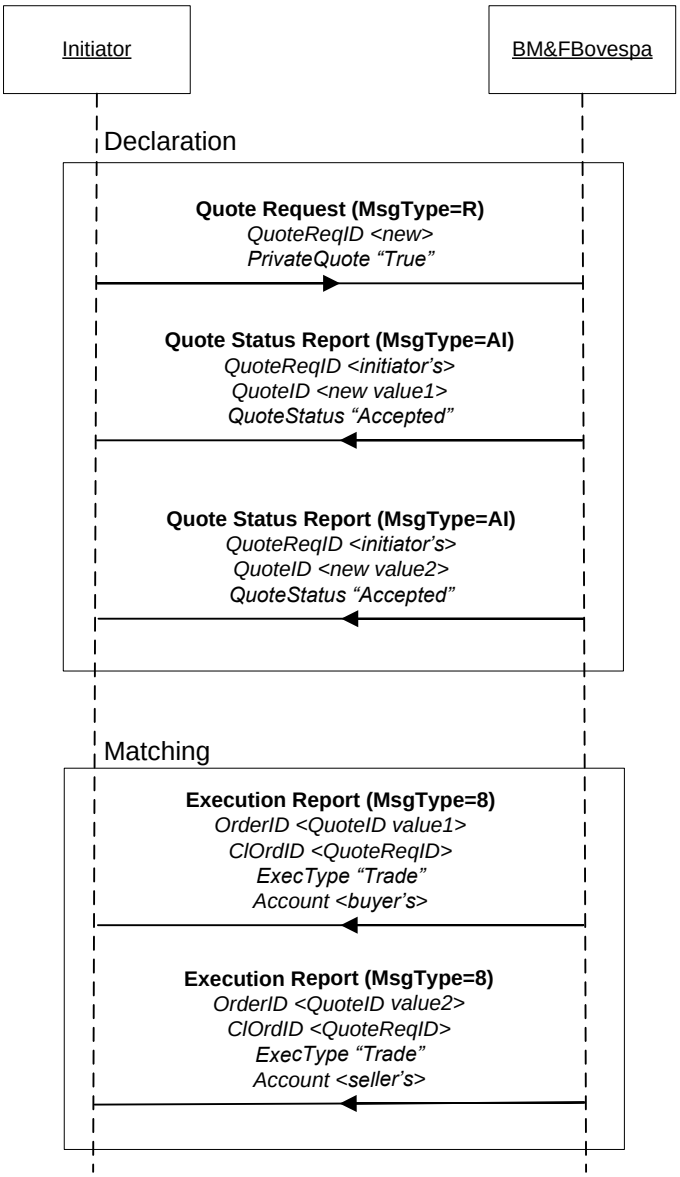

Figure 33 - Cross Forward scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	Side (54)	Account (1)	Firm (452=7)	Contra Firm (452=17)	Comment
1	QuoteRequest (R)		1	12345	100	100	
			2	67890			
2		QuoteStatusReport (AI)	1	12345	100	100	Accept
3		QuoteStatusReport (AI)	2	67890	100	100	Accept
4		ExecutionReport (8)	1	12345	100	100	Fill
5		ExecutionReport (8)	2	67890	100	100	Fill

14.5.11 Cross Forward Rejection

In the following diagram, the Initiator sends a two sided Cross declaration as a Quote Request message (35=R) without indicating the Settlement Type (Tag 63) in the first repeating group, for example. BM&FBOVESPA then rejects this Quote Request with a single Quote Request Reject message (35=AG) since Settlement Type (Tag 63) is a required tag. The Quote Request Reject message simply echoes all information which was present in the corresponding incoming message. The Quote Request Reject Reason (658) and Text (58) fields in the Quote Request Reject message are used to convey the rejection details.

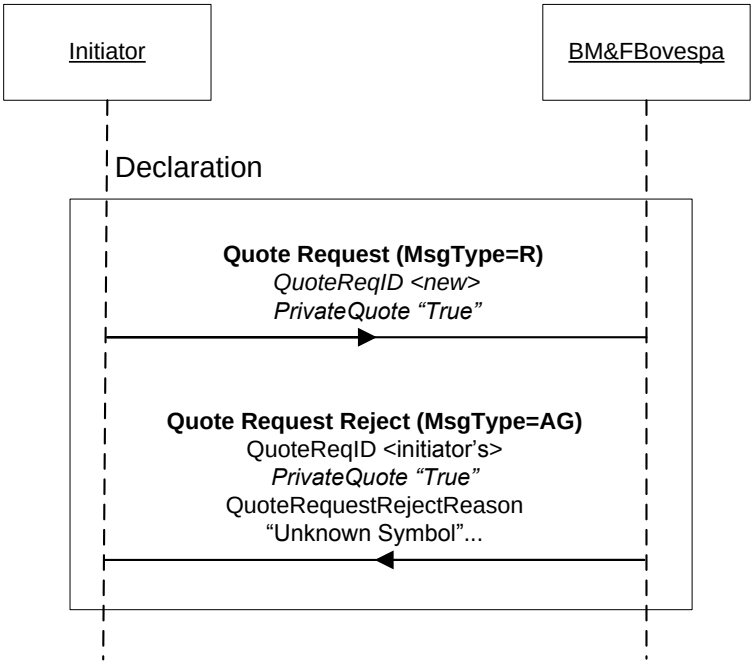

Figure 34 - Cross Forward Rejection scenario

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	QuoteReqID (131)	Side (54)	Account (1)	Firm (452=7)	Contra Firm (452=17)	Comment
1	QuoteRequest (R)		ABC	1	12345	100	200	
				2	67890			
2		QuoteRequest Reject (AG)	ABC	1	12345	100	200	Reject
				2	67890			

14.5.12 Forward + Cash ("Termo Vista")

In the example below, the Initiator sends a Quote Request (35=R) message with tag ExecuteUnderlyingTrade (35004) as an indicative that it's a Forward + Cash operation. BM&FBOVESPA acknowledges the Quote Request with a Quote Status Report message (35=AI) indicating that the Quote Request is in a pending state (297=10). The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote Request ID, Account etc. BM&FBOVESPA then forwards the Quote Request (35=R) to the Respondent's default FIX session based on the Contra Firm ID after removing the Client Account information in Tag 1.

Respondent decides to accept the Declaration and responds back with a Quote message (35=S) with all of the same key details of the deal as contained in the Quote Request (35=R) and with their Client Account. BM&FBOVESPA acknowledges this acceptance with a Quote Status Report message (35=AI) indicating that the Quote (35=S) submitted by the Respondent has been accepted. The outgoing Quote Status Report message simply echoes all of the information which was present in the corresponding incoming message such as Quote ID, Account etc. BM&FBOVESPA then forwards the Respondent's Quote message (35=S) to the Initiator's original FIX session after substituting the Client Account information of the Respondent with that of the Initiator so that the Initiator knows that his declaration has been accepted.

Then BM&FBOVESPA generates two Execution Reports – one each for the initiator and respondent on their respective FIX sessions. BM&FBOVESPA publishes two trade Execution Reports for the underlying cash instrument also – one each for the Initiator and Respondent on their original FIX sessions respectively, inverting the buyer and seller, i.e., the Forward buyer becomes the cash seller, and the Forward seller becomes the cash buyer. The trade Execution Reports for Forward and Cash contain the same identifiers such as ClOrdID will contain the value of QuoteReqID and OrderID will have the same value of QuoteID.

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	Symbol (55)	Side (54)	Account (1)	Firm (452=7)	Contra Firm (452=17)	Comment
1	Quote Request (R)		ACME4T	1	12345	100	200	
2		QuoteStatus Report (AI)	ACME4T	1	12345	100	200	Pending
3		QuoteRequest (R)	ACME4T	1	--	100	200	
4	Quote (S)		ACME4T	2	67890	200	100	
5		QuoteStatus Report (AI)	ACME4T	2	67890	200	100	Accept
6		Quote (S)	ACME4T	2	12345	200	100	
7		ExecutionReport (8)	ACME4T	1	12345	100	200	Forward Fill
8		ExecutionReport (8)	ACME4T	2	67890	200	100	Forward Fill
9		ExecutionReport (8)	ACME4	2	12345	100	200	Cash Fill
10		ExecutionReport (8)	ACME4	1	67890	200	100	Cash Fill

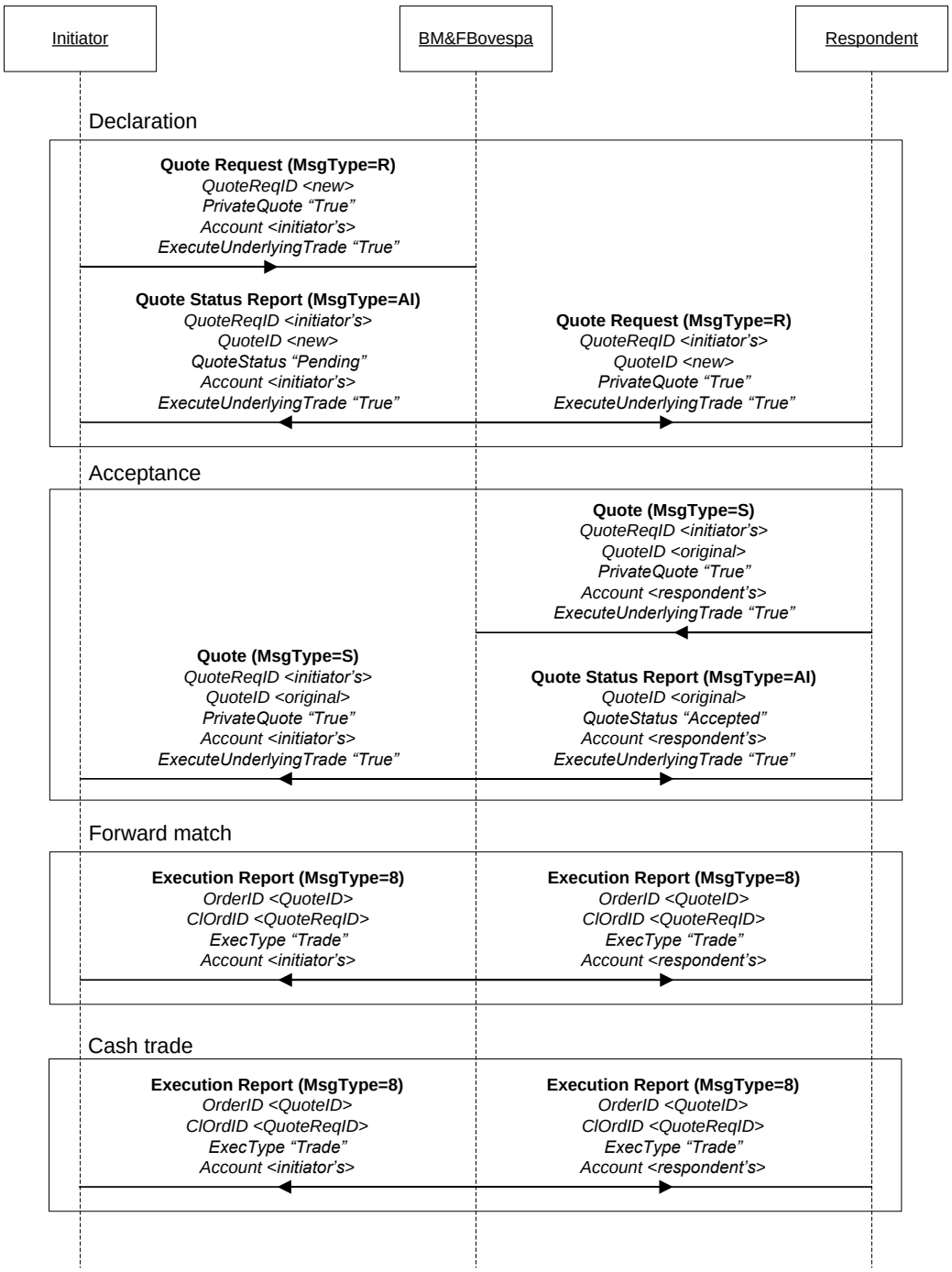

Figure 35 - Forward + Cash scenario

14.5.13 Forward + Registered Cash ("Termo Vista Registered")

In the following example, Initiator has bought already a security in the cash market and wants to trade using "Forward + Registered Cash" (TVR).

Initiator sends a buy side declaration as a Quote Request message (35=R) indicating the number of the cash trade in tag Unique Trade ID (6032) and setting tag Execute Underlying Trade (35004) to 1. BM&FBOVESPA acknowledges the Quote Request with a Quote Status Report message (35=AI) indicating that the Quote Request is in a pending state (297=10). BM&FBOVESPA will then forward the Quote Request (35=R) to the respondent's default FIX session based on the Contra Firm ID after removing the Client Account information in Tag 1 and the Unique Trade ID in tag 6032.

Respondent decides to accept the declaration and responds back with a sell side Quote message (35=S) with all of the same key details of the deal as contained in the Quote Request (35=R) and with their Client Account. BM&FBOVESPA acknowledges this acceptance with a Quote Status Report message (35=AI) indicating that the Quote (35=S) submitted by the respondent has been accepted. BM&FBOVESPA then forwards the respondent's Quote message (35=S) back to the initiator's original FIX session after substituting the Client Account information of the respondent with that of the initiator so that the initiator knows that his declaration has been accepted.

After this BM&FBOVESPA publishes two execution reports for the Termo instrument itself – one each for the initiator (buy side) and respondent (sell side) on their original FIX sessions respectively. Then BM&FBOVESPA publishes two trade execution reports for the underlying cash instrument also – one each for the initiator (sell side) and respondent (buy side) on their original FIX sessions respectively since the trade for Termo Vista inverts the buyer and seller, i.e., the forward buyer becomes the cash seller, and the forward seller becomes the cash buyer.

The trade execution reports for Termo and Vista will contain the same identifiers such as Client Order ID = Quote Request ID and Order ID = Quote ID.

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

Time	Message Received	Message Sent	55	54	1	35004	6032	448 (452=7)	448 (452=17)	Comment
1	Quote Request (R)		ACME 4T	1	12345	1	70	100	200	
2		QuoteStatus Report (AI)	ACME 4T	1	12345	1	70	100	200	Pending
3		Quote Request (R)	ACME 4T	1	--	1	--	100	200	
4	Quote (S)		ACME 4T	2	67890	1	--	200	100	
5		QuoteStatus Report (AI)	ACME 4T	2	67890	1	--	200	100	Accept
6		Quote (S)	ACME 4T	2	12345	1	--	200	100	
7		Execution Report (8)	ACME 4T	1	12345	--	--	100	200	Termo Fill
8		Execution Report (8)	ACME 4T	2	67890	--	--	200	100	Termo Fill
9		Execution Report (8)	ACME 4	2	12345	--	--	100	200	Termo Vista Fill
10		Execution Report (8)	ACME 4	1	67890	--	--	200	100	Termo Vista Fill

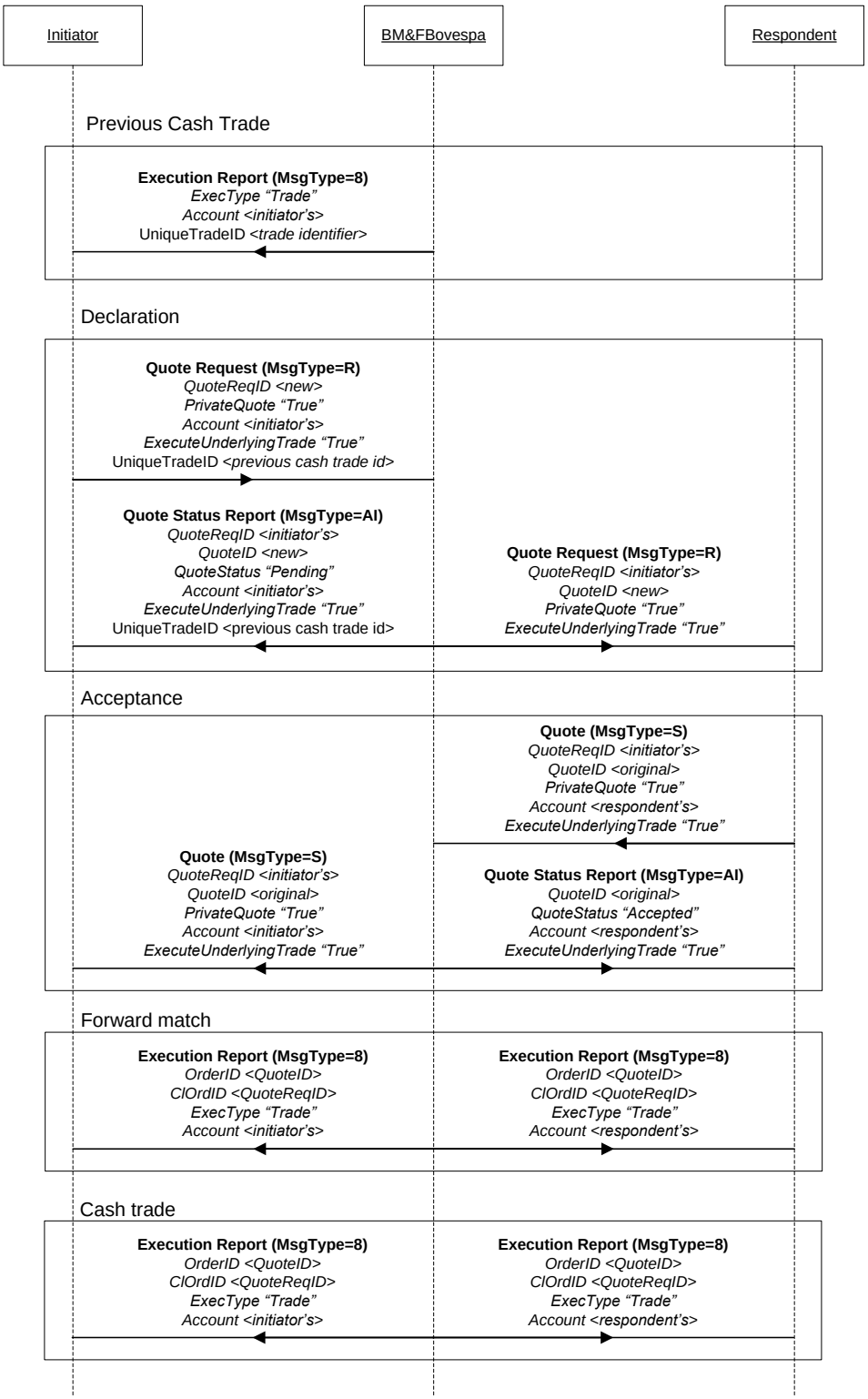

Figure 36 - Forward + Registered Cash scenario[19]

[19] This Forward modality is expected to be available through the EntryPoint interface from Q4/2012.

14.6 Self-Trading prevention

This section presents scenarios where the Self-Trading prevention at the customer level causes the cancellation of orders entered by customers. In all cases, the system sends an ExecutionReport and provides the reason for the order elimination in tag ExecRestatementReason (378).

14.6.1 Self-Trading prevention on Aggressing Order

In this scenario, the customer already has an order in the book tagged with their unique Investor ID and the new order that is being sent can potentially match with the one in the book.

In this case, the new order is accepted and then canceled upon entry. Tag OrderStatus (39) in the ExecutionReport sent to the participant indicates that the order has been canceled (39 = 4 Canceled) and tag ExecRestatementReason (378) provides a self explanatory reason for the elimination (378 = 103 Self-Trading prevention).

Note that the system does not run Self-Trading validations at customer level for orders not tagged with Party Role (452) = 5 Investor ID.

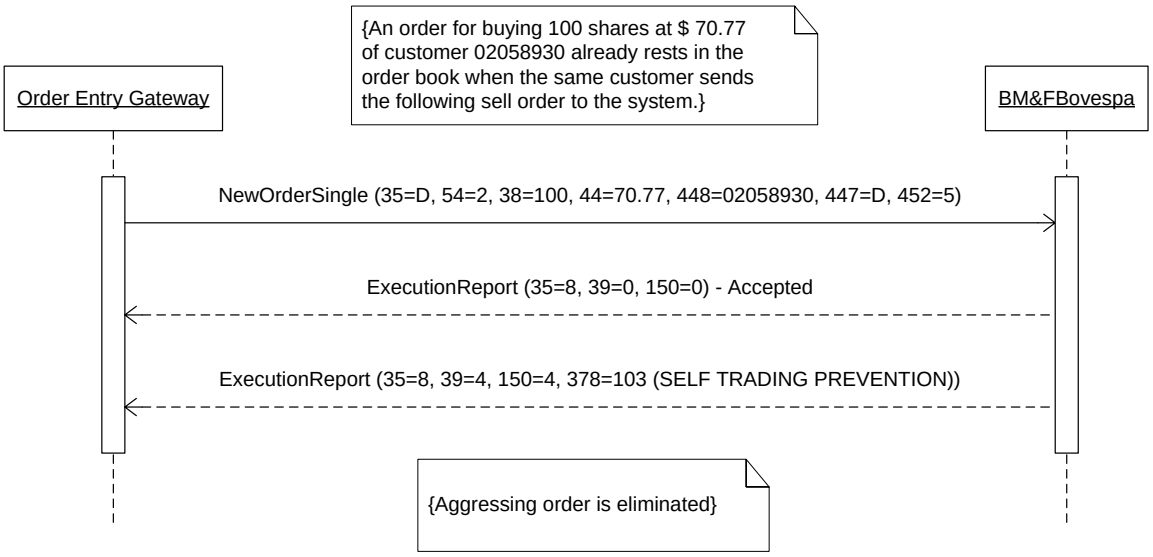

Figure 37 - Self-Trading prevention on aggressing order

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	40	448 (452=5)	38	44	39	150	378	Comment
1	NewOrderSingle (D)		2	02058930	100	70.77	--	--	--	
2		ExecutionReport (8)	2	02058930	100	70.77	0	0	--	New
3		ExecutionReport (8)	2	02058930	100	70.77	4	4	103	Canceled

14.6.2 Self-Trading prevention on Order Modification

When an order modification leads to a potential match with another order, tagged with the same Investor ID, the modification will be accepted but it will be followed by an immediate elimination of the order.

Tag OrderStatus (39) in the ExecutionReport sent to the participant indicates that the order has been canceled (39 = 4 Canceled) and tag ExecRestatementReason (378) provides a self explanatory reason for the elimination (378 = 103 Self-Trading prevention).

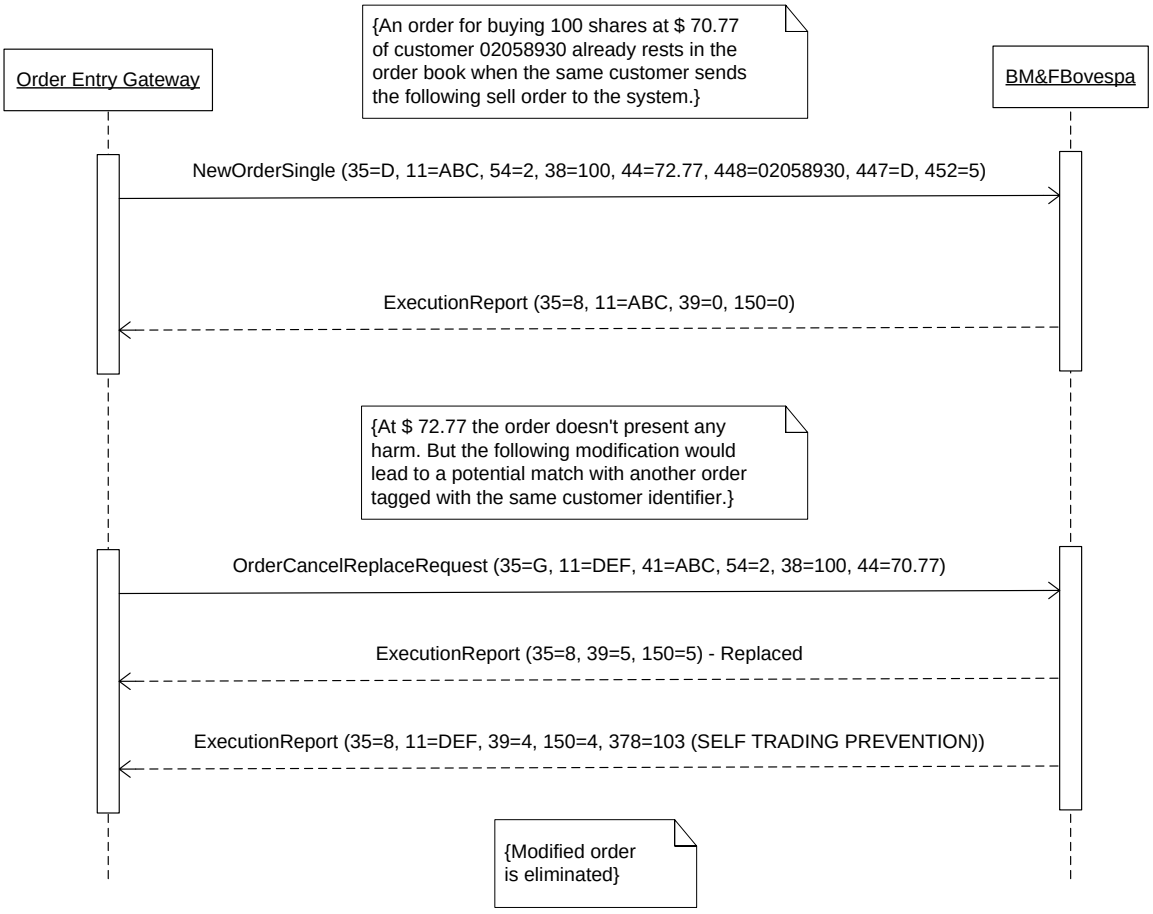

Figure 38 - Self-Trading prevention on order modification

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	11	40	448 (452=5)	38	44	39	150	378	Comment
1	NewOrderSingle (D)		ABC	2	02058930	100	72.77	--	--	--	
2		ExecutionReport (8)	ABC	2	02058930	100	72.77	0	0	--	New
3	OrderCancelReplace Request (G)		DEF	2	02058930	100	70.77	--	--	--	
4		ExecutionReport (8)	DEF	2	02058930	100	70.77	5	5	--	Replaced
5		ExecutionReport (8)	DEF	2	02058930	100	70.77	4	4	103	Canceled

14.6.3 Self-Trading prevention and Partial Fills

This scenario presents a situation in which the order is partially executed in 200 shares and the remaining amount of 800 is eliminated because the next aggressed order has the same unique Investor ID.

Tag OrderStatus (39) in the ExecutionReport sent to the participant indicates that the order has been canceled (39 = 4 Canceled) and tag ExecRestatementReason (378) provides a self explanatory reason for the elimination (378 = 103 Self-Trading prevention).

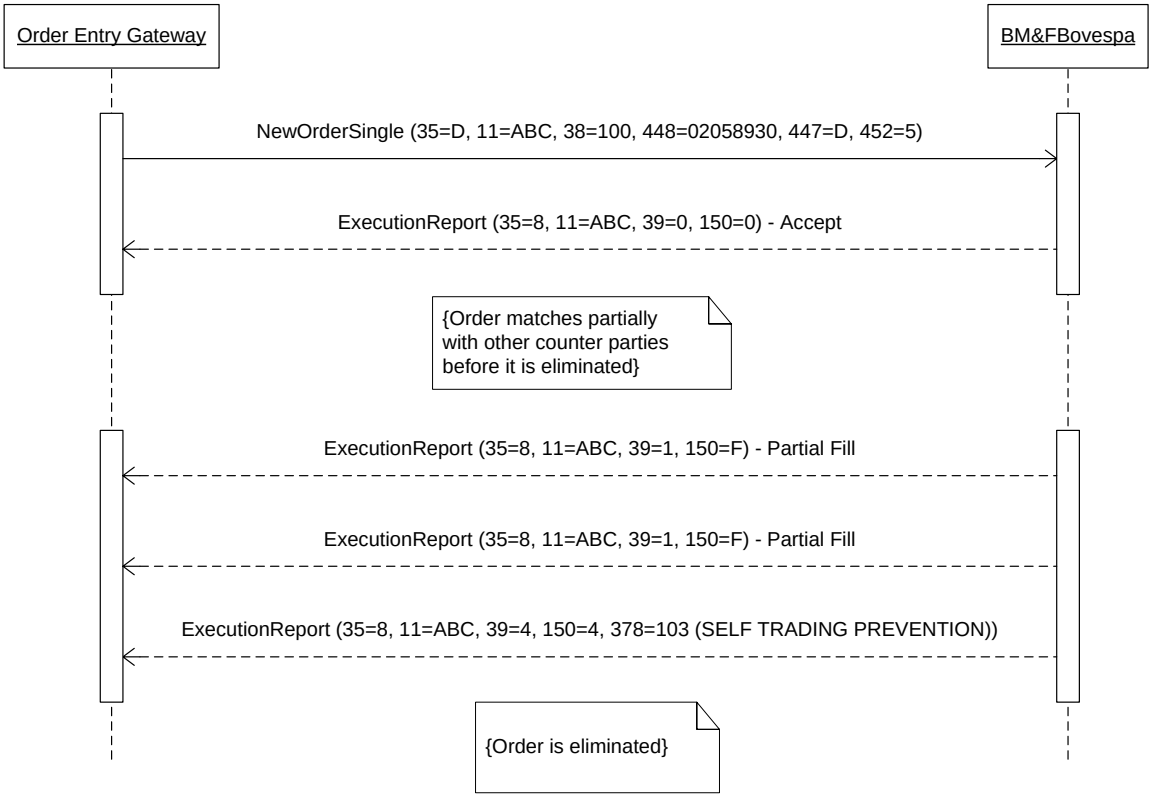

Figure 39 - Self-Trading prevention and partial fills

For incoming Minimum quantity orders or FOK orders, the Match Engine analyzes the book to assure the minimum required quantities can be achieved without self-trade. Otherwise the incoming (aggressing) order must be eliminated upon entry.

The following table shows the sequence of messages received and sent by the Exchange and some sample values are assigned to key fields in order to demonstrate their usage:

	Message Received	Message Sent	11	448 (452=5)	38	32	151	14	39	150	378	Comment
1	NewOrderSingle (D)		ABC	02058930	1000	--	--	--	--	--	--	
2		ExecutionReport (8)	ABC	02058930	1000	--	1000	--	0	0	--	New
3		ExecutionReport (8)	ABC	02058930	1000	100	900	100	1	F	--	Partial Fill
4		ExecutionReport (8)	ABC	02058930	1000	100	800	200	1	F	--	Partial Fill
5		ExecutionReport (8)	ABC	02058930	1000	--	800	200	4	4	103	Canceled

14.6.4 Self-Trading prevention on Stop Orders

In the following scenario, a Stop order becomes a Limit order and it is tagged with the same Investor ID as another order in the book. If such condition leads to a self-trade, the triggered order will be immediately eliminated.

Tag WorkingIndicator (636) points when the order becomes active and available for trading. Upon activation, the OrderType (40) changes from “Stop Limit” (40 = 4) to “Limit” (40 = 2) and the order is eliminated by the Self-Trading prevention functionality.

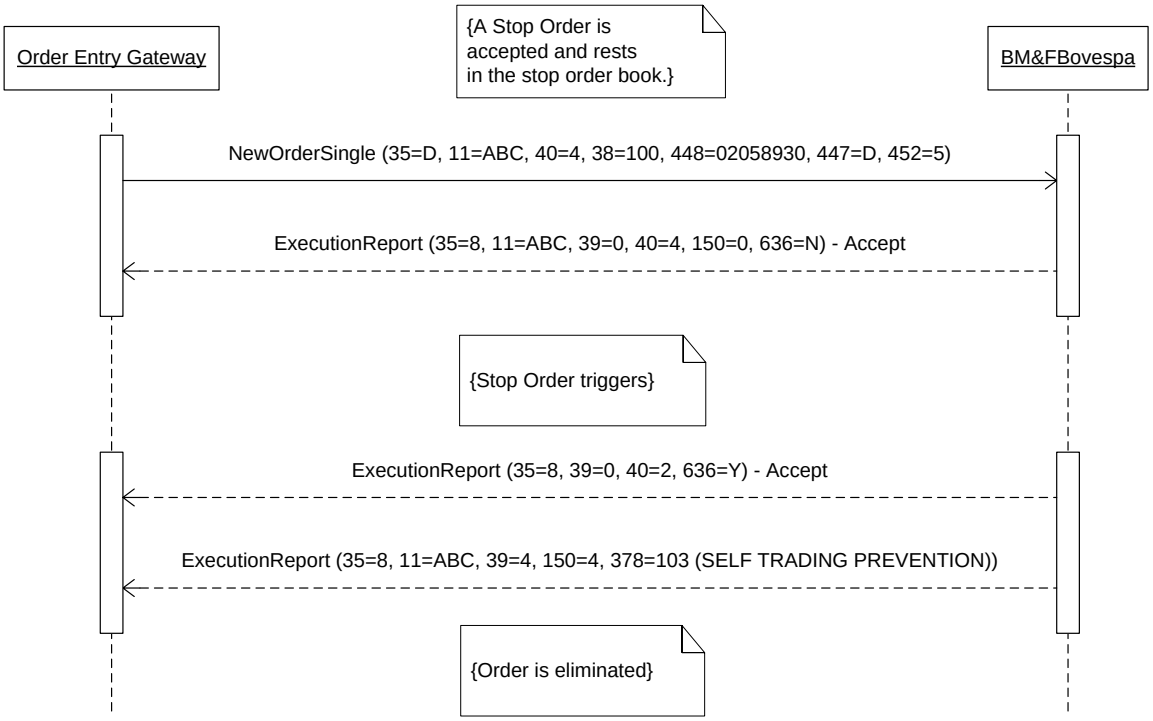

Figure 40 - Self-Trading prevention on Stop orders

	Message Received	Message Sent	11	40	448 (452=5)	38	39	150	378	636	Comment
1	NewOrderSingle (D)		ABC	4	02058930	100	--	--	--	--	
2		ExecutionReport (8)	ABC	4	02058930	100	0	0	--	N	New
3		ExecutionReport (8)	ABC	2	02058930	100	0	0	--	Y	New
4		ExecutionReport (8)	ABC	2	02058930	100	4	4	103	--	Canceled

14.7 Message Replay

14.7.1 Retransmission Request

In this example, client on a FIX session named C555AAA requests for message re-send from the FIX session C999AAC.

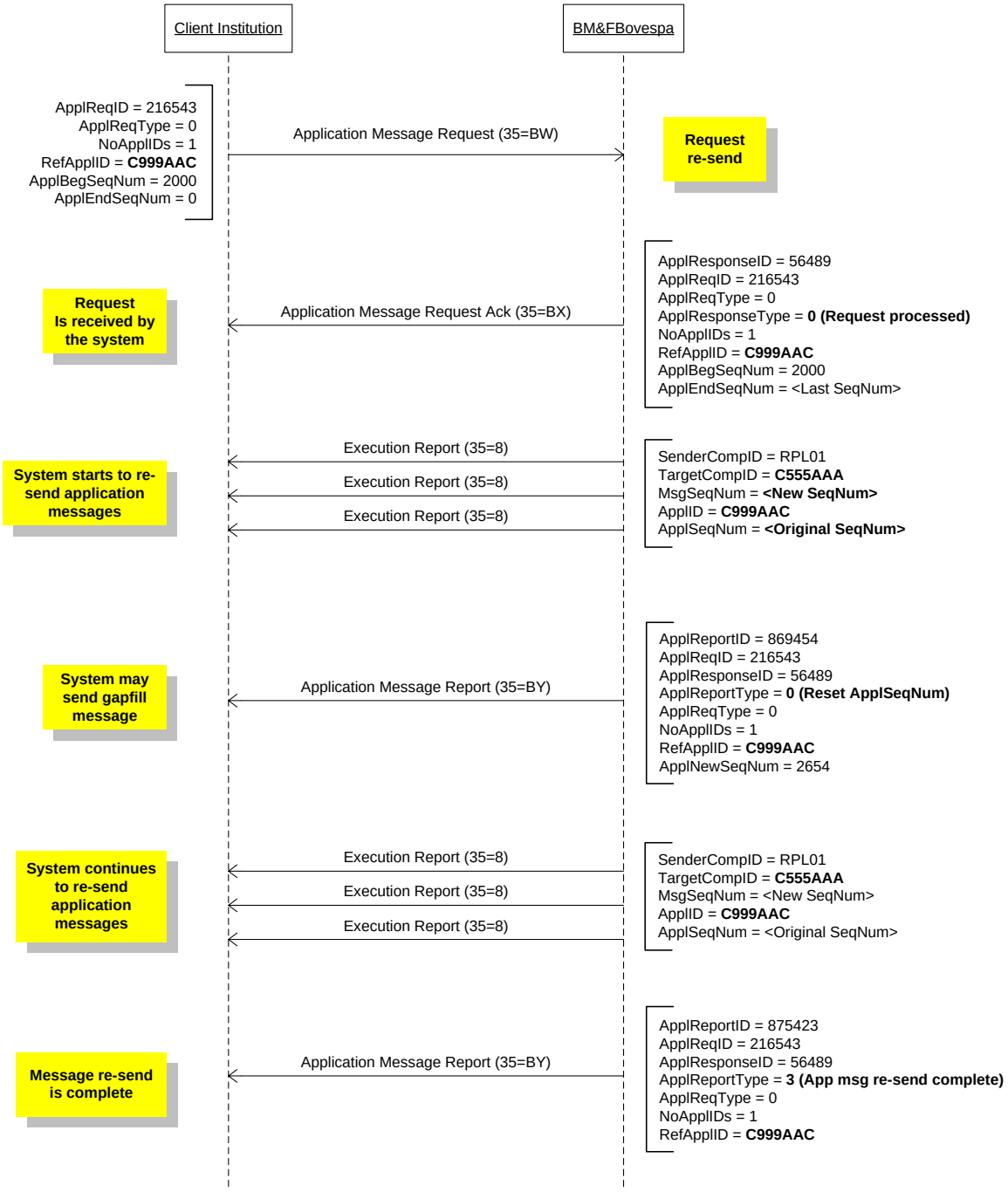

Figure 41 - Message Re-send

14.7.2 Rejection Scenarios

The Application Message Request Acknowledgment (tag 35=BX) message is sent to confirm the receiving of the Application Message Request (tag 35=BW) message.

The requested messages are resent only when the value of ApplResponseStatus (tag 35021) is “0” (Request Successfully Processed).

The other values for tag 35021 indicate negative acknowledgment.

14.7.2.1 User Not Authorized

In the example below, the Application Message Request is rejected because the user is not authorized to request re-send from a particular FIX session.

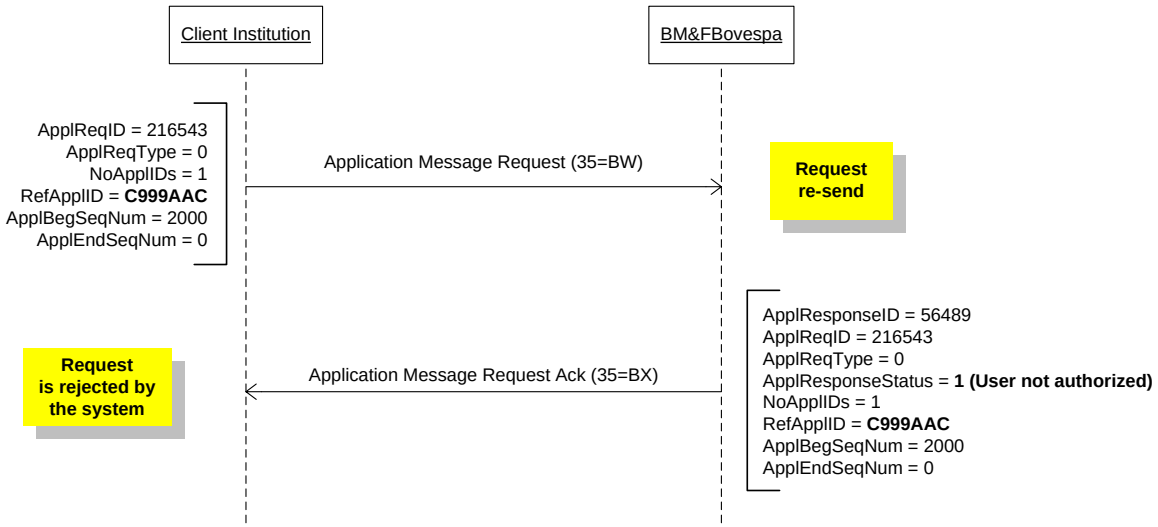

Figure 42 - User not authorized

14.7.2.2 Invalid Range Requested

The following picture presents an Application Message Request being rejected due to an invalid parameter defined for the range of application sequence numbers.

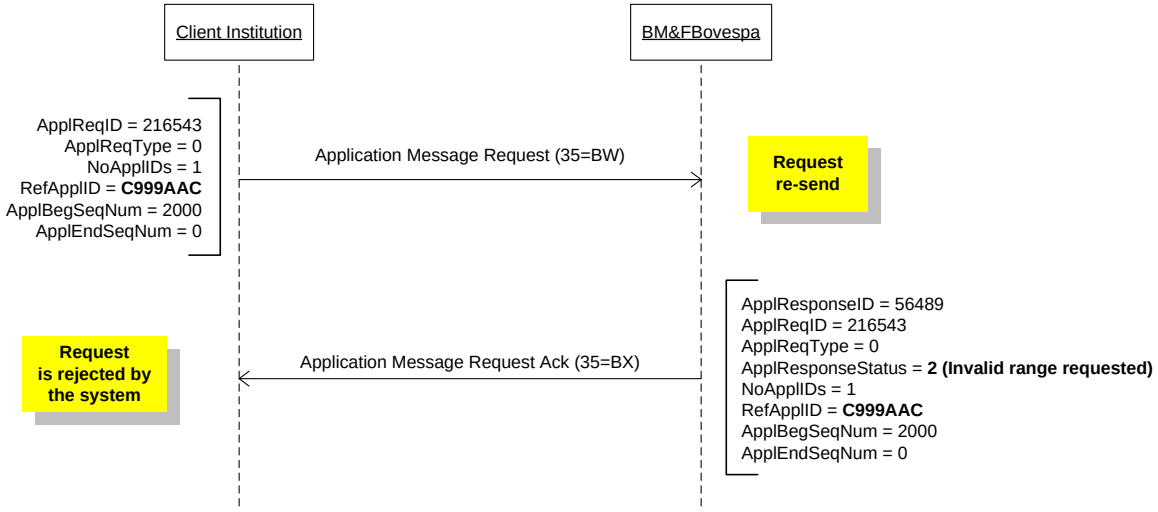

Figure 43 - Invalid range requested

14.7.2.3 Re-send already in progress

The system will reject any request for retransmission of messages that are currently in progress.

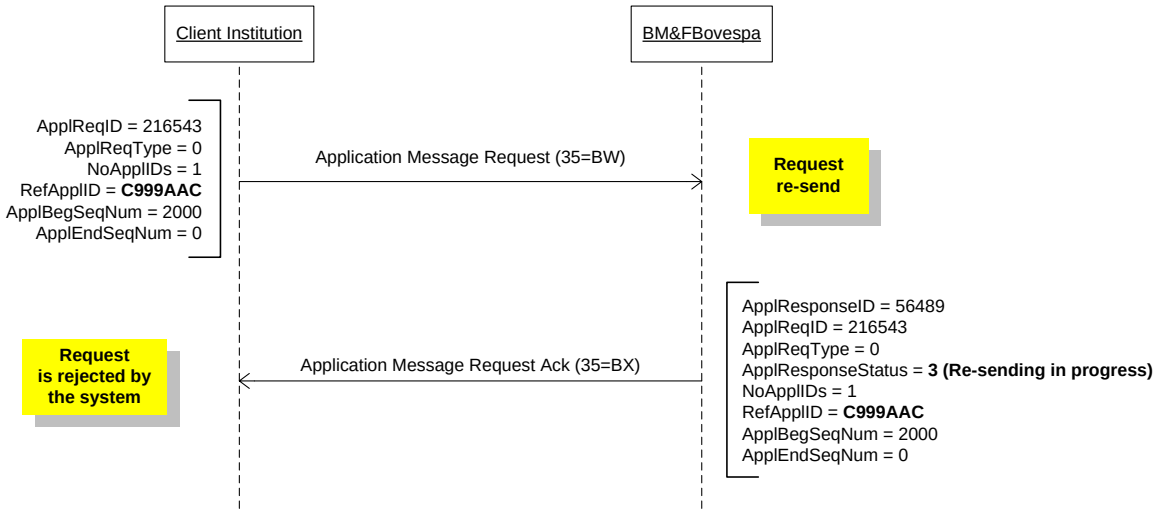

Figure 44 - Re-send already in progress

14.7.3 Error Scenarios

The ApplReportType field (tag 1426) in Application Message Report (tag 35=BY) reports whether the resending was successfully completed (value=3) or there was an error (value=4).

This message might be sent immediately after the Application Message Request Acknowledgment (tag 35=BX) message (if an error occurs and messages cannot be resent), or in the middle of a transmission that was interrupted because of an error.

14.7.3.1 Error Before Re-sending

If after sending Application Message Request Ack the system detects an error that hampers the message retransmission, an Application Message Report will be sent to the client with tag ApplReportType = 4 and no messages will be resent.

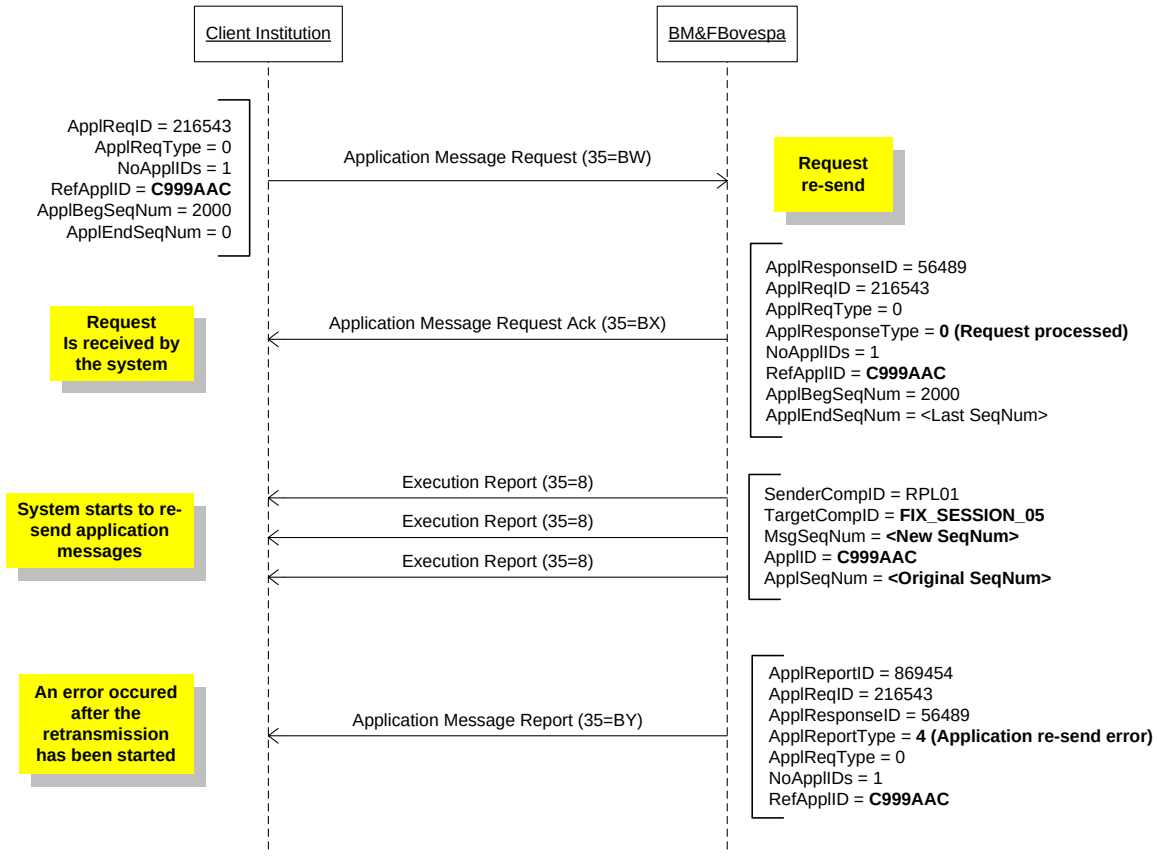

Figure 45 - Error before re-sending

14.7.3.2 Error During Re-sending

At any time during the re-sending, should an error occur, the system may interrupt the retransmission of messages. In this case, an Application Message Report will be sent to the client with tag ApplReportType = 4 and the retransmission is stopped.

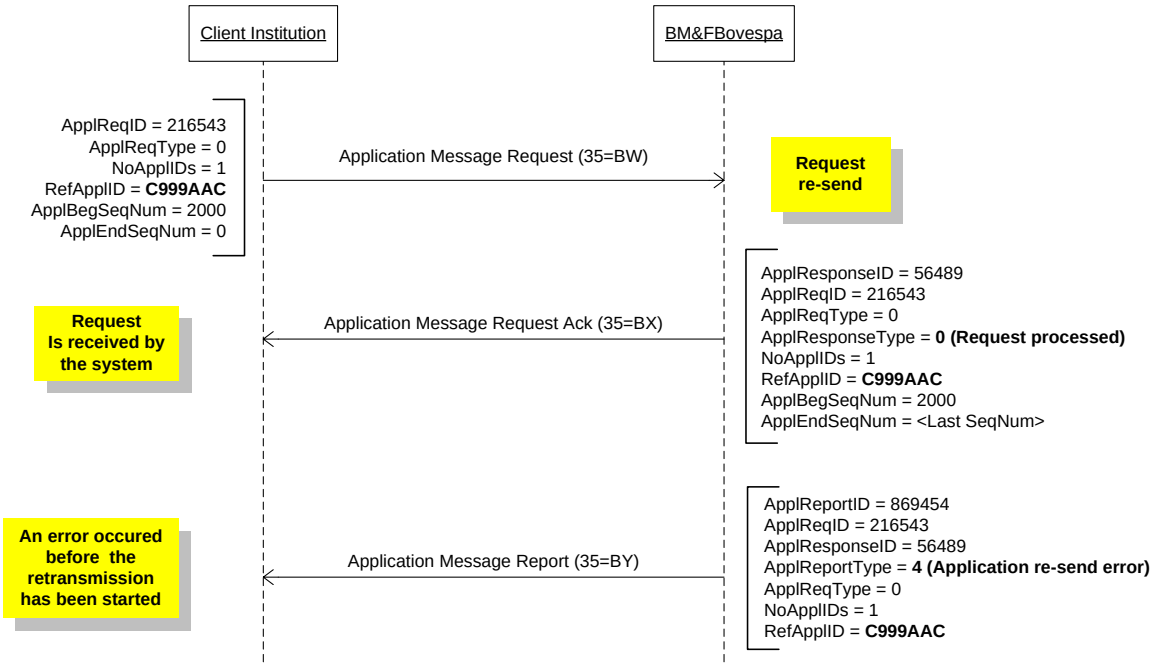

Figure 46 - Error during re-sending

Appendix A: Glossary

Term	Definition
BEI	BEI (Brazil Easy Investing) allows foreign investors to place orders for equities listed in the BM&FBOVESPA Trading System using their native currency through a conversion of the offshore-priced orders to orders in onshore currency (BRL).
BELL	BM&FBOVESPA Electronic Link.
BM&FBOVESPA	Securities, Commodities and Futures Exchange, based in São Paulo, Brazil. For more information, visit http://www.bmfbovespa.com.br/english.
Broker	A broker is an individual or firm who acts as an intermediary between a buyer and seller, usually charging a commission.
Brokerage	Used interchangeably with broker when referring to a firm rather than an individual. Also called brokerage house or brokerage firm.
Correspondent Broker	Identifies a correspondent broker (broker/firm who originates the order to BM&FBOVESPA from a DMA provider or order routing solution).
Counterparty	Party to a trade.
Derivatives	A financial security (such as option or future) whose characteristics and value are derived from the characteristics and the value of another asset.
DMA	Direct Market Access – functionality that allows end-customers, such as hedge funds or investment banks, to directly access the exchange electronically without the need to go over physical broker firm infrastructure.
Entering Firm	Broker who has recorded or reported an execution. This term is particularly useful where the trade is entered into a trading system by a broker who is not a party to the trade, as it allows any inquiries or problem resolution to be directed to the appropriate source.
Entering Trader	Individual usually identified by a trading badge number or initials that actually enters an order to a market (especially in open outcry markets). Usually the Entering Trader is the same as the Executing Trader. However, under some circumstances the Entering Trader will have the trade executed by another trader who is then identified as the Executing Trader.
EntryPoint	BM&FBOVESPA's solution for accessing its electronic trading platform
Executing Firm	Identifies executing / give-up broker.
Executing Trader	Trader or broker id associated with Executing Firm who actually executes the trade.
FIX	Financial Information Exchange Protocol
FIX Gateway	Service that provides connectivity to third-party clients and brokerages using the FIX protocol.
Futures	Contracts covering the sale of financial instruments or physical commodities for future delivery on a commodity exchange.
Give-up firm	Firm to which a trade is given up, i.e. firm which carries the trade.
Holder	The investor holding the right to exercise an option.
Instrument	Financial capital in a readily tradable form.
IP	Internet Protocol
Issuer	An entity that puts a financial asset in the marketplace. The grantor of an options contract who assumes the obligation, if the holder exercises the option, to sell the underlying asset to or buy it from the holder.
Market Data	A collective term for quotes, last sales, volume statistics and other information used by the market to evaluate trading opportunities.

Term	Definition
Matching	The process by which two counter-parties that have engaged in a trade compare the settlement details of the trade provided by both. Matching is done to verify all aspects of a trade and ensure that all parties agree on the terms of the transaction.
Order Gateway	The service provided by BM&FBOVESPA which relays FIX messages from a third-party client, usually a vendor, to the SISBEX system.
Order Origination Firm	Firm that originates the order.
Position	Balance resulting from one or more operations with options from the same series, executed on behalf of the same investor, through the same brokerage firm.
Security	A stock, bond or contract that has been authorized for trading on, and by, a registered exchange. Each exchange has different criteria to determine a security's eligibility for listing.
SISBEX	The system used by BM&FBOVESPA to negotiate public bonds.
SSL	Secure Socket Layer
Strike Price	Price at which the holder will be entitled to buy or sell the option's underlying asset.
TCP	Transport Control Protocol
UDS	User-Defined Spread.
Vendor	Institution that sells services to its clients. In the context of this document, a vendor is an institution that sells access to market data feeds and order management interfaces to an Exchange.

Appendix B: ExecType and OrdStatus transitions

Scenario	Messages Incoming	Messages Outgoing	ExecType	OrdStatus	Remarks
Order Entry; Accepted	35=D	35=8	New (0)	New (0)	
Order Entry; Rejected	35=D	35=8	Rejected (8)	Rejected (8)	
Modification; Accepted	35=G	35=8	Replace (5)	Replaced (5)	
Cancellation; Accepted	35=F	35=8	Cancelled (4)	Cancelled (4)	
Modification; Rejected (known order)	35=G	35=9	N/A	Standing state	
Modification; Rejected (unknown order)	35=G	35=9	N/A	Rejected (8)	
Cancellation; Rejected (known order)	35=F	35=9	N/A	Standing state	
Cancellation; Rejected (unknown order)	35=F	35=9	N/A	Rejected (8)	
Order entry; Suspended[20]	35=D	35=8	Suspended (9)	Suspended (9)	
Modification; Suspended[20]	35=G	35=9	Suspended (9)	Standing state	
Full Fill	N/A	35=8	Trade (F)	Filled (2)	
Partial Fill	N/A	35=8	Trade (F)	Partially Filled (1)	
Trade Bust (Working order)	N/A	35=8	Trade Cancel (H)	Standing state	
Trade Bust (Non-working order)	N/A	35=8	Trade Cancel (H)	Previous Final State (Z)	
FAK partially filled; elimination	N/A	35=8	Cancelled (4)	Cancelled (4)	
FOK partially filled; elimination	N/A	35=8	Cancelled (4)	Cancelled (4)	
Stop Order entry; Ack (no triggering)	35=D	35=8	New (0)	New (0)	WorkingIndicator (636) = N
Stop order Triggers	N/A	35=8	New (0)	New (0)	WorkingIndicator (636) = Y
Order with "On Close" attribute is sent; Ack	35=D	35=8	New (0)	New (0)	WorkingIndicator (636) = N

[20] The suspended ExecType and OrdStatus are only applicable to the current Megabolsa system. They will be discontinued in the PUMA Trading Platform.

Order with "On Close" attribute is activated when the closing auction starts	N/A	35=8	New (0)	New (0)	WorkingIndicator (636) = Y
Iceberg Restatement	N/A	35=8	Restatement (D)	Standing State	
MinQty order entry; not enough quantity; rejected	35=D	35=8/35=8	New (0) / Cancelled (4)	New (0)/Cancelled (4)	
Order Expiration (All TimeInForces except FOK and IOC)	N/A	35=8	Expired (C)	Expired (C)	

Appendix C: QuoteStatus transitions

Scenario	Messages		QuoteStatusReportType	QuoteStatus
	Incoming	Outgoing		
Quote Request; Accepted	35=R	35=AI	New (0)	Pending (10)
Quote; Accepted	35=S	35=AI	Accept (1)	Accept (0)
Quote Rejected; Quote Request Found	35=S	35=AI	Reject (3)	Pending (10)
Quote Rejected; Quote Request Not Found	35=S	35= AI	Reject (3)	Quote Not Found (9)
Quote Cancel; Accepted	35=Z	35= AI	Cancel (2)	Canceled (17)
Quote Cancel Rejected; Quote Request Found	35=Z	35= AI	Reject (3)	Pending (10)
Quote Cancel Rejected; Quote Request Not Found	35=Z	35= AI	Reject (3)	Quote Not Found (9)
Quote Request Reject; Accepted	35=AG	35= AI	Pass(5)	Pass (11)
Quote Request Reject; Rejected; Quote Request Found	35=AG	35= AI	Reject (3)	Pending (10)
Quote Request Reject; Rejected; Quote Request Not Found	35=AG	35= AI	Reject (3)	Quote Not Found (9)
Quote Request Eliminated	N/A	35= AI	Expired (4)	Expired (7)

Appendix D: Security Strategy types

Spread Types		
Spread	**Type**	**Description**
3-Way	3W	A 3-Way (3W) option spread is constructed of calls and puts on the same contract and expiry month with three different strike prices. A Call 3-way consists of buying the call for the middle strike price, selling the call for high strike price, and selling the put for the low strike price. A Put 3-way consists of buying the put for middle strike price, selling the put for low strike price, and selling the call for the high strike price. **Spread ratio: (Buy 1: Sell 1: Sell 1)** **3-Way Call Spread** Construction: • Buy 1 Call at strike2exp1 • Sell 1 Call at strike3exp1 • Sell 1 Put at strike1exp1 Example: • Buy 1 ACMEG11C002100 • Sell 1 ACMEG11C002150 • Sell 1 ACMEG11P002050 **3-Way Put Spread** Construction: • Buy 1 Put at strike2exp1 • Sell 1 Put at strike1exp1 • Sell 1 Call at strike3exp1 Example: • Buy 1 ACMEG11P002100 • Sell 1 ACMEG11P002050 • Sell 1 ACMEG11C002150
3-Way: Straddle versus a Call	3C	A 3-way: Straddle versus Call (3C) option spread consists of buying a Straddle and (versus) selling a Call in the same expiry month. The Straddle component consists of buying a Call and buying a Put in the same contract, expiration, and strike price. The opposing (versus) component is to sell a Call for the same contract and expiration but at a different strike price. **Spread ratio: (Buy 1: Buy 1: Sell 1)** Construction: • Buy 1 Call at strike1exp1 • Buy 1 Put at strike1exp1 • Sell 1 Call at strike2exp1 Example: Buy the 3-way: Straddle versus Call • Buy 1 ACMEG11C001900 • Buy 1 ACMEG11P001900 • Sell 1 ACMEG11C002100

3-Way: Straddle versus a Put	3P	A 3-way: Straddle versus Put (3P) option spread consists of buying a Straddle and (versus) selling a Put in the same expiry month. The Straddle component consists of buying a Call and buying a Put in the same contract, expiration, and strike price. The opposing (versus) component is to sell a Put for the same contract and expiration but at a different strike price. **Spread ratio: (Buy 1: Buy 1: Sell 1)** Construction: • Buy 1 Call strike1exp1 • Buy 1 Put at strike1exp1 • Sell 1 Put at strike(?)exp1 Example: Buy the 3-way: Straddle versus Put • Buy 1 ACMEG11C001900 • Buy 1 ACMEG11P001900 • Sell 1 ACMEG11P001700
Box	BX	A Box (BX) option spread consists of buying the call and selling the put at the same lower strike price and buying the put and selling the call at the same higher strike all within the same contract and expiry month. **Spread ratio: (Buy 1: Sell 1: Buy 1: Sell 1)** Construction: • Buy 1 Call at strike1exp1 • Sell 1 Put at strike1exp1 • Buy 1 Put at strike2exp1 • Sell 1 Call at strike2exp1 Example: • Buy 1 ACMEG11C001900 • Sell 1 ACMEG11P001900 • Buy 1 ACMEG11P002100 • Sell 1 ACMEG11C002100
Butterfly	BO	A Butterfly is an options strategy involving three strike prices that are of equal distance apart with all having the same expiration date. **Call Butterfly** Involves buying one call at the lowest strike price, selling two calls at the middle strike price, and buying one call at the highest strike price. **Put Butterfly** Involves buying one put at the highest strike price, selling two puts at the middle strike price, and buying one put at the lowest strike price. Examples: **Call Butterfly** (all Call options) • Leg 1 = Buy 1 ACMEG11C001800 • Leg 2 = Sell 2 ACMEG11C001900 • Leg 3 = Buy 1 ACMEG11C002000 **Put Butterfly** (all Put options) • Leg 1 = Buy 5 ACMEG11P002000 • Leg 2 = Sell 10 ACMEG11P001900 • Leg 3 = Buy 5 ACMEG11P001800 Butterflies are always done in a 1x2x1 ratio. The three Strike prices are always of equal distance apart. All options have the same expiration date.

Christmas Tree (Xmas Tree)	XT	A Xmas Tree (XT) option spread is constructed of all calls (Call Xmas Tree) or all puts (Put Xmas Tree). The Call Xmas Tree consists of buying a call at one strike, selling a call at a higher strike and selling yet another call at a higher strike, all within the same contract and expiration month. The Put Xmas Tree consists of buying a put at a higher strike and selling a put at a lower strike and selling yet another put at a still lower strike, all within the same contract and expiration month. The Xmas Tree requires a specific symmetry in the strikes in that the difference between the strike prices is the same for all legs. **Spread ratio: (Buy 1: Sell 1: Sell 1)** **Call Xmas Tree** <u>Construction:</u> • Buy 1 Call at strike1exp1 • Sell 1 Call at strike2exp1 • Sell 1 Call at strike3exp1 <u>Example:</u> • Buy 1 June 2008 Eurodollar 9800 Call • Sell 1 June 2008 Eurodollar 9850 Call • Sell 1 June 2008 Eurodollar 9900 Call **Put Xmas Tree** <u>Construction:</u> • Buy 1 Put at strike3exp1 • Sell 1 Put at strike2exp1 • Sell 1 Put at strike1exp1 <u>Example:</u> • Buy 1 June 2008 Eurodollar 9900 Put • Sell 1 June 2008 Eurodollar 9850 Put • Sell 1 June 2008 Eurodollar 9800 Put
Conditional Curve	CC	Conditional Curve (CC) option spreads are unique to CME Interest rate products and consists of buying a call (put) at a strike in one instrument group and selling a call (put) at a strike in another instrument group. Additionally, it is possible to have a Conditional Curve spread with a single strike (i.e. same for each leg) or two different strikes, where both strikes are listed. **Call Conditional Curve** <u>Construction:</u> • Buy1callstrikeexp1 instrument1 • Sell1callstrikeexp1 instrument2 <u>Example:</u> • Buy 1 December Eurodollar 9800 Call • Sell 1 December 1-year Mid-Curve 9800 Call **Put Conditional Curve** <u>Construction:</u> • Buy1putstrikeexp1 instrument 1 • Sell1putstrikeexp1 instrument 2 <u>Example:</u> • Buy 1 December Eurodollar 9800 Put • Sell 1 December 1-year Mid-Curve 9800 Put

Condor	CO	A Condor is an options strategy that has four legs (either all Calls or all Puts) and four strikes that are an equal distance apart. **Call Condor** • Involves buying one Call at the **lowest** strike, selling one Call at the second strike, selling one Call at the third strike, and finally buying one Call at the **highest** strike. **Put Condor** • Involves buying one Put at the **highest** strike, selling one Put at the third strike, selling one Put at the second strike, and finally buying one Put at the **lowest** strike. Example: Buying Call Condor • Leg 1 = Buy 1 ACMEG11C001800 • Leg 2 = Sell 1 ACMEG11C001850 • Leg 3 = Sell 1 ACMEG11C001900 • Leg 4 = Buy 1 ACMEG11C001950 All legs are done in equal quantities. All four Strike prices are an equal distance apart. All options have the same expiration date.
Diagonal	DG	A strategy involving the simultaneous buying and selling of two options of the same type that have different strike prices and different expiration dates. • Two different strikes are used. • Option with the **longer expiration** date is always **bought**. • Option with the **shorter expiration** date is always **sold.** • Either Strike price (higher or lower) can be bought as long as it has the longer expiration. • Same rules for Calls or Puts. Example: • Leg 1 = Buy 1 ACMEG11C001800 (Buying Feb. 2011 expiration) • Leg 2 = Sell 1 ACMEV10C002100 (Selling Oct. 2010 expiration) Or • Leg 1 = Buy 1 ACMEG11C002100 (Buying Feb. 2011 expiration) • Leg 2 = Sell 1 ACMEV10C002000 (Selling Oct. 2010 expiration) Basically the same trades above but showing the order of the strike prices does not matter as long as they are buying the further out expiration and selling the closer term expiration.
Guts	GT	A Guts (GT) option spread consists of buying a Call at a strike price and buying a Put at a higher strike price in the same expiry. **Spread ratio: (Buy 1: Buy 1)** Construction: • Buy 1 Call at strike1exp1 • Buy1 Put at strike2exp1 Example: Buy the Guts • Buy 1 ACMEG11C002100 • Buy 1 ACMEG11P002200

Horizontal	HO	A horizontal (HO) option spread consists of buying a call (put) at a strike in the far month, and selling a call (put) at the same strike in the near month. **Spread ratio: (Buy 1: Sell 1)** Example • Leg 1 = Buy 1 ACMEG11C001800 • Leg 2 = Sell 1 ACMEV10C001800 Both legs use same quantity and strike price but have different expirations.
Double	DB	A Double (DB) option spread is constructed of all calls (Call Double) or all puts (Put Double). The **Call Double** consists of buying a call at a strike price and buying another call at a higher strike price within the same contract and expiry month. The **Put Double** consists of buying a put at a strike price and buying another put at a lower strike price within the same contract and expiry month. **Spread ratio: (Buy 1: Buy 1)** **Call Double** Construction: • Buy1 Call at strike1exp1 • Buy1 Call at strike2exp1 Example: • Buy 1 ACMEG11C002100 • Buy 1 ACMEG11C002150 **Put Double** Construction: • Buy 1 Put at strike2exp1 • Buy 1 Put at strike1exp1 Example: • Buy 1 ACMEG11P002150 • Buy 1 ACMEG11P002100
Iron Butterfly	IB	An Iron Butterfly contains four legs as is an equivalent strategy to a regular butterfly spread which contains only three legs. Uses three different strikes with both inside legs using the same strike. Construction: • Sell 1 Put at lowest strike • Buy 1 Put at middle strike • Buy 1 Call at middle strike • Sell 1 Call at highest strike Example: Buying Iron Butterfly • Leg 1 = Sell 1 ACMEG11P001800 • Leg 2 = Buy 1 ACMEG11P001850 • Leg 3 = Buy 1 ACMEG11C001850 • Leg 4 = Sell 1 ACMEG11C001900

Iron Condor	IC	An Iron Condor (IC) option spread consists of buying a put spread and buying a call spread at higher strike prices. More specifically this consists of selling a put at one strike price, buying a put at a higher strike price, buying a call at a higher strike price, and selling a call at an even higher strike price, all within the same contract and expiration. **Spread ratio: (Sell 1: Buy 1: Buy 1: Sell 1)** <u>Construction:</u> • Sell 1 Put at strike1exp1 • Buy 1 Put at strike2exp1 • Buy 1 Call at strike3exp1 • Sell 1 Call at strike4exp1 <u>Example:</u> • Sell 1 ACMEG11P001800 • Buy 1 ACMEG11P001850 • Buy 1 ACMEG11C001900 • Sell 1 ACMEG11C001950
Horizontal Straddle	HS	A Horizontal Straddle (HS) option spread consists of buying a straddle at one strike price in the deferred month and selling a straddle at the same or different strike in the near month. More specifically, a Horizontal Straddle (HS) consists of buying a call and buying a put at the same strike price in the deferred month and selling a call and selling a put at the same lower strike price in the near month, all within the same contract and expiry month. **Spread ratio: (Buy 1: Buy 1: Sell 1: Sell 1)** <u>Construction:</u> • Buy 1 Call at strike1exp2 • Buy 1 Put at strike1exp2 • Sell 1 Call at strike1exp1 • Sell 1 Put at strike1exp1 <u>Example: Horizontal Straddle</u> • Buy 1 ACMEG11C002100 • Buy 1 ACMEG11P002100 • Sell 1 ACMEV10C002100 (same or different strike in near month) • Sell 1 ACMEV10P002100 (same or different strike in near month) Or • Buy 1 Sept 2008 Eurodollar 98000 Call • Buy 1 Sept 2008 Eurodollar 98000 Put • Sell 1 June 2008 Eurodollar 98500 Call • Sell 1 June 2008 Eurodollar 98500 Put

Jelly Roll	JR	A Jelly Roll is created by entering into two separate positions simultaneously. One position involves buying a put and selling a call with the same strike price and expiration. The second position involves selling a put and buying a call. The strike prices in the far expiry (second position) can be, but need not be, equal to the strike price in the near expiry. The strike prices of the put and call in the second position are identical but different from the previous position, and the duration of the second position is longer than the previous position. **Jelly Roll (all same strikes, different expirations)** • Sell 1 Call and Buy 1 Put at exp1 • Buy 1 Call and Sell 1 Put at exp2 **Jelly Roll (different strikes, different expirations)** • Sell 1 Call and Buy 1 Put at strike1 at exp1 • Buy 1 Call and Sell 1 Put at strike2 at exp2 Or • Sell 1 Call and Buy 1 Put at strike2 at exp1 • Buy 1 Call and Sell 1 Put at strike1 at exp2
Ratio 1x2	12	A Ratio 1x2 is the purchase of an option(s), call or put, and the selling of a greater number of the same type of options that are out-of-the-money with respect to those purchased. All options involved have the same expiration date. **Call** • Buy 1 Call at strike1 and exp1 • Sell 2 Calls at strike2 and exp1 **Put** • Buy 1 Put at strike2 and exp1 • Sell 2 Puts at strike1 and exp1 Trades can be done in larger quantities if in a 1x2 ratio.
Ratio 1x3	13	A Ratio 1x3 is the purchase of an option(s), call or put, and the selling of a greater number of the same type of options that are out-of-the-money with respect to those purchased. All options involved have the same expiration date. **Call** • Buy 1 Call at strike1 and exp1 • Sell 3 Calls at strike2 and exp1 **Put** • Buy 1 Put at strike2 and exp1 • Sell 3 Puts at strike1 and exp1 Trades can be done in larger quantities if in a 1x3 ratio.
Ratio 2x3	23	A Ratio 2x3 is the purchase of an option(s), call or put, and the selling of a greater number of the same type of options that are out-of-the-money with respect to those purchased. All options involved have the same expiration date. **Call** • Buy 2 Calls at strike1 and exp1 • Sell 3 Calls at strike2 and exp1 **Put** • Buy 2 Puts at strike2 and exp1 • Sell 3 Puts at strike1 and exp1 Trades can be done in larger quantities if in a 2x3 ratio.

Risk Reversal	RR	An option strategy combining the simultaneous purchase of out-of-the-money Calls (Puts) with the sale of out-of-the money Puts (Calls). The options will have the same expiration date and are done in the same quantities. **Call** • Buy 1 Call at strike2 (out-of-money) and exp1 • Sell 1 Put at strike1 (also out-of-money) and exp1
Straddle Strips	SS	Straddle Strips are options strategies which are basically buying
Straddle	ST	A Straddle (ST) option spread consists of buying both a call and put option on the same contract, strike price, and expiration date. **Spread ratio: (Buy 1: Buy 1)** Construction: • Buy 1 Call at strike1 and exp1 • Buy 1 Put at strike1 and exp1 Example: • Buy 1 ACMEG11C001900 • Buy 1 ACMEG11P001900
Strangle	SG	A Strangle (SG) option spread consists of buying a Put at a lower strike price and buying a Call at a higher strike price within the same contract and expiration. **Spread ratio: (Buy 1: Buy1)** Construction: • Buy 1 Put at strike1exp1 • Buy 1 Call at strike2exp1 Example: • Buy 1 ACMEG11P001900 • Buy 1 ACMEG11C001950

Strip	SR	A Strip (SR) option spread is constructed of all Calls (Call Strip) or all Puts (Put Strip). The Call Strip consists of buying calls within the same contract and strike price for each of four consecutive quarterly expiry months, resulting in a total of four (4) Calls purchased. The Put Strip consists of buying puts within the same contract and strike price for each of four consecutive quarterly expiry months, resulting in a total of four (4) Puts purchased. The Strip requires a specific symmetry in the expiry months in that the time difference between the expiry months is the same for all legs. **Spread ratio: (Buy 1: Buy 1: Buy 1: Buy 1)** **Call Strip** <u>Construction:</u> • Buy 1 Call at strike1exp1 • Buy 1 Call at strike1exp2 • Buy 1 Call at strike1exp3 • Buy 1 Call at strike1exp4 <u>Example: Call</u> • Buy 1 June 2008 Eurodollar 9800 Call • Buy 1 Sept 2008 Eurodollar 9800 Call • Buy 1 Dec 2008 Eurodollar 9800 Call • Buy 1 March 2009 Eurodollar 9800 Call **Put Strip** <u>Construction:</u> • Buy 1 Put at strike1exp1 • Buy 1 Put at strike1exp2 • Buy 1 Put at strike1exp3 • Buy 1 Put at strike1exp4 <u>Example: Put</u> • Buy 1 June 2008 Eurodollar 9800 Put • Buy 1 Sept 2008 Eurodollar 9800 Put • Buy 1 Dec 2008 Eurodollar 9800 Put • Buy 1 March 2009 Eurodollar 9800 Put
Vertical	VT	A Vertical (VT) option spread is made up of all calls or all puts and consists of buying a call at a strike price and selling a call at a higher strike price or buying a put at a strike price and selling a put at a lower strike price within the same contract and expiration date. **Spread ratio: (Buy 1: Sell 1)** **Call Vertical** <u>Construction:</u> • Buy 1 Call at strike1exp1 • Sell 1 Call at strike2exp1 <u>Example: Call Spread</u> • Buy 1 ACMEG11C001900 • Sell 1 ACMEG11C001950 **Put Vertical** <u>Construction:</u> • Buy 1 Put at strike2exp1 • Sell 1 Put at strike1exp1 <u>Example: Put Spread</u> • Buy 1 ACMEG11P001950 • Sell 1 ACMEG11C001900

Cash / Cash	VV	A strategy involving the simultaneous buying and selling of two cash instruments (Equity vs. Equity, Equity vs. ETF, or ETF vs ETF) Example: • Leg 1 = Buy 1 ACME3 (Buying ACME common stock) • Leg 2 = Sell 1 ACME4 (Selling ACME preferred stock) Or • Leg 1 = Buy 1 ACME3 (Buying ACME common stock) • Leg 2 = Sell 1 BOVA11 (Selling IBovespa ETF)
Cash / Option	VO	A strategy involving buying or selling any number (greater than 0) of Cash instruments (Equity or ETF) and selling or buying any number (greater than 0) of equity options. No more than 40 total instruments allowed in a single strategy.
Single Stock Future / Option	FO	A strategy involving buying or selling any number (greater than 0) of Single Stock Futures (Equity or ETF) and selling or buying any number (greater than 0) of equity options. No more than 40 total instruments allowed in a single strategy.
Single Stock Futures / Single Stock Future	FF	A strategy involving the simultaneous buying and selling of two Single Stock Future instruments Example: • Leg 1 = Buy 1 ACMEEFX (Buying ACME May Single Stock Future) • Leg 2 = Sell 1 ACMEFFX (Selling ACME June Single Stock Future)
Cash / Single Stock Future	FV	A strategy involving the simultaneous buying a Cash Equity and selling a Single Stock Future instrument Example: • Leg 1 = Buy 1 ACME3 (Buying ACME common stock) • Leg 2 = Sell 1 ACMEEFX (Selling ACME May Single Stock Future)
Generic	GN	Any UDS that does not fit any of the above listed strategy types will be assigned the type of Generic.

Appendix E: Order Characteristics - Allowed Combinations (Equities)

Not all order characteristics can be combined on all circumstances. The following table summarizes how the various order parameters can be combined:

Order Characteristics		Types					Quantities		Validities							Misc.
		Limited	Market to Limit	Stop Limit	Market	Stop	Disclosed	Minimum	Day	FAK	FOK	GTC	GTD	ATC	GFA	Auction
Types	Limited						✓	✓	✓	✓	✓	✓	✓			✓
	Market to Limit							✓	✓	✓	✓	✓	✓			
	Stop Limit						✓		✓	✓	✓	✓	✓			
	Market								✓	✓	✓	✓	✓	✓	✓	✓
	Stop								✓	✓	✓	✓	✓			
Quantities	Disclosed	✓		✓					✓			✓	✓			
	Minimum	✓	✓						✓	✓	✓	✓	✓			
Validities	Day	✓	✓	✓	✓	✓	✓	✓								✓
	FAK	✓	✓	✓	✓	✓		✓								✓
	FOK	✓	✓	✓	✓	✓		✓								✓
	GTC	✓	✓	✓	✓	✓	✓	✓								✓
	GTD	✓	✓	✓	✓	✓	✓	✓								✓
	ATC				✓											✓
	GFA				✓											✓
Misc.	Auction	✓			✓				✓	✓	✓	✓	✓	✓	✓	

Appendix F: Order Characteristics - Allowed Combinations (Derivatives)

Not all order characteristics can be combined on all circumstances. The following table summarizes how the various order parameters can be combined:

Order Characteristics		Types					Quantities		Validities							Misc.
		Limited	Market to Limit	Stop Limit	Market	Stop	Disclosed	Minimum	Day	FAK	FOK	GTC	GTD	ATC	GFA	Auction
Types	Limited						✓	✓	✓	✓	✓	✓	✓			✓
	Market to Limit						✓	✓	✓	✓	✓	✓	✓			
	Stop Limit								✓			✓	✓			
	Market						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Stop								✓			✓	✓			
Quantities	Disclosed	✓	✓		✓				✓	✓	✓	✓	✓			
	Minimum	✓	✓		✓				✓	✓						
Validities	Day	✓	✓	✓	✓	✓	✓	✓								✓
	FAK	✓	✓		✓		✓	✓								✓
	FOK	✓	✓		✓		✓									✓
	GTC	✓	✓	✓	✓	✓	✓									✓
	GTD	✓	✓	✓	✓	✓	✓									✓
	ATC				✓											✓
	GFA				✓											✓
Misc.	Auction	✓			✓				✓	✓	✓	✓	✓	✓	✓	

Appendix G: Order Characteristics - Allowed Modifications

Matrix of changes among order types

The possibilities of change are shown in the table below:

FROM \ TO	Limited	Market Order	Market with protection	Stop with Protection	Stop
Limited		✓	✓	✓	✓
Market Order					
Market with Protection					
Stop with Protection	✓	✓	✓		✓
Stop	✓	✓	✓	✓	

Matrix of changes among order qualifiers

The possibilities of change are shown in the table below:

FROM \ TO	Day	GTC	GTD	FAK	FOK
Day		✓	✓	✓	✓
GTC	✓		✓	✓	✓
GTD	✓	✓		✓	✓
FAK					
FOK					