



London
Stock Exchange

London Stock Exchange Derivatives Market

LSEDM102 - Connectivity Guide

Issue 4.4

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London
Stock Exchange Group

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1.0 Introduction

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

The London Stock Exchange derivatives platform utilises a standard FIX 4.2 (Financial Information eXchange) interface for order entry & execution.

Participants can also use the native SOLA Access Information Language (SAIL) protocol for 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 London Stock Exchange derivatives platform for both the test Customer Development Service and the production service.

1.2 Readership

This document is a supporting document to the interface technical specifications. When read in conjunction with the other technical specifications, these documents provide all of the details London Stock Exchange participants require to obtain access to the derivatives trading system.

This document is particularly relevant to project and technical staff within member firms and companies that provide London Stock Exchange related services to member and non-member firms.

1.3 Document Series

This document is part of series of documents providing a holistic view of full trading and information services available from London Stock Exchange for derivatives trading.

For reference the full range of documents is outlined below:

- LSEDM102 – Connectivity Guide (this document)
- LSEDM200 – FIX 4.2 Business Design Guide
- LSEDM201 – FIX 4.2 Technical Specification
- LSEDM300 – SAIL Business Design Guide
- LSEDM301 – SAIL Technical Specification
- LSEDM401 – HSVF Market Data Specification
- LSEDM601 – Guide to Certification FIX
- LSEDM602 – Guide to Certification SAIL

1.4 Document History

Issue	Date	Description
1.0	30 September 2013	First issue of this document published.

2.0	14 December 2015	Updated with SOLA 8 Production SDC IP addresses for LSEDM and OB. Added details of new PDC SAIL gateway for LSEDM and OB.
3.0	16 December 2015	3.1.1 - Added CDS Trading IP addresses for LSEDM Interest Rate Derivative products 3.1.2 – Added CDS HSVF IP addresses for LSEDM Interest Rate Derivative products 3.2.1 – Added production trading IP addresses for LSEDM Interest Rate Derivatives products 3.2.2 – Added production HSVF IP addresses for LSEDM Interest Rate Derivatives products
4.0	08 June 2016	3.1.1.1 – Changed port number for CDS BCS Clearing from 34900 to 35900
4.1	6 September 2016	3.2.1 – Changed port number and IP address for Production BCS Clearing for both London Stock Exchange and Oslo
4.2	31 August 2017	New BTS® platform – updated IPs and TCP ports
4.3	15 January 2018	3.2.1 - Added new SAIL Trading 03 and 04 gateways
4.4	3 April 2018	3.2 Added new Legacy CDS details

Within this document, where amendments have been made to the previous version, these changes will be identified using a series of side bars as illustrated opposite.

1.5 Enquires

Contact Technical Account Management at London Stock Exchange for any functional queries regarding the services outlined in this document. Technical Account Management can be contacted Monday to Friday between 07:30 UK and 18:00 UK:

Telephone: +44 (0)20 7797 3939

Email: londontam@lseg.com

2.0 Connectivity Overview

2.1 Connectivity Protocol

London Stock Exchange 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. London Stock Exchange only supports IPv4.

2.2 Services

London Stock Exchange provides a gateway to enter orders and receive market data.

2.2.1 SAIL Trading Gateway

The SAIL trading gateways provide 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.

2.2.2 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.

2.2.3 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

2.2.4 BTS[®] and BCS Applications

The Borsa Italiana Systems (BlItS) Trading Station (BTS[®]) Service allows access to London Stock Exchange derivatives trading services. In addition, it is also used to access all other London Stock Exchange Group cash, fixed income and derivatives markets.

The BltS Clearing Station (BCS) allows access to London Stock Exchange derivatives clearing services provided on CC&G technology.

The applications enable access through a client-server trading software application and through a FIX 4.2 gateway. The server layer is located at the London Stock Exchange derivatives data centre that is connected directly to the markets. The client application runs on the member's own computers. The client application is an advanced multi-market trading application, compatible with a majority of Windows and Linux based operating systems.

2.3 Connection Options

Participants are able to connect to the London Stock Exchange derivatives platform via London Stock Exchange Extranet, CMC, co-location hosting or VPN connectivity. London Stock Exchange also supports third-party leased-line connectivity.

2.4 Architecture

The London Stock Exchange 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.
- Two endpoint interfaces each are provided for BTS[®] trading and BCS post-trade services respectively.

Each FIX, SAIL, HSVF and BTS[®] & BCS endpoint is supplemented with a secondary standby which is invoked during a failover in the event of an issue occurring with the primary.

2.5 Disaster Recovery

London Stock Exchange operates in cold standby mode. In the event of total loss of the primary site datacentre, 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.

3.0 Connectivity

3.1 Customer Development Service (CDS) Test Platform

3.1.1 CDS Trading Services

LONDON STOCK EXCHANGE Equity Derivatives

Service	IP Address	TCP Port
FIX Trading	194.169.14.164	51350
SAIL Trading	194.169.14.162	51300
SAIL Drop Copy	194.169.14.162	51305
FIX Drop Copy	194.169.14.164	51352
BTS [®] Trading	194.169.14.168	34900 (UDP 13)
BTS [®] Trading	194.169.14.172	34900; 34910; 34921; 34924
BCS Clearing	194.169.14.170	35900

LONDON STOCK EXCHANGE Interest Rate Derivatives

Service	IP Address	TCP Port
FIX Trading 01	194.169.14.163	51460
FIX Trading 02	194.169.14.163	51470
FIX Drop Copy 01	194.169.14.163	51480
FIX Drop Copy 02	194.169.14.163	51490
SAIL Trading 01	194.169.14.161	51401
SAIL Trading 02	194.169.14.161	51402
SAIL Trading 03	194.169.14.161	51403
SAIL Trading 04	194.169.14.161	51404
SAIL Drop Copy 01	194.169.14.161	51415
SAIL Drop Copy 02	194.169.14.161	51425

OSLO BORS

Service	IP Address	TCP Port
FIX Trading	194.169.13.164	51351
SAIL Trading	194.169.13.162	51301
SAIL Drop Copy	194.169.13.162	51306
BTS [®] Trading	194.169.13.168	34900 (UDP 13)
BTS [®] Trading	194.168.13.172	34900; 34910; 34921; 34924
BCS Clearing	194.169.13.170	35900

3.1.2 CDS Information Services

LONDON STOCK EXCHANGE Equity Derivatives

Service	IP Address	TCP Port
HSVF Market Data	194.169.14.166	52300

LONDON STOCK EXCHANGE Interest Rate Derivatives

Service	IP Address	TCP Port
HSVF Market Data	194.169.14.165	52410

OSLO BORS

Service	IP Address	TCP Port
HSVF Market Data	194.169.13.166	52301

3.2 Legacy Customer Development Service Test Platform

3.2.1 Legacy CDS Trading

LONDON STOCK EXCHANGE Equity Derivatives

Service	IP Address	TCP Port
FIX Trading	94.46.104.129	51350
FIX Drop Copy	94.46.104.129	51352
SAIL Trading 01	94.46.104.129	51300
SAIL Trading)2	94.46.104.129	51302
SAIL Drop Copy	94.46.104.129	51305

LONDON STOCK EXCHANGE Interest Rate Derivatives

Service	IP Address	TCP Port
FIX Trading 01	94.46.104.134	51460
FIX Trading 02	94.46.104.134	51470
FIX Drop Copy 01	94.46.104.134	51480
FIX Drop Copy 02	94.46.104.134	51490
SAIL Trading 01	94.46.104.133	51401
SAIL Trading 02	94.46.104.133	51402
SAIL Trading 03	94.46.104.133	51403
SAIL Trading 04	94.46.104.133	51404
SAIL Drop Copy 01	94.46.104.133	51415
SAIL Drop Copy 02	94.46.104.133	51425

OSLO BORS

Service	IP Address	TCP Port
FIX Trading	94.46.104.130	51351
FIX Drop Copy	94.46.104.130	51353
SAIL Trading 01	94.46.104.130	51301
SAIL Trading 02	94.46.104.130	51303
SAIL Drop Copy	94.46.104.130	51306

3.2.2 Legacy CDS Information Services

LONDON STOCK EXCHANGE Equity Derivatives

Service	IP Address	TCP Port
HSVF Market Data	94.46.104.137	52300

LONDON STOCK EXCHANGE Interest Rate Derivatives

Service	IP Address	TCP Port
HSVF Market Data	94.46.104.143	52410

OSLO BORS

Service	IP Address	TCP Port
HSVF Market Data	94.46.104.138	52301

3.3 Production Platform

3.2.1 Production Trading Services

LONDON STOCK EXCHANGE Equity Derivatives

Service	Channel	IP Address	TCP Port
FIX Trading	Primary	194.169.14.132	61350
SAIL Trading 01	Primary	194.169.14.130	61300
SAIL Trading 02	Primary	194.169.14.130	61302
SAIL Drop Copy	Primary	194.169.14.130	61305
FIX Drop Copy	Primary	194.169.14.132	61352
FIX Trading	Secondary	194.169.14.150	61350
SAIL Trading 01	Secondary	194.169.14.148	61300
SAIL Trading 02	Secondary	194.169.14.148	61302
SAIL Drop Copy	Secondary	194.169.14.148	61305
FIX Drop Copy	Secondary	194.169.14.150	61352
BTS [®] Trading 01	Primary / Secondary	194.169.14.134	34900 (UDP 13)
BTS [®] Trading 02	Primary / Secondary	194.169.14.135	34900 (UDP 13)
BTS [®] Trading 01	Primary	194.169.14.138	44900;44910;44921;44924
BTS [®] Trading 02	Primary	194.169.14.139	44900;44910;44921;44924
BTS [®] Trading 01	Secondary	194.169.15.138	44900;44910;44921;44924
BTS [®] Trading 02	Secondary	194.169.15.139	44900;44910;44921;44924
BCS Clearing 01	Primary	194.169.14.142 194.169.14.143	35900
BCS Clearing 02	Secondary (DR situation only)	194.169.14.140 194.169.14.141	35900

LONDON STOCK EXCHANGE Interest Rate Derivatives

Service	Channel	IP Address	TCP Port
FIX Trading 01	Primary	194.169.14.133	61460
FIX Trading 02	Primary	194.169.14.133	61470
FIX Drop Copy 01	Primary	194.169.14.133	61480

LONDON STOCK EXCHANGE Interest Rate Derivatives

FIX Drop Copy 02	Primary	194.169.14.133	61490
SAIL Trading 01	Primary	194.169.14.131	61401
SAIL Trading 02	Primary	194.169.14.131	61402
SAIL Trading 03	Primary	194.169.14.131	61403
SAIL Trading 04	Primary	194.169.14.131	61404
SAIL Drop Copy 01	Primary	194.169.14.131	61415
SAIL Drop Copy 02	Primary	194.169.14.131	61425
FIX Trading 01	Secondary	194.169.14.151	61460
FIX Trading 02	Secondary	194.169.14.151	61470
FIX Drop Copy 01	Secondary	194.169.14.151	61480
FIX Drop Copy 02	Secondary	194.169.14.151	61490
SAIL Trading 01	Secondary	194.169.14.149	61401
SAIL Trading 02	Secondary	194.169.14.149	61402
SAIL Trading 03	Secondary	194.169.14.149	61403
SAIL Trading 04	Secondary	194.169.14.149	61404
SAIL Drop Copy 01	Secondary	194.169.14.149	61415
SAIL Drop Copy 02	Secondary	194.169.14.149	61425
BTS [®] Trading 01	Primary	194.169.14.138	44900;44910;44921;44924
BTS [®] Trading 02	Primary	194.169.14.139	44900;44910;44921;44924
BTS [®] Trading 01	Secondary	194.169.15.138	44900;44910;44921;44924
BTS [®] Trading 02	Secondary	194.169.15.139	44900;44910;44921;44924

OSLO BORS

Service	Channel	IP Address	TCP Port
FIX Trading	Primary	194.169.13.132	61351
SAIL Trading 01	Primary	194.169.13.130	61301
SAIL Trading 02	Primary	194.169.13.130	61303
SAIL Drop Copy	Primary	194.169.13.130	61306
FIX Trading	Secondary	194.169.13.150	61351
SAIL Trading 01	Secondary	194.169.13.148	61301
SAIL Trading 02	Secondary	194.169.13.148	61303
SAIL Drop Copy	Secondary	194.169.13.148	61306

OSLO BORS

BTS Trading 01	Primary / Secondary	194.169.13.134	34900 (UDP 13)
BTS Trading 02	Primary / Secondary	194.169.13.135	34900 (UDP 13)
BTS [®] Trading 01	Primary	194.169.14.138	44900;44910;44921;44924
BTS [®] Trading 02	Primary	194.169.14.139	44900;44910;44921;44924
BTS [®] Trading 01	Secondary	194.169.15.138	44900;44910;44921;44924
BTS [®] Trading 02	Secondary	194.169.15.139	44900;44910;44921;44924
BCS Clearing 01	Primary	194.169.13.142 194.169.13.143	35900
BCS Clearing 02	Secondary (DR situation only)	194.169.13.140 194.169.13.141	35900

3.2.2 Production Information Services

LONDON STOCK EXCHANGE Equity Derivatives

Service	Channel	IP Address	TCP Port
HSVF Market Data	Primary	194.169.14.146	62300
HSVF Market Data	Secondary	194.169.14.152	62300

LONDON STOCK EXCHANGE Interest Rate Derivatives

Service	Channel	IP Address	TCP Port
HSVF Market Data	Primary	194.169.14.145	62410
HSVF Market Data	Secondary	194.169.14.153	62410

OSLO BORS

Service	Channel	IP Address	TCP Port
HSVF Market Data	Primary	194.169.13.146	62301
HSVF Market Data	Secondary	194.169.13.152	62301

3.4 Enablement Process

Requests to be connected to the London Stock Exchange derivatives platform are required to be directed to your Technical Account Manager on + 44 (0) 20 7797 3939 or londontam@lseg.com

Participants are required to specify the following information:

3.3.1 CDS (Customer Development Service) Test Platform

- Company
- London Stock Exchange SAP
- Primary and secondary contact (name, email, telephone)
- Services required (FIX, SAIL, SAIL DROP COPY, HSVF, BTS[®], BCS)

3.3.2 Production Platform

- Company
- London Stock Exchange SAP
- Primary and secondary contact (name, email, telephone)
- Services required (FIX, SAIL, SAIL DROP COPY, HSVF, BTS[®], BCS)



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London Stock Exchange

10 Paternoster Square

London EC4M 7LS

Telephone: +44 (0) 20 7797 1000

www.lseg.com



London
Stock Exchange