



BATS Chi-X Europe

Connectivity Manual Integration Supplement

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Introduction

This document provides the additional information required to migrate existing Chi-X connectivity to the new Chi-X Europe platform on BATS technology, it is a supplement to the [BATS Europe Connectivity Manual](#)

Please see the [Integration](#) page for the latest detailed technology milestone timeline of transition events.

The migration highlights are:

- The existing Chi-X Europe platform will migrate to BATS technology and will remain in Equinix Slough (LD4).
- Both Chi-X Europe and BATS Europe will have disaster recovery environments located at Equinix Park Royal (LD3).
- Both markets will be accessible over single network connection.
- There are two points of presence, Interxion (Hanbury Street) and Equinix Frankfurt (FR2)
- There will be completely new physical environments for Chi-X Europe on BATS technology at both LD4 and LD3, each environment will have new IP addresses and new TCP ports. All IP's will be registered.
- There will be early access to the new Chi-X certification environment on BATS technology over existing cross connects.

Connectivity charges and agreements

- All connectivity is chargeable on a per switch port basis, there are different charges for Participants and Non-Participants as per the [Connectivity Charges](#) document.
- Revised connectivity charges will apply from 1st May 2012, from that date all datacentre cross connect charges will be passed through and will appear separately on the monthly invoice.
- The legal assignment of existing connectivity agreements will be announced in the near future via separate communication.

All questions should be directed to noceurope@batstrading.com +44 20 7012 8905

Co-lo Cross Connect Migration at LD4

Please note that there will be no 10G access to the existing Chi-X Europe market.

Option 1

Participants with co-lo cross connects into both existing Chi-X and BATS Europe continue to access both markets. The new Chi-X environment on BATS technology will only be accessible via the cross connect into BATS Europe.

Option 2

Participants with existing co-lo cross connects at LD4 into Chi-X Europe only and not into BATS Europe should order new co-lo cross connects that will give access to both the new Chi-X and BATS Europe as well as all certification environments.

Option 3

Participants wishing to have separate cross connects for the new Chi-X and BATS Europe may do so.

Circuit Cross Connect Migration at LD4

Option 1

Participants with circuits into both existing Chi-X and BATS Europe continue to access both markets. The new Chi-X environment on BATS technology will only be accessible via the circuits into BATS Europe.

Option 2

Participants who currently have circuits to access Chi-X only and wish to continue to use them to access the new Chi-X environment will need to migrate the circuit cross connects to the new BATS Chi-X Europe switch ports.

Participants will continue to have access to the existing Chi-X environment and there is no latency penalty relative to the existing Chi-X Europe outside edge. Participants are strongly encouraged to complete this cut-over prior to the market migration.

Option 3

Participants with a circuit into BATS Europe only will now also have access to the new Chi-X environment on BATS Technology. Participants also have the option of accessing the existing Chi-X environment via this circuit.

Participants are strongly encouraged to complete all connectivity migration ahead of the market migration. Participants who do not migrate circuit cross connects to the new BATS Chi-X Europe switch ports prior to migration will suffer approximately 30uS delay post market migration. The existing Chi-X Europe outside edge will be ceased shortly after market migration.

Interxion and Frankfurt Migration

Participants will be able to access all markets from Interxion and Frankfurt including the disaster recovery environments at LD3.

Extranet or Service Bureau Migration

Participants using an extranet or service bureau to connect should contact their service provider to establish connectivity to the new Chi-X environment on BATS technology.

IP Address Migration

Participants will be able to source traffic from their own registered IP addresses.

Participants will be able to retain their existing addressing previously allocated by Chi-X Europe in the 10.0.0.0/8 and 172.16.0.0/12 ranges.

Physical Interfaces

The following physical interface specifications are supported as standard

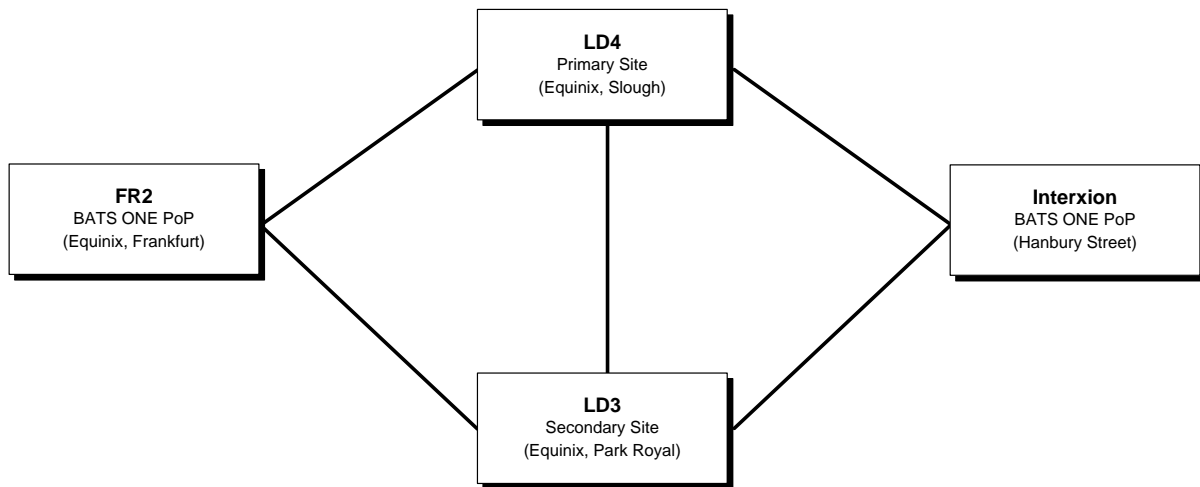
Location	Speed	Media
Equinix Slough (LD4)	10G	SR (multi-mode) & LR (single-mode)
	1G	SX (multi-mode), LX (single mode), 1000BaseT
	<1G	100BaseT, 10BaseT
Equinix Park Royal (LD3)	1G	SX (multi-mode), LX (single mode), 1000BaseT
	<1G	100BaseT, 10BaseT
Interxion(Hanbury Street)	1G	SX (multi-mode)
Frankfurt (FR2)	1G	SX (multi-mode), LX (single mode), 1000BaseT

BATS ONE Network

The low-latency network offering connectivity to Chi-X and BATS Europe will be known as the BATS ONE Network.

The BATS ONE Network will be available at the following locations

- LD4 Slough primary datacentre
- LD3 Park Royal secondary datacentre
- Interxion City of London point of presence
- FR2 Frankfurt point of presence



Estimated Latency - All figures are round trip, measured at BATS ONE 10G interface in normal operation, latencies will increase if running on backup circuits.

LD4 to Interxion 490uS
LD4 to Frankfurt 13mS

Post-migration Market Data

The market data protocols for Chi-X Europe post migration will be BATS Europe TCP PITCH and BATS Europe Multicast PITCH. The existing Chi-X Europe market data protocols (CHIXMD & MCDF) will cease to be available after market migration.

The multicast PITCH feeds for Chi-X Europe from LD4 will be Gig A, Gig B, WAN C & WAN D. At LD3 there will be a single multicast PITCH feed WAN E

The TCP PITCH feed will also be available as a split/unitised feed allowing for participants to be able to reduce the markets subscribed and therefore the bandwidth requirements.

Chi-X Europe bandwidth requirements will be similar to the existing BATS Europe market as published in the [BATS Connectivity Manual](#)

To differentiate the naming of the BATS Europe and Chi-X Multicast PITCH market data feeds post, the following nomenclature will be used:

BATS Europe will use the prefix B (eg Gig BA, Gig BB, WAN BC, WAN BD & WAN BE)

Chi-X will use the prefix X (Gig XA, Gig XB, WAN XC, WAN XD & WAN XE)

See the [Multicast PITCH spec](#) and [Market Data Migration](#) spec for full details.

Post migration the following market data feeds will be available for both Chi-X and BATS Europe.

Location	Gig A	Gig B	Wan C	Wan D	Wan E	TCP
LD4	✓	✓	✓	✓	✓	✓
LD3					✓	✓
Interxion	✓	✓	✓	✓	✓	✓
FR2			✓		✓	✓

A single 1G cross connect will be able to consume both of the Multicast PITCH Gig shaped feeds at LD4 (BA) and (XA).

A single 100M cross connect will be able to consume both of the Multicast PITCH WAN shaped feeds at LD4 (BC) and (XC) or the DR feeds at LD3 (BE) and (XE)

Disaster Recovery Connectivity

There will be disaster recovery environments at Equinix Park Royal (LD3) for both BATS Europe and Chi-X post migration. The BATS Europe disaster recovery environment will go live ahead of the Chi-X market migration as per the [migration timeline](#).

The DR connectivity options will be:

- Market data generated from LD3 will be continuously available (WAN E & TCP PITCH)
- The market data generated from LD3 can be arbitrated against market data generated from LD4, all message sequence numbers will be identical on all feeds however the packet framing may be different.
- All FIX & BOE ports created at LD4 will be mirrored at LD3, The TCP ports will be identical, however the destination IP addresses will be different.
- The LD3 FIX & BOE ports will be continuously available for login & heartbeat unless the LD3 environment is invoked, at which point they will become live. All LD3 FIX & BOE, ports will be accessible from LD4 via the BATS One network.
- FIX & BOE ports at LD4 will be accessible from LD3 via the BATS One network
- DROP ports will be continuously available from LD3
- All LD3 ports and market data feeds will be available from both Interxion and Frankfurt FR2

Multicast PITCH resources

The following resources are available specifically targeted at easing the process of developing for BATS Europe Multicast PITCH.

- BATS Europe offers UAT/certification Multicast PITCH via an internet VPN.
- A BATS Europe provided test program to assist in debugging multicast infrastructure is available: http://www.batstrading.com/resources/membership/mcast_pitch.zip.
- Multicast PITCH historic data files are available via the participant portal.