
Technical Specifications

January 2017

SOLA 8 to SOLA 9.2 Message Impacts



London
Stock Exchange Group

Technical Specifications

January 2017

1.0 Document History

Version	Date	Change Description
1.0	January 2016	First Draft



Technical Specifications

3 June 2015

2.0 Introduction

2.1 System Overview

In H1 2017 a new version of SOLA Platform known as V9.2 will be introduced. This version includes functionality for the Pre-Trade Risk Management and Pre-Trade Validations both referring to the opportunity to control trading activity before an order or quote is routed to the Exchange. The functionalities included in this new SOLA[®] release extend and generalize the existing Pre-Trade Validation functionalities to make the platform suitable for a wider range of markets.

2.2 Purpose and Scope

The scope of this document is to detail the SOLA platform requirements for the Interest Rate products and the Pre-Trade Validation projects for IDEM, as well as the SAIL and FIX protocol impacts.

- Adding timestamp to HSVF Protocol
- Fix Drop Copy
- Exchange For Physical Trade Marker (not significant for IDEM)
- Pre Trade Validation

Technical Specifications

3 June 2015

2.3 Definitions

Acronyms, systems and special terms used in this document are defined in the following table.

Term	Description
BPS	Best Price Setter
MSG	Message
NPFT	Non Price Forming Trade
MMP	Market Maker Protection
PTRM	Pre-Trade Risk Management
PTV	Pre-Trade Validations
SEP	Self Execution Prevention

Technical Specifications

3 June 2015

2.4 References

List all the documents and other materials referenced in this document.

Name	Version	Description
RTF AE Protocol Specification Guide		SAIL Protocol Impacts
HSVF Market Data		HSVF Protocol Impacts
FIX 4.2 Specification		FIX Protocol Impacts

Technical Specifications

3 June 2015

3.0 What's new

This chapter highlights the new functionalities released by implementing the project named "SOLA 9".

3.1 Adding timestamp to HSVF Protocol

The High Speed Vendor Feed (HSVF) market data feed will include time-stamps for all market update messages. The requirement is that events need to be recorded, and messages disseminated, with time-stamps at least with millisecond granularity (ideally to the nearest millisecond).

3.2 Fix Drop Copy

It should be possible for all third party application developers to get access to the Drop Copy service via the application programming interface of their choice. This entails extending the existing Drop Copy access to include a FIX interface (including current SAIL Drop Copy native messages subscribed).

3.3 Exchange For Physical Trade Marker

A process for manual registration of Exchange For Physical (EFP) trades will be in place with the following characteristics:

- Trades will be inserted from Config Manager and MOC transactions with a dedicated Exchange for Physical marker
- Trade will be disseminated via HSVF at the moment of creation of the trade (WT) as it is today. It is a requirement that a dedicated marker for Exchange for Physical is disseminated.
- Trades will be disseminated via all internal and external protocols with a dedicated trader marker E: Exchange for Physical
- Quantities can be below or above configured BTF minimum quantity.
- Prices can be outside spread.
- EFP trades will impact only volume statistics.

3.4 Pre Trade Validation

The functionality provides a means for Risk Managers to impose maximum position and limits on the trading participants (i.e. Trader IDs or if possible a group of Trader IDs) for which they are responsible.

Technical Specifications

3 June 2015

Every time a participant's order book or traded position changes, their current position and exposure is recalculated and this, together with the limits set, will determine the maximum size allowed for an order or quote. Every time a participant submits a new or revised order or quote, it is checked against this "maximum size allowed" limit and be rejected if it exceeds it.

Every order (every quote) goes through the Pre-Trade Risk Checks and each one has to be completely processed through these checks before a new order for the same underlying can be evaluated and accepted/rejected by the system. In other words, the exposure calculation is completed for the previous order before a new order for the same underlying can be accepted/rejected.

3.5 Best Price Setter Identification

It will be possible to active Best Price Setter functionality per product. The Best Price Setter (BPS) indicates to the Participant that the entered order is the prevailing best price in the market at Continuous Trading phase. It is applicable for both Orders and Quotes.

The status of BPS persists with the order even if a new best price order is entered. There is a maximum of one BPS order at each price level and if a BPS order is pulled the status is lost for that price level (it is not transferred to another order).

Technical Specifications

3 June 2015

4.0 Message Impacts

In order to introduce the new functionalities, enhancements to the existing version of SOLA protocols will be implemented in the new SOLA 9.2 software release. New protocol versions will be created that impact all the downstream systems:

- SAIL to protocol version A5
- HSVF to protocol version E6

4.1 Protocol messages

- Protocol: Name of the SOLA Protocol.
- Msg Type: identifier of the modified/added message. 'All' when all messages from the protocol are impacted.
- Flow:
 - Incoming: message sent to the Exchange
 - Outgoing: message sent by the Exchange
 - Internal: communication message within internal gateways
- Nature of change: description of impacts on the message and field modifications.

Protocol	Msg Type	Message Name	Flow	Nature of change
HSVF	All	All	Incoming/Outgoing	Modified message: Added Time field in Message Header Support for different Timezones in Time field
	C	Option Trade	Outgoing	Modified message: Extended values for field Price Indicator Marker
	CF	Futures Trade	Outgoing	Modified message: Extended values for field Price Indicator Marker
	CS	Strategy Trade	Outgoing	Modified message:

Technical Specifications

3 June 2015

Protocol	Msg Type	Message Name	Flow	Nature of change
				Extended values for field Price Indicator Marker
	I	Option Trade Cancellation	Outgoing	Modified message: Extended values for field Price Indicator Marker
	IF	Futures Trade Cancellation	Outgoing	Modified message: Extended values for field Price Indicator Marker
	RS	Connection Message	Incoming	Modified message: New value for field HSVF Protocol Version
Sail	All	All	Incoming/Outgoing	Modified message: Support for different Timezones in Time field
	BP	Best Price Setter Notice	Outgoing	New message: New field type Best Price Setter
	ER	Error Notice	Outgoing	Modified field New values for <i>Error Code</i>
	KB	Proposal Acknowledgment	Outgoing	Modified field New values for <i>Order Status</i>
	KE	Order Acknowledgment	Outgoing	Modified field New values for <i>Status</i>
	KM	Order Modification Acknowledgment	Outgoing	Modified field New values for <i>Status</i>
	KZ	Order Cancellation Acknowledgment	Outgoing	Modified field New values for <i>Status</i>
	LA	Bulk Command Acknowledge	Outgoing	Modified field New values for <i>Error Code</i>
	LB	Bulk Command Message Acknowledge	Outgoing	New message New values for <i>Error Code</i>
	MK	Risk Limits Configuration	Incoming	New message New field type <i>Short Trader ID</i>
	MQ	MMP Parameters Configuration	Incoming	New message
	MN	Risk Limits Usage Notice	Outgoing	New message New field type <i>Short Trader ID</i> New field type <i>Risk Limit Type</i>
	NL	Leg Execution Notice	Outgoing	Modified message:

Technical Specifications

3 June 2015

Protocol	Msg Type	Message Name	Flow	Nature of change
				Extended values for Special Trade Indicator
	NQ	MMP Parameters Update Notice	Outgoing	New message
	NT	Execution Notice	Outgoing	Modified message: Extended values for Special Trade Indicator
	NZ	Order Cancellation Notice (by system)	Outgoing	Modified field New values for <i>Status</i>
	PN	Proposal Notice	Outgoing	Modified field New values for <i>Order Status</i>
	PU	Proposal Update	Outgoing	Modified field New values for <i>Order Status</i>
	RT	Risk Master Switch	Incoming	New message New field type <i>Short Trader ID</i>
	TC	User Connection	Incoming	Modified message: New value for Protocol Version field
	TE	Technical Error Notice	Outgoing	Modified field New values for <i>Error Code</i>
	TH	Heartbeat (Outbound)	Outgoing	Modified message: New value for Protocol Version field
	TI	Heartbeat (Inbound)	Incoming	Modified message: New value for Protocol Version field
	TO	Out of Sequence	Outgoing	Modified message: New value for Protocol Version field
	TT	End of Transmission	Outgoing	Modified message: New value for Protocol Version field
Fix	35 = 8	Execution Report	Outgoing	Modified message: New TAG [BestPriceSetter 16455] in Execution Report [MsgType 35 = 8] Extended values for TAG [SpecialTradeInd 9459] in Execution Report [MsgType 35 = 8] New Values for TAG [OrdStatus 39]
	35 = 9	Order Cancel Reject	Outgoing	Modified tag New Values for TAG [OrdStatus 39]

Technical Specifications

3 June 2015

Protocol	Msg Type	Message Name	Flow	Nature of change
Fix DC	35 = A	Logon	Incoming/Outgoing	New FIX Drop Copy Gateway: Administrative messages available
	35 = 0	Heartbeat	Incoming/Outgoing	New FIX Drop Copy Gateway: Administrative messages available
	35 = 1	Test Request	Incoming	New FIX Drop Copy Gateway: Administrative messages available
	35 = 2	Resend Request	Incoming	New FIX Drop Copy Gateway: Administrative messages available
	35 = 3	FIX Protocol Error / Reject	Outgoing	New FIX Drop Copy Gateway: Administrative messages available
	35 = 4	Sequence Reset	Incoming	New FIX Drop Copy Gateway: Administrative messages available
	35 = 5	Logout	Incoming/Outgoing	New FIX Drop Copy Gateway: Administrative messages available
	35 = 8	Execution Report	Outgoing	New FIX Drop Copy Gateway: Drop Copy user to receive a copy of all order acknowledgements and trade notifications ([MsgType 35 = 8]) that belong to the member New Values for TAG [OrdStatus 39]

