

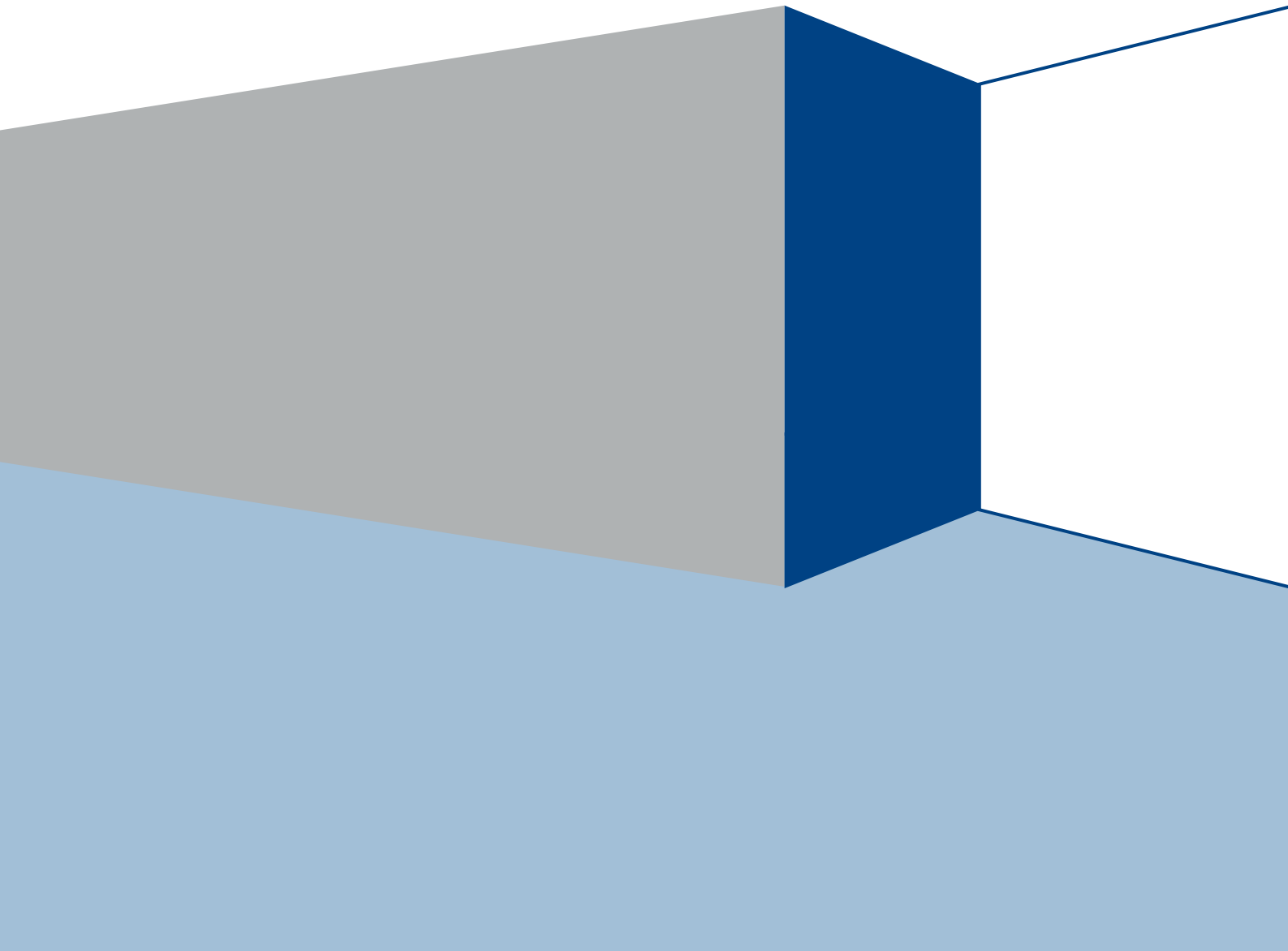


**London**  
Stock Exchange

MIT501 BIT - MILLENNIUM EXCHANGE

# Guide to Testing Services

Issue 2.4 · October 2014



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## **Disclaimer**

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# 1 Introduction

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

## 1.1 Purpose

The purpose of this document is to provide an overview of the Customer Testing Services on the new 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 the London Stock Exchange following the migration to Millennium Exchange.

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

- MIT201 BIT – Guide to New Trading System
- MIT202 BIT – FIX Trading Gateway (FIX 5.0)
- MIT203 BIT – Native Trading Gateway Specification
- MIT204 BIT – Post Trade Gateway (FIX 5.0) Specification
- MIT205 BIT – Drop Copy Gateway (FIX 5.0) Specification
- MIT301 BIT – Guide to Market Data Service
- MIT303 BIT – MITCH Specification
- MIT305 BIT – Markets Reference Data and FTSE indices constituents
- **MIT501 – Guide to Testing Services (this document)**
- Millennium Exchange Business Parameters

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

<http://www.borsaitaliana.it/borsaitaliana/intermediari/gestione-mercato/migrazionemillenniumit-mit/millenniumitmigration.htm>

<http://www.borsaitaliana.it/borsaitaliana/intermediari/gestione-mercato/migrazionemillenniumit-mit/millenniumitmigration.en.htm>

### 1.3 Document History

This document has been through the following iterations:

Issue	Date	Description
1.0	03 August 2011	
2.0	07 November 2011	Updated IP addresses for the first version of CDS environment
2.1	July 2013	Updated IP addresses for additional Native Trading Gateways
2.2	August 2014	Section 3.7 updated Section 3.3, 3.5, 3.8 updated - Reference to GTP/GTPLite service added
2.3	October 2014	Section 3.3 added – failover scenario
2.4	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 (incl. 3.7.2.1 and 3.7.2.2), 3.9.2.2 (incl. 3.9.2.1 and 3.9.2.2)

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 Italy or your Technical Account Manager if you have any 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](mailto: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 Italian cash markets, 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 that wish to connect to the production environment.

Full details of the certification process are available in the following documents

- MIT502 - Guide to Application Certification
- MIT503 - Certification Report

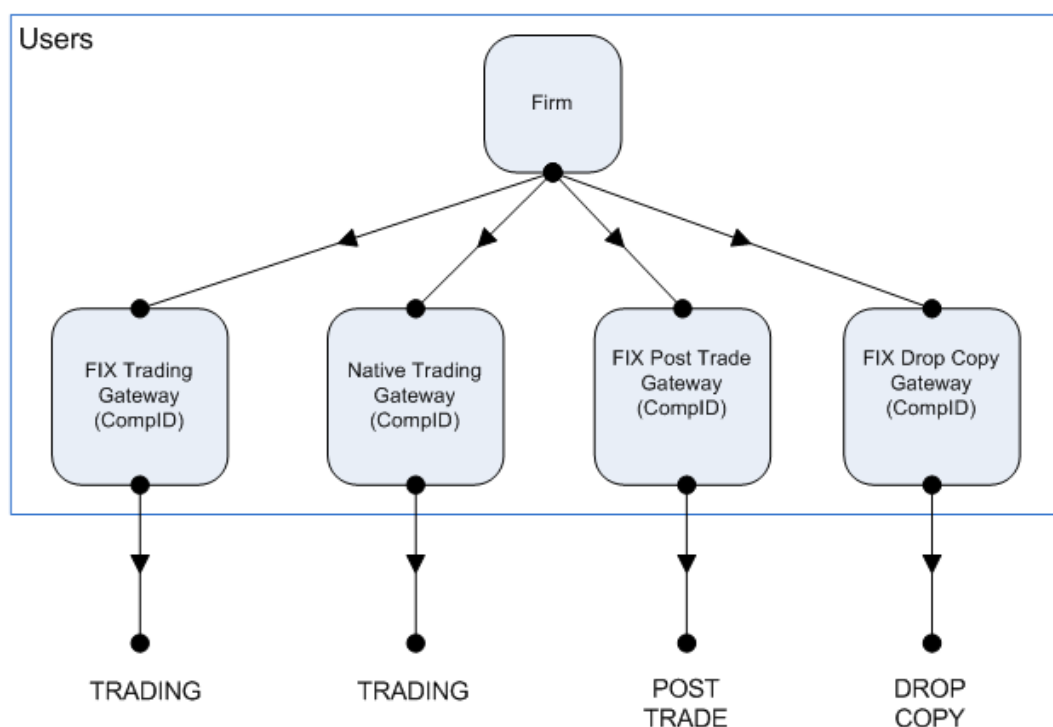
Certifications are usually executed on the “Standard” CDS but exceptionally (under specific circumstances) might be executed on the “Legacy” environment.

# 3 Trading Services Overview

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)<sup>1</sup>
- **Drop Copy Gateway (FIX)**
  - ‘Copy To’ functionality

Figure 1 – Customer interfaces



<sup>1</sup> 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 Extranet
- Via Co Location
- Via a Service Provider
- Via VPN
- CMC Open Connectivity Model

### **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):

#### Main Markets:

Session	Start Time	End Time
Opening Auction (where applicable)	8.00	9.00
Regular Trading	9.00	17.30

#### TAH Market:

Session	Start Time	End Time
Regular Trading	18.00	20.30

## 3.5 Broadcast Data

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

- MITCH - Full Depth
- GTP / GTPLite

## 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	
Fix Trading GW 01 - Channel 1	194.169.10.131	51411	Available
Fix Trading GW 01 - Channel 1 Alternate	194.169.10.132	51411	Passive (Down)
Fix Trading GW 01 - Channel 2	194.169.10.131	51412	Available
Fix Trading GW 01 Channel 2 - Alternate	194.169.10.132	51412	Passive (Down)
Fix Trading GW 02 - Channel 1	194.169.10.133	51413	Available
Fix Trading GW 02 - Channel 1 Alternate	194.169.10.134	51413	Passive (Down)
Fix Trading GW 02 - Channel 2	194.169.10.133	51414	Available
Fix Trading GW 02 Channel 2 - Alternate	194.169.10.134	51414	Passive (Down)
Native Trading 01	194.169.10.135	51441	Available
Native Trading 02	194.169.10.136	51442	Available
Native Trading 03	194.169.10.135	51443	Available
Native Trading 04	194.169.10.136	51444	Available
Native Trading 01 Recovery	194.169.10.135	51451	Available
Native Trading 02 Recovery	194.169.10.136	51452	Available
Native Trading 03 Recovery	194.169.10.135	51453	Available
Native Trading 04 Recovery	194.169.10.136	51454	Available
Post Trade Router 01 - Channel 1	194.169.10.139	51421	Available
Post Trade Router 01 - Channel 1 Alternate	194.169.10.140	51421	Passive (Down)
Post Trade Router 01 - Channel 2	194.169.10.139	51422	Available
Post Trade Router 01 -Channel 2 Alternate	194.169.10.140	51422	Passive (Down)
Drop Copy 01 - Channel 1	194.169.10.143	51431	Available
Drop Copy 01 - Channel 1 Alternate	194.169.10.144	51431	Passive (Down)
Drop Copy 01 - Channel 2	194.169.10.143	51432	Available
Drop Copy 01 - Channel 2 Alternate	194.169.10.144	51432	Passive (Down)

Drop Copy 02- Channel 1	194.169.10.145	51433	Available
Drop Copy 02 - Channel 1 Alternate	194.169.10.146	51433	Passive (Down)
Drop Copy 02 - Channel 2	194.169.10.145	51434	Available
Drop Copy 02 - Channel 2 Alternate	194.169.10.146	51434	Passive (Down)

### 3.7.2 “Legacy” CDS IP addressing

#### 3.7.2.1 Main Markets

Exchange Gateway (Trading) Services	Customer Information		Service Availability under normal operational state
Service	Exchange IP Address	TCP Port	
Fix Trading GW 01 - Channel 1	94.46.104.54	51411	Available
Fix Trading GW 01 - Channel 1 Alternate	94.46.104.55	51411	Passive (Down)
Fix Trading GW 01 - Channel 2	94.46.104.54	51412	Available
Fix Trading GW 01 Channel 2 - Alternate	94.46.104.55	51412	Passive (Down)
Native Trading 01	94.46.104.48	51441	Available
Native Trading 02	94.46.104.49	51442	Available
Native Trading 03	94.46.104.50	51443	Available
Native Trading 04	94.46.104.51	51444	Available
Native Trading 01 Recovery	94.46.104.48	51451	Available
Native Trading 02 Recovery	94.46.104.49	51452	Available
Native Trading 03 Recovery	94.46.104.50	51453	Available
Native Trading 04 Recovery	94.46.104.51	51454	Available
Post Trade Router 01 - Channel 1	94.46.104.52	51421	Available
Post Trade Router 01 - Channel 1 Alternate	94.46.104.53	51421	Passive (Down)
Post Trade Router 01 - Channel 2	94.46.104.52	51422	Available
Post Trade Router 01 -Channel 2 Alternate	94.46.104.53	51422	Passive (Down)
Drop Copy 01 - Channel 1	94.46.104.56	51431	Available
Drop Copy 01 - Channel 1 Alternate	94.46.104.57	51431	Passive (Down)
Drop Copy 01 - Channel 2	94.46.104.56	51432	Available
Drop Copy 01 - Channel 2 Alternate	94.46.104.57	51432	Passive (Down)

### 3.7.2.2 TAH Market

Exchange Gateway (Trading) Services		Customer Information		
Service	Exchange IP Address	TCP Port	Service Availability under normal operational state	
Fix Trading GW 01 - Channel 1	94.46.104.64	57351	Available	
Fix Trading GW 01 - Channel 1 Alternate	94.46.104.64	57351	Passive (Down)	
Fix Trading GW 01 - Channel 2	94.46.104.64	57351	Available	
Fix Trading GW 01 Channel 2 - Alternate	94.46.104.64	57351	Passive (Down)	
Native Trading 01	94.46.104.58	57701	Available	
Native Trading 02	94.46.104.59	57701	Available	
Native Trading 01 Recovery	94.46.104.58	57711	Available	
Native Trading 02 Recovery	94.46.104.59	57711	Available	
Post Trade Router 01 - Channel 1	94.46.104.60	57450	Available	
Post Trade Router 01 - Channel 1 Alternate	94.46.104.61	57450	Passive (Down)	
Post Trade Router 01 - Channel 2	94.46.104.60	57451	Available	
Post Trade Router 01 -Channel 2 Alternate	94.46.104.61	57451	Passive (Down)	
Drop Copy 01 - Channel 1	94.46.104.62	57550	Available	
Drop Copy 01 - Channel 1 Alternate	94.46.104.63	57550	Passive (Down)	
Drop Copy 01 - Channel 2	94.46.104.62	57551	Available	
Drop Copy 01 - Channel 2 Alternate	94.46.104.63	57551	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

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: trm2USER

Pw: F1les4You

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 MITCH and GTP/GTPLite service.

To support customer testing of the Optimised MITCH 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)	
Channel name	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
MITCH Gateway 1	MITCH	224.4.4.192	194.169.10.200	61200	194.169.10.210	53201	194.169.10.210	54201
MITCH Gateway 2	MITCH	224.4.4.193	194.169.10.200	61200	194.169.10.210	53202	194.169.10.210	54202
		Feed B						
		Multicast Feed B			Replay Service (Active)		Recovery Service (Active)	
Channel name	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
MITCH Gateway 1	MITCH	224.4.5.192	194.169.10.230	61200	194.169.10.240	53201	194.169.10.240	54201
MITCH Gateway 2	MITCH	224.4.5.193	194.169.10.230	61200	194.169.10.240	53202	194.169.10.240	54202

### 3.9.2.2 “Legacy” CDS

#### 3.9.2.2.1 Main Markets

Market Information Services Multicast, Recovery and Replay Addressing		Feed A						
		Multicast Feed A			Replay Service (Active)		Recovery Service (Active)	
Channel name	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
MITCH Channel A	MITCH	224.4.14.192	94.46.104.242	61200	94.46.104.82	53201	94.46.104.82	54201
MITCH Channel B	MITCH	224.4.14.193	94.46.104.242	61200	94.46.104.82	53202	94.46.104.82	54202
MITCH Channel C	MITCH	224.4.14.194	94.46.104.242	61200	94.46.104.82	53203	94.46.104.82	54203
MITCH Channel D	MITCH	224.4.14.195	94.46.104.242	61200	94.46.104.82	53204	94.46.104.82	54204
MITCH Channel E	MITCH	224.4.14.196	94.46.104.242	61200	94.46.104.82	53205	94.46.104.82	54205
MITCH Channel F	MITCH	224.4.14.197	94.46.104.242	61200	94.46.104.82	53206	94.46.104.82	54206
MITCH Channel G	MITCH	224.4.14.198	94.46.104.242	61200	94.46.104.82	53207	94.46.104.82	54207
		Feed B						
		Multicast Feed B			Replay Service (Active)		Recovery Service (Active)	
Channel name	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
MITCH Channel A	MITCH	224.4.15.192	94.46.104.250	61200	94.46.104.90	53201	94.46.104.90	54201
MITCH Channel B	MITCH	224.4.15.193	94.46.104.250	61200	94.46.104.90	53202	94.46.104.90	54202
MITCH Channel C	MITCH	224.4.15.194	94.46.104.250	61200	94.46.104.90	53203	94.46.104.90	54203
MITCH Channel D	MITCH	224.4.15.195	94.46.104.250	61200	94.46.104.90	53204	94.46.104.90	54204
MITCH Channel E	MITCH	224.4.15.196	94.46.104.250	61200	94.46.104.90	53205	94.46.104.90	54205
MITCH Channel F	MITCH	224.4.15.197	94.46.104.250	61200	94.46.104.90	53206	94.46.104.90	54206
MITCH Channel G	MITCH	224.4.15.198	94.46.104.250	61200	94.46.104.90	53207	94.46.104.90	54207

**3.9.2.2.2 TAH Market**

Market Information Services Multicast, Recovery and Replay Addressing		Feed A						
		Multicast Feed A			Replay Service (Active)		Recovery Service (Active)	
Channel name	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
MITCH Channel A	MITCH	224.4.14.208	94.46.104.242	61200	94.46.104.83	53411	94.46.104.83	54411
		Feed B						
		Multicast Feed B			Replay Service (Active)		Recovery Service (Active)	
Channel name	Config type	Multicast address (Active)	Multicast Source IP Address	Service Port (UDP)	LSEG VIP IP	External TCP Port	LSEG VIP IP	External TCP Port
MITCH Channel A	MITCH	224.4.15.208	94.46.104.250	61200	94.46.104.91	53411	94.46.104.91	54411

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