

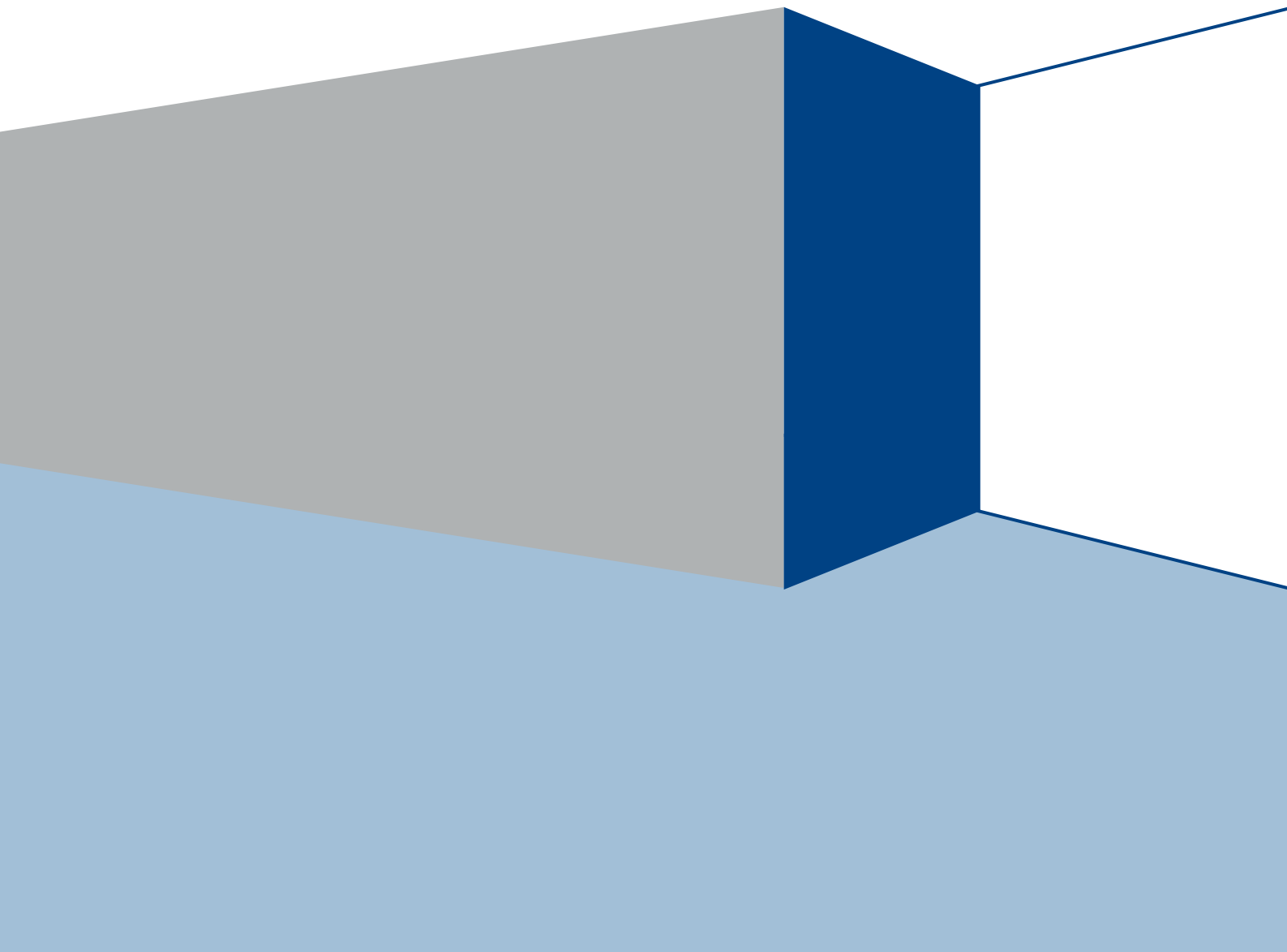


London
Stock Exchange

MIT501 - EUROTLX - MILLENNIUM EXCHANGE

Guide to Testing Services

Issue 1.7 · September 2018



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Disclaimer

EuroTLX has taken reasonable efforts to ensure that the information contained in this publication is correct at the time of going to press, but shall not be liable for decisions made in reliance on it. EuroTLX will endeavour 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.

1 Introduction

The Customer Testing Services are available to support customers in their development and testing of the Millennium Exchange platform for EuroTLX market.

1.1 Purpose

The purpose of this document is to provide an overview of the Customer Testing Services on the new EuroTLX Millennium Exchange platform and the related market structure information to assist customers in their development and testing.

1.2 Document Series

This document forms part of a series of documents providing an overview of the trading and information services available from EuroTLX following the migration to Millennium Exchange platform.

For reference, the full range of documents is outlined below:

- MIT201 EUROTTLX – Guide to New Trading System - On going
- MIT202 - EUROTTLX - Trading Gateway (FIX 5 0) Specification - Issue 1.0
- MIT203 - EUROTTLX - Native Trading Gateway Specification - Issue 1.0
- MIT204 - EUROTTLX - Post Trade Gateway (FIX 5 0) Specification - Issue 1.0
- MIT205 - EUROTTLX - Drop Copy Gateway (FIX 5 0) Specification - Issue 1.0
- MIT301 - EUROTTLX - Guide to Market Data Services - Issue 1.0
- MIT303 - EUROTTLX - Market Data Feed (ITCH) Specification - Issue 1.0
- MIT305 - EUROTTLX – Markets Reference Data – On going
- MIT306 - EUROTTLX – Instrument Currency – On going
- **MIT501 - EUROTTLX – Guide to Testing Services (this document)**

The latest version of this document series can be found at the following links:

http://www.eurotlx.com/news/migrazione_pub.php

http://www.eurotlx.com/news/migration_pub.php

1.3 Document History

This document has been through the following iterations:

Issue	Date	Description
1.0	10 February 2014	First release for EuroTLX of this document
1.1	17 February 2014	Reference to GTP – GTP Lite added
1.2	19 March 2014	New credentials for ftp access generated
1.3	August 2014	Section 4.4 updated
1.4	October 2014	Section 3.3 added – failover scenario
1.5	November 2016	Removed section for ANA and RCG files in CDS environment (not available)
1.6	March 2017	Removed details of Post Trade Gateway 2 – section 3.7.1
1.7	September 2018	Details of Legacy CDS added Modified Sections: 1.4, 2, 2.2, 3.1, 3.2, 3.4.1, 3.8 Added Sections: 3.7.2, 3.9.2

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

1.4 Enquiries

Please contact either Client Technology Services or your Technical Account Manager if you have any functional questions about the Millennium Exchange services outlined in this document.

Client Technology Services (ITA) can be contacted at:

- Customer Support Desk:
Toll Free: 0080026772000
From mobile: +39 02 45411399
service-desk@borsaitaliana.it

- Technical Account Management:
Telephone: +39 0272426409 512
Email: <mailto:clients-services@borsaitaliana.it>

2 Service overview

The CDS provides a fully functioning live simulation of the Live Service against which our customers can develop, test, and run their Trading and Information applications.

This CDS environment is based on the software specific for EuroTLX, and will include some functionalities introduced for this. It also provides model based testing scenarios to help customers with their development efforts.

The London Stock Exchange Group offers a wide range of testing services.

Customers can use the testing services to:

- Test the functional interface between their software applications and the London Stock Exchange Millennium Gateways.
- Certify their software applications for use on the Live Service
- Test trading strategies against a simulation of the Live Service
- Provide market participants with a safe training environment away from the Live Service
- Test their application's ability to recover from service disruptions

It is important to highlight that there are two CDS environments:

- “Standards” CDS, that may run either on the live version of the platform (if no planned version updates/new releases are in progress) or on the “next” (newer) version of the platform (if a planned version update/new release is in progress)
- “Legacy” CDS, that always run on the live version of the platform

2.1 Access to the CDS

To access the CDS customers will be required to complete a CDS Order Form and Customer Request Form. Customers will then be sent a CDS Configuration Form showing full technical details of their CDS configuration. Full IP address information is provided in paragraph 3.6, 3.7 and 3.8.

2.2 Certification

Mandatory certification will be required for all applications, marketdata and trading, that wish to connect to the EuroTLX production environment. Details of the EuroTLX

certification process and the mandatory test cycles will be available once the final version of the CDS environment will be available.

Certifications are usually executed on the “Standard” CDS but exceptionally (under specific circumstances) might be executed on the “Legacy” environment.

3 Trading Services

Participants will connect to each interface via a FIX or Native Gateway, depending on the functionality they require (see figure 1 on below page).

- **FIX Trading Gateway**
 - Trading Interface (FIX)
 - Order / quote entry and immediate confirmation of Automatic Trades
- **Native Trading Gateway**
 - Trading Interface (Native)
 - Order / quote entry and immediate confirmation of Automatic Trades (Note – Firm Quote entry is not supported)
- **Post Trade Gateway (FIX)**
 - ‘Enriched’ near real-time trade confirmation of Automatic Trades (including cancellations)¹
 - **Drop Copy Gateway (FIX)**
 - ‘Copy To’ functionality

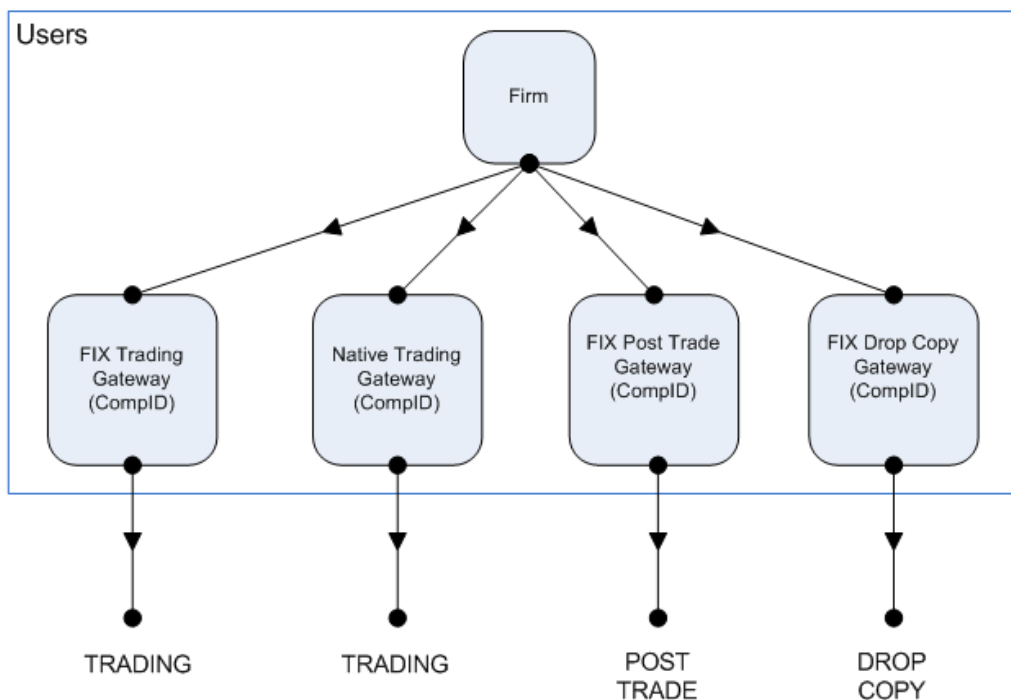


Figure 1 – Customer interfaces

¹ Including any Exchange initiated cancellations

3.1 Participant enablement

Customers will have to request the trading (native or FIX) Comp IDs to the Client Technology Services Italy.

Considering the interface to which they will connect, customers can request the following type of users:

- Native Trading Gateway (default 50 TPS but can be modified upon request)
- FIX 5.0 Trading Gateway (default 50 TPS but can be modified upon request)
- Back Office Real Time (Drop Copy and Post Trade)
- Query Manager (OOBD and OTBD)
- Company Supervisor
- MITCH
- GTP/GTPLite

For the full list of type of users please refer to document MIT201.

3.2 Connectivity

Customers can establish a connection to CDS environment in the following ways:

- Over the Blt Network
- Over the Extranex
- Via Co Location
- Via a Service Provider
- Via VPN
- CMC Open Conn

3.3 Model Based Testing

The CDS environment has been enhanced to model specific scenarios on a more frequent basis than customers will encounter on the Live Service, such as service disruptions.

Customers can use these scenarios to assist with their testing and development.

This section describes the modifications.

3.3.1 Trading Gateway Failover and Recovery

In order to support customers with their recovery testing, every Friday, starting from 15:00 , the following components will be failed in turn, in sequence:

- Primary FIX Trading Gateways
- Primary FIX Post Trade Gateways
- Primary FIX Drop Copy Gateways

Customers connected to a Primary Gateway during these times can detect the disconnection and re-connect to their designated secondary gateway.

Please note that once connected to the secondary (alternate) FIX gateway, the initial sequence number received will be the last one received once connected to the primary gateway + 5000.

Customers will remain connected to the Secondary Gateway for the remainder of the day.

3.3.2 Market Data Failover and Recovery Testing

In order to ensure customers can develop to the Replay and Recovery services, Borsa Italiana will deliberately create a failure of the Primary (A) feed gateway every Friday at 15:00.

There will be a stop the primary services including Replay and Recovery forcing the Secondary to resume as master with sequence numbers reset to 1 and order book views cleared within the market data system.

In this scenario, customers are supposed take the new B feed and handle reset sequence numbers and reset order book views within the market data system.

Connectivity to the secondary Replay and Recovery services should be tested.

3.4 Service Times

3.4.1 CDS Service Times

The service hours for the CDS environment are the following (in CET/CEST):

Session	Start Time	End Time
Pre-Trading	8.00.00	9.00.00
Regular Trading	9.00.00	17.30.00

3.5 Broadcast Data

The market data service on the EuroTLX instance of the Millennium Exchange platform is:

- MITCH Level 2 Full Depth
- GTP
- GTP Lite

3.6 Maintenance Days

On occasion the Exchange will have to close CDS to perform upgrades or maintenance activities.

Customers will be informed of maintenance days and early CDS closures via communications from Client Technology Services Italy.

3.7 Trading connectivity

Each Gateway interface will have two IP addresses acting as Primary and Secondary and customers will be allocated which gateway they can connect to during the enablement process. Customers should configure to connect to both IP addresses and ports.

The list of Trading IP addresses for each service is detailed below.

3.7.1 “Standard” CDS IP addressing

Exchange Gateway (Trading) Services	Customer Information		Service Availability under normal operational state
	Exchange IP Address	TCP Port	
Service			
ETLX Fix Trading GW 01 - Channel 1	194.169.10.131	51461	Available
ETLX Fix Trading GW 01 - Channel 1 Alternate	194.169.10.132	51461	Passive (Down)
ETLX Fix Trading GW 01 - Channel 2	194.169.10.131	51462	Available
ETLX Fix Trading GW 01 Channel 2 - Alternate	194.169.10.132	51462	Passive (Down)
ETLX Native Trading 01	194.169.10.135	51481	Available
ETLX Native Trading 02	194.169.10.136	51482	Available
ETLX Native Trading 03	194.169.10.135	51483	Available
ETLX Native Trading 04	194.169.10.136	51484	Available
ETLX Native Trading 01 Recovery	194.169.10.135	51491	Available
ETLX Native Trading 02 Recovery	194.169.10.136	51492	Available
ETLX Native Trading 03 Recovery	194.169.10.135	51493	Available
ETLX Native Trading 04 Recovery	194.169.10.136	51494	Available
ETLX Post Trade Router 01 - Channel 1	194.169.10.139	51471	Available
ETLX Post Trade Router 01 - Channel 1 Alternate	194.169.10.140	51471	Passive (Down)
ETLX Drop Copy 01 - Channel 1	194.169.10.143	51475	Available
ETLX Drop Copy 01 - Channel 1 Alternate	194.169.10.144	51475	Passive (Down)
ETLX Drop Copy 01 - Channel 2	194.169.10.143	51476	Available
ETLX Drop Copy 01 - Channel 2 Alternate	194.169.10.144	51476	Passive (Down)

3.7.2 “Legacy” CDS IP addressing

Exchange Gateway (Trading) Services	Customer Information		Service Availability under normal operational state
Service	Exchange IP Address	TCP Port	
ETLX Fix Trading GW 01 - Channel 1	94.46.104.72	51461	Available
ETLX Fix Trading GW 01 - Channel 1 Alternate	94.46.104.73	51461	Passive (Down)
ETLX Fix Trading GW 01 - Channel 2	94.46.104.72	51462	Available
ETLX Fix Trading GW 01 Channel 2 - Alternate	94.46.104.73	51462	Passive (Down)
ETLX Native Trading 01	94.46.104.66	51481	Available
ETLX Native Trading 02	94.46.104.67	51482	Available
ETLX Native Trading 03	94.46.104.66	51483	Available
ETLX Native Trading 04	94.46.104.67	51484	Available
ETLX Native Trading 01 Recovery	94.46.104.66	51491	Available
ETLX Native Trading 02 Recovery	94.46.104.67	51492	Available
ETLX Native Trading 03 Recovery	94.46.104.66	51493	Available
ETLX Native Trading 04 Recovery	94.46.104.67	51494	Available
ETLX Post Trade Router 01 - Channel 1	94.46.104.68	51471	Available
ETLX Post Trade Router 01 - Channel 1 Alternate	94.46.104.69	51471	Passive (Down)
ETLX Post Trade Router 01 - Channel 2	94.46.104.68	51472	Available
ETLX Post Trade Router 01 - Channel 2 Alternate	94.46.104.69	51472	Passive (Down)
ETLX Drop Copy 01 - Channel 1	94.46.104.70	51475	Available
ETLX Drop Copy 01 - Channel 1 Alternate	94.46.104.71	51475	Passive (Down)
ETLX Drop Copy 01 - Channel 2	94.46.104.70	51476	Available
ETLX Drop Copy 01 - Channel 2 Alternate	94.46.104.71	51476	Passive (Down)

3.7.3 Connectivity Policy

Customers are requested to configure all test IP addresses available, even if connectivity will be granted on a subset of them.

Each Gateway supports 2 channels to accept orders. A comp ID should be assigned to either channel 1 or channel 2 for load balancing purposes of different comp IDs.

The main channel is the active one.

The Alternate channel is passive and it will only create the server to accept client connections when the main channel fails over.

3.8 FTP Reference data

3.8.1 MIT 305 and 306

Reference data will also be available in “Standard” CDS environment for all customers upon ftp connection to the server

- 212.239.27.225

Standard username and password available for the connection are

User: **tlxUSER**

Pw: **RefD4t4TLX**

It should be noted that in CDS/test environment the Reference Data reported in Market Reference Data files are not daily updated.

This means that Prices fields will be populated with static values.

Legacy” CDS is aligned with production in terms of instruments every week.

Therefore, for the “Legacy” CDS it is necessary to use the Production Reference Data generated each Friday (for example for Week 4, the Reference Data from Production to be used is the one generated on Friday from Week 3)..

3.9 Market Data Connectivity

The Market Data services consist of ITCH level 2 Feed (ITCH) and GTP/GTPLite service.

To support customer testing of the Optimised ITCH Market Data Delivery Structure, Market Data Group B has been configured to disseminate single message per TCP packet.

3.9.1 Group Ticker Plant Testing Service

In early 2012, the London Stock Exchange Group announced its intention to launch a Group Ticker Plant (GTP) which is designed to revolutionise the real-time market data services, delivering ultra low latency feeds through new technologies and facilitating the launch of new products and services.

In preparation for the phased launch of the Group Ticker Plant, the London Stock Exchange has launched a testing service in the CDS environment. The testing service will allow customers the ability to interact with the GTP multicast data prior to accessing the Live Service environment. Further information on the GTP testing services can be found in the GTP005 – Testing Services Guide found at the below link.

<http://www.londonstockexchange.com/products-and-services/millennium-exchange/documentation/documentation.htm>

3.9.2 MITCH CDS IP addressing

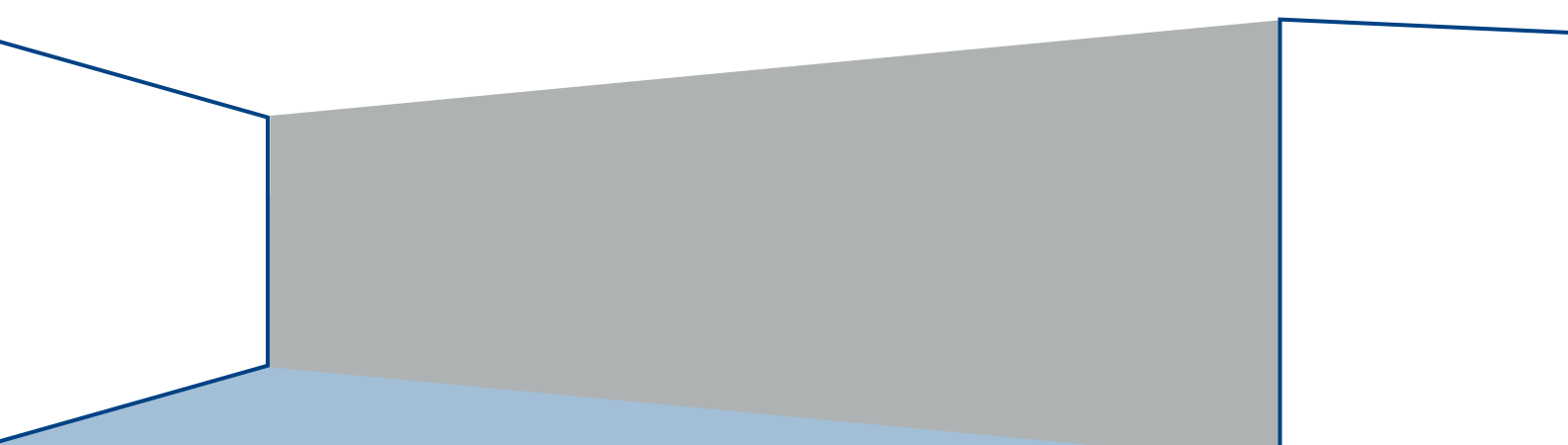
Below the details for MITCH, the Market Data Flow native of Millennium IT platform.

3.9.2.1 “Standard” CDS

Market Information Services Multicast, Recovery and Replay Addressing			Feed A						
			Multicast Feed A			Replay Service (Active)		Recovery Service (Active)	
DROP #	ID (AltID)	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
BIT CDS - ETLX	A	ITCH	224.4.4.216	194.169.10.200	61200	194.169.10.210	53225	194.169.10.210	54225
BIT CDS - ETLX	B	ITCH	224.4.4.217	194.169.10.200	61200	194.169.10.210	53226	194.169.10.210	54226
BIT CDS - ETLX	C	ITCH	224.4.4.218	194.169.10.200	61200	194.169.10.210	53227	194.169.10.210	54227
			Feed B						
			Multicast Feed B (Active)			Replay Service (Passive)		Recovery Service (Passive)	
DROP #	ID (AltID)	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
BIT CDS - ETLX	A	ITCH	224.4.5.216	194.169.10.230	61200	194.169.10.240	53225	194.169.10.240	54225
BIT CDS - ETLX	B	ITCH	224.4.5.217	194.169.10.230	61200	194.169.10.240	53226	194.169.10.240	54226
BIT CDS - ETLX	C	ITCH	224.4.5.218	194.169.10.230	61200	194.169.10.240	53227	194.169.10.240	54227

3.9.2.2 “Legacy” CDS

Market Information Services Multicast, Recovery and Replay Addressing			Feed A						
DROP #	ID (AltID)	Config type	Multicast Feed A			Replay Service (Active)		Recovery Service (Active)	
			Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
BIT CDS - ETLX	A	ITCH	224.4.14.216	94.46.104.242	61200	94.46.104.84	53225	94.46.104.84	54225
BIT CDS - ETLX	B	ITCH	224.4.14.217	94.46.104.242	61200	94.46.104.84	53226	94.46.104.84	54226
BIT CDS - ETLX	C	ITCH	224.4.14.218	94.46.104.242	61200	94.46.104.84	53227	94.46.104.84	54227
			Feed B						
DROP #	ID (AltID)	Config type	Multicast Feed B (Active)			Replay Service (Passive)		Recovery Service (Passive)	
			Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
BIT CDS - ETLX	A	ITCH	224.4.15.216	94.46.104.250	61200	94.46.104.92	53225	94.46.104.92	54225
BIT CDS - ETLX	B	ITCH	224.4.15.217	94.46.104.250	61200	94.46.104.92	53226	94.46.104.92	54226
BIT CDS - ETLX	C	ITCH	224.4.5.218	94.46.104.250	61200	94.46.104.92	53227	94.46.104.92	54227



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