



OSLO BØRS

OSLO STOCK EXCHANGE

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SOLA Production and Test Connections

Issue 3.1

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Important note

This document has been produced by Oslo Børs to assist customers in the use of the SOLA platform on the Oslo Børs market place. Part of the documentation is based on documentation from the London Stock Exchange Group. For more details, please see references in the appendix.

If you have any general queries relating to this document, please email: technicalsupport@oslobors.no

Further copies of this document can also be downloaded from the Oslo Børs website at the following link: http://www.oslobors.no/ob_eng/Oslo-Boers/Trading/Trading-systems/SOLA

Disclaimer

This document has been prepared on the basis of the best information available. Oslo Børs has taken reasonable efforts to ensure that the information in this publication is correct at the time of publication, but shall not be liable for decisions made in reliance on it. Oslo Børs will seek to provide notice to customers of changes being made to this document, but this notice cannot be guaranteed. Therefore, please note that this publication may be updated at any time. The information contained is therefore for guidance only. This document does not form part of the contractual documentation between the Oslo Børs and its customers.

Change log

This document can be updated at any time, and has been through the following iterations:

Issue	Date	Description
1.0	01 December 2012	Initial document release
2.0	16 November 2015	Sola 8. New IP-range SDC
3.0	29 May 2018	New legacy test environment
3.1	03 December 2018	Updated server list with additional SAIL servers.

1 INTRODUCTION

The purpose of this publication is to provide participants with the knowledge and technical details necessary for accessing the Oslo Børs derivatives trading system SOLA, hosted by London Stock Exchange.

The SOLA platform utilises a standard FIX 4.2 (Financial Information eXchange) interface for order entry & execution.

Participants who intend to be Market Makers must use the native SOLA Access Information Language (SAIL) protocol for quoting and order entry & execution. Market data is disseminated via HSVF (High-Speed Vendor Feed) protocol using TCP

1.1 PURPOSE

The purpose of this document is to provide participants with information on how to connect to the SOLA derivatives platform for both the test Customer Development Service and the production service.

1.2 ENQUIRES

Contact Operations for Oslo Børs for any functional queries regarding the services outlined in this document. Operations can be contacted Monday to Friday between 07:30 CET and 18:00 CET:

Telephone: +47 22 34 19 90

Email: technicalsupport@oslobors.no

2 CONNECTIVITY OVERVIEW

2.1 CONNECTIVITY PROTOCOL

SOLA uses TCP/IP (Transmission Control Protocol/Internet Protocol) for network connectivity. All FIX and native SAIL interface messages are transported using TCP. All data sent by the HSVF interface is broadcast via TCP unicast. Oslo Børs and London Stock Exchange only supports IPv4.

2.2 SERVICES

SOLA provides a gateway to enter orders and receive market data.

Sail Trading Gateway

The SAIL trading gateway provides a native low-latency trading interface which allows participants to send and manage orders on the trading system. The SAIL protocol in addition provides market-marking functionality via quoting messaging. The interface enables clients to perform the following activities:

- Submit an order
- Cancel an order
- Mass Cancel orders
- Cancel/Replace an order
- Market-Making

The SAIL trading gateway uses a proprietary interface referred to as the native interface.

FIX Trading Gateway

The FIX 4.2 trading gateway allows participants to send and manage orders on the trading system. The interface enables clients to perform the activities outlined below.

- Submit an order
- Cancel an order
- Mass Cancel orders
- Cancel/Replace an order

The entry of quotes for market-making is not supported by the FIX trading gateway. The FIX trading gateway uses the FIX 4.2 protocol.

Market Data Gateway

The HSVF market data feed is comprised of trades, quotes, market depth, strategies, bulletins, summaries and statistics. The HSVF market data feed uses a TCP/IP broadcast interface. Each message type is fixed in format and messages are non-blocked (i.e. London Stock Exchange does not wait for an acknowledgement before sending the following message) re-transmission of any data is available.

HSVF messages consist of a standard message header followed by the message body which varies in format according to the message type. Messages transmitted by HSVF include:

- Trades
- Request for Quotes
- Quotes
- Market Depth
- Trade Cancellation
- Instrument Keys
- Instrument Summaries
- Administration messages including connection and “heartbeat” etc

2.3 ARCHITECTURE

The SOLA derivatives platform consists of the following gateways:

- A single endpoint (IP address and port) interface for FIX trading.
- A single endpoint interface for SAIL trading & market-making.
- A single endpoint interface for HSVF market data services.

Each FIX, SAIL and HSVF endpoint is supplemented with a secondary standby which is invoked during a failover in the event of an issue occurring with the primary. The endpoints (IP addresses and ports) of the secondary standby interfaces are equivalent to those of primaries.

An equivalent configuration of primary and secondary standby interfaces are present at a secondary datacenter which is invoked in the event of a disaster recovery situation. The endpoints (IP addresses and ports) of the secondary disaster recovery datacenter site are equivalent to those of the interfaces located at the primary datacenter site.

2.4 DISASTER RECOVERY

London Stock Exchange operates in cold standby mode. In the event of total loss of the primary site datacenter, London Stock Exchange activates the disaster recovery site. This procedure is expected to elapse in the order of 2 hours.

Once the disaster recovery site is active, all intraday orders are cleared and the trading system re-started. Prior Good Till Date orders submitted from previous days are re-instated.

The endpoints (IP addresses and ports) of the disaster recovery datacenter site are equivalent to those of the interfaces located at the primary datacenter site.

3 SOLA PRODUCTION LIVE CONNECTIVITY

Oslo HSVF Client			
Service	Channel	IP Address	Port
OSLO HSVF	Primary	194.169.13.146	62301
OSLO HSVF	Secondary	194.169.13.152	62301

LSE HSVF Client			
Service	Channel	IP Address	Port
LSE HSVF	Primary	194.169.14.146	62300
LSE HSVF	Secondary	194.169.14.152	62300

Oslo SAIL Client			
Service	Channel	IP Address	Port
OSLO SAIL 01	Primary	194.169.13.130	61301
OSLO SAIL 02	Primary	194.169.13.130	61303
OSLO SAIL 01	Secondary	194.169.13.148	61301
OSLO SAIL 02	Secondary	194.169.13.148	61303
OSLO SAIL (Drop Copy)	Primary	194.169.13.130	61306
OSLO SAIL (Drop Copy)	Secondary	194.169.13.148	61306

LSE SAIL Client			
Service	Channel	IP Address	Port
LSE SAIL 01	Primary	194.169.14.130	61300
LSE SAIL 02	Primary	194.169.14.130	61302
LSE SAIL 01	Secondary	194.169.14.148	61300
LSE SAIL 02	Secondary	194.169.14.148	61302
LSE SAIL (Drop Copy)	Primary	194.169.14.130	61305
LSE SAIL (Drop Copy)	Secondary	194.169.14.148	61305

Oslo FIX Client			
Service	Channel	IP Address	Port
OSLO FIX	Primary	194.169.13.132	61351
OSLO FIX	Secondary	194.169.13.150	61351

LSE FIX Client			
Service	Channel	IP Address	Port
LSE FIX	Primary	194.169.14.132	61350
LSE FIX	Secondary	194.169.14.150	61350

4 SOLA CDS TEST/UAT CONNECTIVITY

Oslo HSVF Client		
Channel	IP Address	Port
LSE HSVF	194.169.14.166	52300
OSLO HSVF	194.169.13.166	52301

Oslo SAIL Client		
Channel	IP Address	Port
LSE SAIL	194.169.14.162	51300
OSLO SAIL	194.169.13.162	51301
OSLO SAIL (Drop Copy)	194.169.13.162	51306

Oslo FIX Client		
Channel	IP Address	Port
LSE FIX	194.169.14.164	51350
OSLO FIX	194.169.13.164	51351

5 SOLA OSLO LEGACY CDS

Legacy CDS is always the same version as Production.

Oslo HSVF Client		
Channel	IP Address	Port
OSLO HSVF	94.46.104.138	52301

Oslo SAIL Client		
Channel	IP Address	Port
OSLO SAIL 01	94.46.104.130	51301
OSLO SAIL 02	94.46.104.130	51303
OSLO SAIL (Drop Copy)	94.46.104.130	51306

Oslo FIX Client		
Channel	IP Address	Port
OSLO FIX	94.46.104.130	51351
OSLO FIX (Drop Copy)	94.46.104.130	51353



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