

Connectivity Overview

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LLMAX™
EXCHANGE



LMAX Exchange Connectivity Overview

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Purpose

This document is aimed at a technical audience and provides an overview of the various connectivity options available to connect to LMAX Exchange.

Definitions

Application Programming Interface (API)

An API is a set of routines, protocols and tools. A good API makes it easier to develop software by providing the building blocks which are then put together by the members developer.

Cross connect

A length of cable ordered through the data center provider that enables interconnectivity within that data center. This connection is a point-to-point link that connects two parties directly together.

Extranet

A third party that provides many-to-many connectivity, such as connections to trading venues, brokers, and information providers.

Financial Information eXchange (FIX)

FIX has become the defacto protocol of the global financial markets. This non-proprietary, free and open standard is used to complete millions of transactions every day. The FIX 4.4 version contains fields for trade reports which are not present in version 4.2. Both protocol versions are used by LMAX trading venues.

LMAX Proximity, Proximity, LMAX Network

The access network to the LMAX Exchanges and Product set at any or all geographic locations to which the member may have been granted access. The demarcation point is the LMAX interface which terminates the members cross connect, or their Service Providers cross connect.

Member, Trading Participant, End User

The party or parties which hold LMAX Exchange accounts, irrespective of the method used to connect to the LMAX Network, and irrespective of whether they use the connection for trading or solely to access other services.

Service Provider

Any third party who provides services to the End User, for example Extranets, Co-location Providers, Network Service Providers

Contact

Please send an email to neteng@lmax.com should you require assistance. The LMAX Network team are based in the United Kingdom and work from 09:00 to 18:00 and will work alongside you to find a suitable solution that meets your requirements.



Access Methods

The Internet

Messages are transferred between LMAX and the member via the FIX or HTTP protocol, running over an SSL (Secure Sockets Layer) TCP/IP connection.

For One-click trading, LMAX offers a trading UI as well as the following methods:

- **Metatrader4 (MT4)** hosted by PrimeXM.
- **Multicharts**

For automated trading strategies, LMAX offers the following access methods.

- **API:** Message formats include XML/JSON and members can develop their own wrapper or use the customisable .NET and Java Client Libraries supplied by LMAX to simplify the integration.
- **FIX protocol:** The member must have an assigned LMAX Username/CompID and Password combination. FIX connections to the LMAX MTF uses version 4.2 and connections to the LMAX Broker uses version 4.4.

Connectivity via Internet VPN is available, however this is limited to the User Acceptance Test (UAT) Environment.

LMAX Proximity

LMAX Proximity is a resilient low latency private IP network managed by LMAX that enables direct cross-connects within specific data centres to connect to the LMAX Exchange and is aimed towards automated trading. Members should co-locate their equipment within the same data centre to achieve the lowest latency possible. Encryption of data in transit is not required.

- **API:** Message formats include XML/JSON and members can develop their own wrapper or use the customisable .NET and Java Client Libraries supplied by LMAX to simplify the integration.
- **FIX protocol:** The member must have an assigned LMAX Username/CompID and Password combination. FIX connections to the LMAX MTF use version 4.2 and connections to the LMAX Broker use version 4.4.

In addition, all major Extranet and Service Providers are connected to LMAX Proximity which offer members a choice of managed services such as hosting and connectivity. LMAX Exchange employs a neutral policy in regards to onboarding service providers, but does require the *LMAX Proximity Service Provider Agreement* to be completed.

Note

Multicast market data using the ITCH protocol is only available to clients who connect to LMAX Proximity. Within the same data center, an *A Feed* and *B Feed* can be delivered over physically diverse paths with equal latency.



LMAX Proximity Points Of Presence

Point Of Presence	Address	Media Types
Equinix LD4/LD5	Buckingham Avenue, Slough	1 Gig LX/SX
Interxion LON1/2	Hanbury Street, London	1 Gig LX
Equinix NY4	755 Secaucus Road, New York	1 Gig LX
Equinix TY1/2/3	Edagawa, Koto-ku, Tokyo	1 Gig LX
Telstra HKCS1	Chun Kwong Street, Tseung Kwan, Hong Kong	1 Gig Copper

London Production Environment Services

LMAX Professional Trading Venue

LMAX Professional Broker Services

LMAX Professional	LMAX Proximity		Public Internet	
LMAX Broker Service	Target IP	Port	Target URL/IP	Port
FIX 4.4 Order placement	91.215.164.10	50000	fix.lmaxtrader.com	443
FIX 4.4 Market Data	91.215.164.11	50000	fix-md.lmaxtrader.com	443
Web based API	N/A		api.lmaxtrader.com	443
Web based trading UI	N/A		trade.lmaxtrader.com	443

LMAX Professional Exchange Services

London Professional	LMAX Proximity		Public Internet	
LMAX MTF Service	Target IP	Port	Target URL/IP	Port
Prime Broker Portal	N/A		mtf-primebroker.lmax.com	443
FIX 4.2 Market Data	91.215.164.21	52000	N/A	
FIX 4.2 Order placement	91.215.164.23	50000	fix.lmax.com	443
FIX 4.4 Trade Reporting	91.215.164.24	50000	dropcopy.lmax.com	443
ITCH Feed A Snapshot	91.215.164.66	53000	N/A	
ITCH Feed B Snapshot	91.215.164.67	53000	N/A	
ITCH Security Defintions	91.215.164.70	80	N/A	



LMAX Interbank Trading Venue

LMAX Interbank Broker Services

London Interbank	LMAX Proximity		Public Internet	
LMAX Broker Service	Target IP	Port	Target URL/IP	Port
Web based trading UI	N/A		web-api.london-bank.lmax.com	443

LMAX Interbank Exchange Services

London Interbank	LMAX Proximity		Public Internet	
LMAX MTF Service	Target IP	Port	Target URL/IP	Port
Prime Broker Portal	91.215.164.33	443	mtf-primebroker.london-bank.lmax.com	443
FIX 4.2 Market Data	91.215.164.6	52000	N/A	
FIX 4.2 Order placement	91.215.164.5	52000	N/A	
FIX 4.4 Trade Reporting	91.215.164.5	51000	mtf-dropcopy.london-bank.lmax.com	443
ITCH Feed A Snapshot	91.215.164.68	53000	N/A	
ITCH Feed B Snapshot	91.215.164.69	53000	N/A	
ITCH Security Defintions	91.215.164.65	80	N/A	



New York Production Environment Services

LMAX Professional Trading Venue

LMAX Professional Broker Services

New York Professional	LMAX Proximity		Public Internet	
LMAX Broker Service	Target IP	Port	Target URL/IP	Port
FIX 4.4 Order placement	104.255.201.10	50000	fix-order.newyork-professional.lmax.com	443
FIX 4.4 Market Data	104.255.201.11	50000	fix-marketdata.newyork-professional.lmax.com	443
Web based API	N/A		web-api.newyork-professional.lmax.com	443
Web based trading UI	N/A		web-order.newyork-professional.lmax.com	443
Broker Portal	N/A		broker-portal.newyork-professional.lmax.com	443

LMAX Professional Exchange Services

New York Professional	LMAX Proximity		Public Internet	
LMAX MTF Service	Target IP	Port	Target URL/IP	Port
Prime Broker Portal	N/A		mtf-primebroker.newyork-professional.lmax.com	443
FIX 4.2 Market Data	104.255.201.21	52000	mtf-marketdata.newyork-professional.lmax.com	443
FIX 4.2 Order placement	104.255.201.23	50000	mtf-order.newyork-professional.lmax.com	443
FIX 4.4 Trade Reporting	104.255.201.24	50000	mtf-dropcopy.newyork-professional.lmax.com	443
ITCH Feed A Snapshot	104.255.201.66	53000	N/A	
ITCH Feed B Snapshot	104.255.201.67	53000	N/A	
ITCH Security Defintions	104.255.201.70	80	N/A	



Tokyo Production Environment Services

LMAX Professional Trading Venue

LMAX Professional Broker Services

Tokyo Professional	LMAX Proximity		Public Internet	
LMAX Broker Service	Target IP	Port	Target URL/IP	Port
FIX 4.4 Order placement	185.34.166.10	50000	fix-order.tokyo-professional.lmax.com	443
FIX 4.4 Market Data	185.34.166.11	50000	fix-marketdata.tokyo-professional.lmax.com	443
Web based API	N/A		web-api.tokyo-professional.lmax.com	443
Web based trading UI	N/A		web-order.tokyo-professional.lmax.com	443
Broker Portal	N/A		broker-portal.tokyo-professional.lmax.com	443

LMAX Professional Exchange Services

Tokyo Professional	LMAX Proximity		Public Internet	
LMAX MTF Service	Target IP	Port	Target URL/IP	Port
Prime Broker Portal	N/A		mtf-primebroker.tokyo-professional.lmax.com	443
FIX 4.2 Market Data	185.34.166.21	52000	mtf-marketdata.tokyo-professional.lmax.com	443
FIX 4.2 Order placement	185.34.166.23	50000	mtf-order.tokyo-professional.lmax.com	443
FIX 4.4 Trade Reporting	185.34.166.24	50000	mtf-dropcopy.tokyo-professional.lmax.com	443
ITCH Feed A Snapshot	N/A		N/A	
ITCH Feed B Snapshot	N/A		N/A	
ITCH Security Defintions	N/A		N/A	



Test Environment Services

For members wishing to complete conformance testing, the **UAT** Venue is available for this purpose. All ITCH market data testing is performed over the Internet via an IPSEC VPN with inner GRE encapsulation.

For all other testing such as trading strategies, the **Demo** Venue is a suitable environment where you do not have to worry about funding your account.

DEMO Test Venue

Demo Test Venue	LMAX Proximity		Public Internet	
LMAX Broker Service	Target IP	Port	Target URL/IP	Port
Web based UI	N/A		web-order.london-demo.lmax.com	443
Web based API	N/A		web-api.london-demo.lmax.com	443
FIX 4.2 Market Data	N/A		fix-marketdata.london-demo.lmax.com	443
FIX 4.2 Order placement	N/A		fix-order.london-demo.lmax.com	443
Broker Portal	N/A		broker-portal.london-demo.lmax.com	443

User Acceptance Test (UAT) Venue

User Acceptance Test/UAT	LMAX Proximity		Public Internet	
LMAX MTF Service	Target IP	Port	Target URL/IP	Port
Prime Broker Portal	N/A		mtf-primebroker.london-uat.lmax.com	443
Web based API & UI	91.215.164.156	443	web-order.london-uat.lmax.com	443
FIX 4.2 Market Data	91.215.164.155	52000	mtf-marketdata.london-uat.lmax.com	443
FIX 4.2 Order placement	91.215.164.153	50000	mtf-order.london-uat.lmax.com	443
FIX 4.4 Trade Reporting	91.215.164.154	50000	mtf-dropcopy.london-uat.lmax.com	443
ITCH Feed A Snapshot	91.215.164.158	53000	N/A	
ITCH Feed B Snapshot	91.215.164.159	53000	N/A	
ITCH Security Defintions	91.215.164.157	80	N/A	