SOLA 5 – Message Changes

Guidelines

V 1.1 – September 2012

Contents

1 Revision History

Issue	Date	Description
1.0	August 2012	First issue of this document published via the LSEG's website and distributed to customers.
1.1	September 2012	Correction of minor issues.

2 Introduction

This document provides a high level description of the changes introduced on the HSVF, SAIL and FIX Protocols by releasing the new functionalities included in the project named "SOLA 5". The messages format details will be provided in the specification guide of each protocol, updating the information contained in the existing documentation:

- SOLA HSVF Specifications Guide (Issue 3)
- SAIL Specifications Guide (Issue 1.1)
- FIX Specifications Guide (Issue 1.1)
- SOLA Interface Message Modifications v.11

Following the update, the complete documentation related to SOLA 5 will be published on the BIT web site and will be the following:

- ***Trading***
  - o IDEM SAIL Business Design Guide – Issue 2.0

- ***Market Data***
  - o HSVF Market Data – Issue 2.0
  - o SAIL Specification – Issue 2.0
  - o FIX 4.2 Specification – Issue 2.0

3 What's New

This chapter highlights the new functionalities released by implementing the project named "SOLA 5".

3.1   Cross/Committed orders (including Block) on strategies

It will be possible to submit cross/committed orders (including block) on strategy series.

As for internal/committed cross orders on individual series, the price of each leg of the strategy will be validated against the existing bid-ask spread available on the market.

Since the price for strategy series is inserted as a "Net price" (as for the existing standard combinations, i.e. 'time spread'), an algorithm has been implemented to:
- attribute a price to each leg of the strategy, consistently with the total net price of the strategy;
- verify that each individual price for a leg is consistent with the maximum allowed price deviations from the best bid ask spread available on the order book.

The cross trade will be accepted only if all the legs of the strategy pass the validation.

Hereafter, an example of the leg price calculation is provided.

Strategy: Buy 1 MIBO put and 1 MIBO call at strike of 17,000 pts., at a net price of 2,850 pts; quantity of 500 standard contracts (block trade, since the min. size for blocks of MIBO is of 100 standard contracts)

For blocks of FTSE MIB option series, the tolerance band is currently set at best bid-ask spread plus/minus 10%.

Current Market:

Instrument	Side	Qty	Tolerance	Cont. Size	Tick	Bid	Ask	Last	Ref.
MIBO2I17000	Buy	500	10% (850.5–1,072.5)	2.5	5	945	975	975	980
MIBO2U17000	Buy	500	10% (1,480.5–1,848)	2.5	5	1,645	1,680	n/a	1.615

First step:
- The first leg MIBO2I17000 is assigned 960 (mid-point of bid-ask spread);
- The second leg MIBO2U17000 is assigned with the difference = 1,890 (2,850-960);
- The second leg price is outside of: i) the current bid-ask (max. is 1,680), and; ii) the tolerance band (max. is 1,848). The system stores the distance from the limit of the best bid-ask = 210 (1,890-1,680) and tolerance band = 42 (1,890-1,848).

Second step:

- The system pushes the price of the second leg at the first tick value inside the tolerance limit (1,845), since the max. (1,848) does not respect the tick table;
- It is not possible to increase the price of the first leg while remaining inside the current market (960+45=1,005 > 975), but;
- It is possible to increase the price of the first leg while remaining inside its tolerance band (960+45=1,005 < 1,072.5). So, price for MIBO2I17000 is adjusted to 1,005 (960+45).

So generated trades are:
- 1 contract MIBO2I17000, quantity 500 lots, @1,005
- 1 contract MIBO2U17000, quantity 500 lots, @1,845

The algorithm will be allowed to generate prices outside of the tick table on the first leg, if necessary to maintain coherence with the inserted net price.

In case of absence of a bid-ask spread for one of the legs of the strategy, the definition of the validation interval will be based on the last trade price; in case no trade is available for the current day, it will be based on the reference price.

3.2   Monitoring of the ATM

In order to enhance the information available to Market Makers (MM), two new different messages will be disseminated including information related to the ATM (At-the-Money) series of each option Instrument Group (Sail "MU" message) and the related underlying price (Sail "IX" message and).

Sail "IX" and ""MU" messages will be disseminated in correspondence of each update of the MM obligation surface, and at least twice a day.

The Sail "IX" ATM value message includes: -
- the identifier of Instrument Group (for each underlying of option contracts);
- the underlying price.

The Sail "MU" ATM series message includes: -
- the identifier of Instrument Group (for each underlying of option contracts);
- the identifier of at-the-money series (for each expiry).

4 SOLA 5: Protocols' changes

This chapter highlights the impacts of SOLA 5 new functionalities on the HSVF, SAIL and FIX protocols. The list of the protocol flows that will be subject to changes is reported below. For each flow, the names of the impacted message and the update type is provided.

Possible update types:
- **New value**: the format of the message has not changed, but new values are supported for a specific field;
- **Added field**: new field added to an existing message that will impact the length;
- **New message**: introduction of a new message.

Flow	Message Name	Update
HSVF	C – Option Trade CF – Futures Trade CS – Strategy Trade D – Option Request for Quote (RFQ) E – Instrument Schedule Notice Option F – Option Quote FF – Futures Quote FS – Strategy Quote H – Option Market Depth HF – Futures Market Depth HS – Strategy Market Depth I – Option Trade Cancellation IF – Futures Trade Cancellation IS – Strategy Trade J – Option Instrument Keys JF – Futures Instrument Keys JS – Strategy Instrument Keys N – Option Summary NF – Futures Summary NS – Strategy Summary	**New values** for the data type Price Fraction Indicator. Refer to paragraph 5.1
HSVF	JS – Strategy Instrument Keys	**Added fields**: Maximum/Minimum threshold Price Sign. **Added fields:** Strategy Pricing Refer to paragraph **Error! Reference source not found.**
HSVF	J – Option Instrument Keys JF – Futures Instrument Keys JS – Strategy Instrument Keys	**New values** supported for Currency field. Refer to paragraph 5.3

HSVF	RS – Connection Message	**New value** on HSVF Protocol Version. Refer to paragraph 5.4
SAIL	MU – ATM Monitoring	**New message.** Refer to paragraph 6.1
SAIL	IX – Underlying Price	**New message**. Refer to paragraph 6.2
FIX	Execution Report message (35=8)	**New values** for Error Codes. Refer to paragraph 7.1

5 HSVF Protocol

This chapter presents the updates introduced with the SOLA 5 Project.

For a complete definition of the data layout, please refer to the updated HSVF Market Data guide.

5.1 Data type Price Fraction Indicator

The field type Price Fraction Indicator has been modified to support Multipliers, impacting the fields:

- Strike Price Fraction Indicator
- Trade Price Fraction Indicator
- Net Change Fraction Indicator
- Bid Price Fraction Indicator
- Ask Price Fraction Indicator
- Minimum Threshold Price Fraction Indicator
- Maximum Threshold Price Fraction Indicator
- Tick Increment Fraction Indicator
- Tick Value Fraction Indicator
- Last Price Fraction Indicator
- Closing Price Fraction Indicator
- Settlement Price Fraction Indicator
- Open Price Fraction Indicator
- High Price Fraction Indicator
- Low Price Fraction Indicator

The Fraction/Multiplier Indicator Code will be one (1) Alphanumeric character as follows:

Code	Fraction/Multiplier	Change	Comment
0	1/1		
1	1/10		The number is divided by 10
2	1/100		The number is divided by 100
3	1/1,000		The number is divided by 1,000
4	1/10,000		The number is divided by 10,000
5	1/100,000		The number is divided by 100,000
6	1/1,000,000		The number is divided by 1,000,000
7	1/10,000,000		The number is divided by 10,000,000
8	1/100,000,000		The number is divided by 100,00,0000
9	1/1,000,000,000		The number is divided by 1,000,000,000
L	10	**New**	The number is multiplied by 10
M	100	**New**	The number is multiplied by 100
N	1,000	**New**	The number is multiplied by 1,000
O	10,000	**New**	The number is multiplied by 10,000
P	100,000	**New**	The number is multiplied by 100,000
Q	1,000,000	**New**	The number is multiplied by 1,000,000

5.2   Changes in Strategy message JS

The following fields will be added on the JS message:
- Maximum threshold Price Sign (before Maximum Threshold Price);
- Minimum threshold Price Sign (before Minimum Threshold Price);
- Strategy Pricing: indicate the pricing method for the strategy.

The length of the JS message changes from 143 bytes to 146 bytes.

5.3   Currency Code

The current currency codes will be extended. The supported 24 currencies are listed below:

Marker	Description	Change
USD	US $	
CAD	Canadian $	
GBP	Pound Sterling	
GBX	Penny Sterling	
CHF	Swiss Franc	
EUR	Euro	
JPY	Yen	
SEK	Swedish Krona	
NOK	Norwegian Krone	
DKK	Danish Krone	
AUD	Australian Dollar	**New**
BRL	Brazilian Real	**New**
CNY	Chinese Yuan Renminbi	**New**
CZK	Czech Krone	**New**
HKD	Hong Kong Dollar	**New**
HUF	Hungarian Forint	**New**
INR	Indian Rupee	**New**
MYR	Malaysian Ringgit	**New**
PLN	Polish Zloty	**New**
RON	New Romanian Leu	**New**
RUB	Russian Ruble	**New**
SGD	Singapore Dollar	**New**
TRY	New Turkish Lira	**New**
ZAR	South African Rand	**New**
AAA	Not assigned (spare)	**New**
BBB	Not assigned (spare)	**New**

5.4   HSVF Protocol Version

The new value supported for the field HSVF Protocol Version will be E4.

It will be supported only protocol E4 (LSE SOLA version E4) that is not backwards compatible with previous versions.

6 SAIL Protocol

This chapter presents the updates on the SAIL Protocol A3 introduced with the SOLA 5 Project.

For a complete definition of the data layout, please refer to the updated Sail Specification guide.

6.1   Message MU: Monitoring ATM Series

This message is used to send participants the updates on ATM series. The layout of the new message "MU" is as follows:

Field Name		Field Type
SAIL Message Header		
Group		Group ID
Filler		SailBlankFiller2
Number of instruments		Numeric (4)
1 to 200 occurrences	Instrument	Instrument ID

6.2   Message IX: Underlying Price

This message is used to send to the participants the updates on Underlying Price used to calculate the ATM series. The layout of the new message IX is as follows:

Field Name	Field Type
SAIL Message Header	
Group	Group ID
Sail Underlying Price Type	Underlying Price Type
Filler	String (1)
Underlying Price	Price

7 FIX Protocol

This chapter presents the updates on the FIX Protocol 4.2 introduced with the SOLA 5 Project.

7.1   New error codes

A new Error Code will be returned with an Execution Report message (35=8) in case a Participant sends a New Single Order message (35=D) related to an unauthorised Instrument Group (Code 1110) or with an unauthorised account type (Code 1111).

Fix Message	Message Received	Error Code
35=8	Participant not authorized for this Group	1110
35=8	Participant not authorized for this Account Type	1111