



## BOLTPLUS Connectivity

### Manual

Version 1.2

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## 1 Introduction

As an Exchange Participant, you have a range of alternatives to connect to our markets. BSE Exchange interfaces offer hardware independence, high levels of customization and flexibility. Our portfolio of connectivity alternatives is designed to meet the needs of a variety of users, from low-latency program trading users to cliental trading business models. With this broad offering, you can select which connectivity solution best suits your individual needs. Every business user has different needs, we designed a customized approach to ensure that you can choose the connectivity alternatives based on your unique business needs.

The sections below describe the Interactive interface and various market data interfaces that is offered to the market participants.

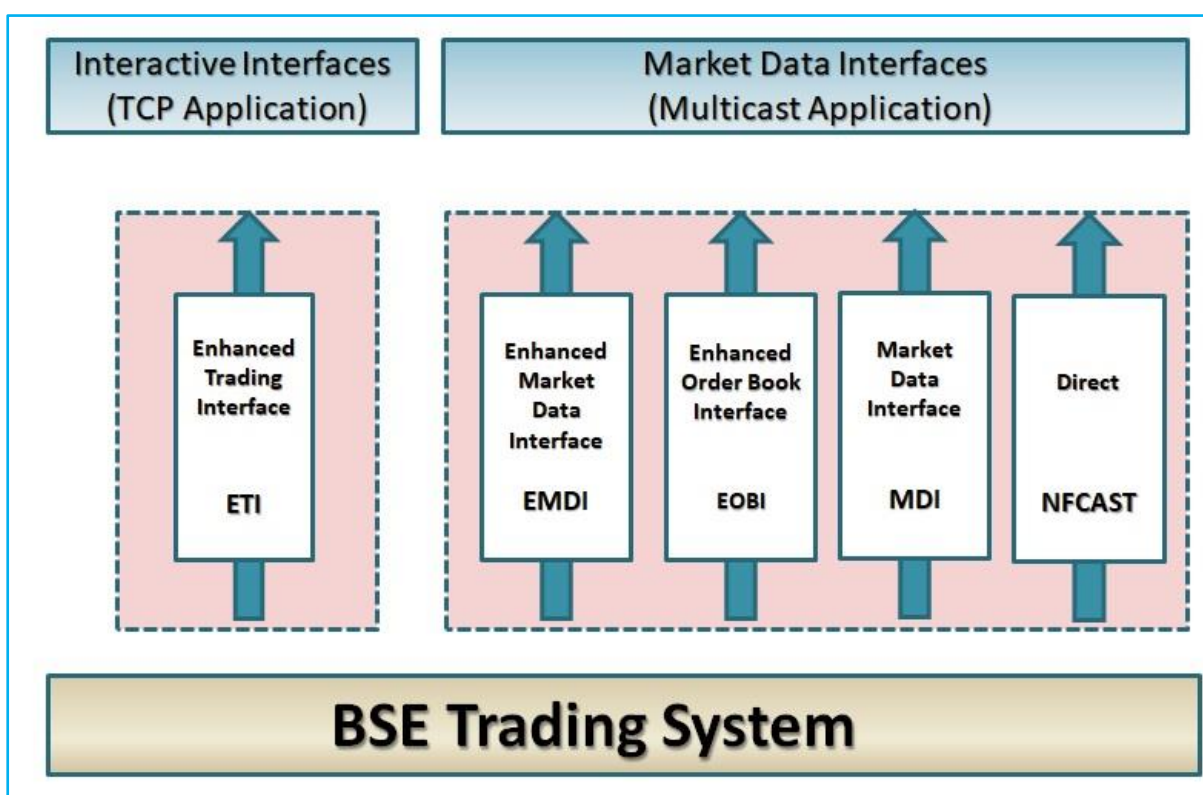


Figure 1: Trading Interface landscape

## 2 Interactive Interfaces

BSE offers only one interactive interface to connect to BOLTPLUS system. The interface is platform independent and offers wide flexibility in terms of implementation. **The legacy IML interface supported by exchange is discontinued**

## 2.1 BSE Enhanced Trading Interface (BSE ETI)

The BSE ETI is the high-performance, low-latency trading interface designed for Participants that require optimal performance and customization. This interface supports full trading functionality, drop copy and risk alerts. The communication supported in this interface is in binary format.

The ETI is an asynchronous message-based interface. A connection between participants and exchange is established via a TCP/IP connection. The interface is session-oriented. A session is established between the participants' machine and ETI gateway.

In order to establish a session with a trading gateway, a TCP/IP connection to a connection gateway must be established first. The connection gateway provides the connection parameters for the assigned primary and secondary gateway to be used for trading purposes. The connectivity to exchange is a 3-step process and the process is described below

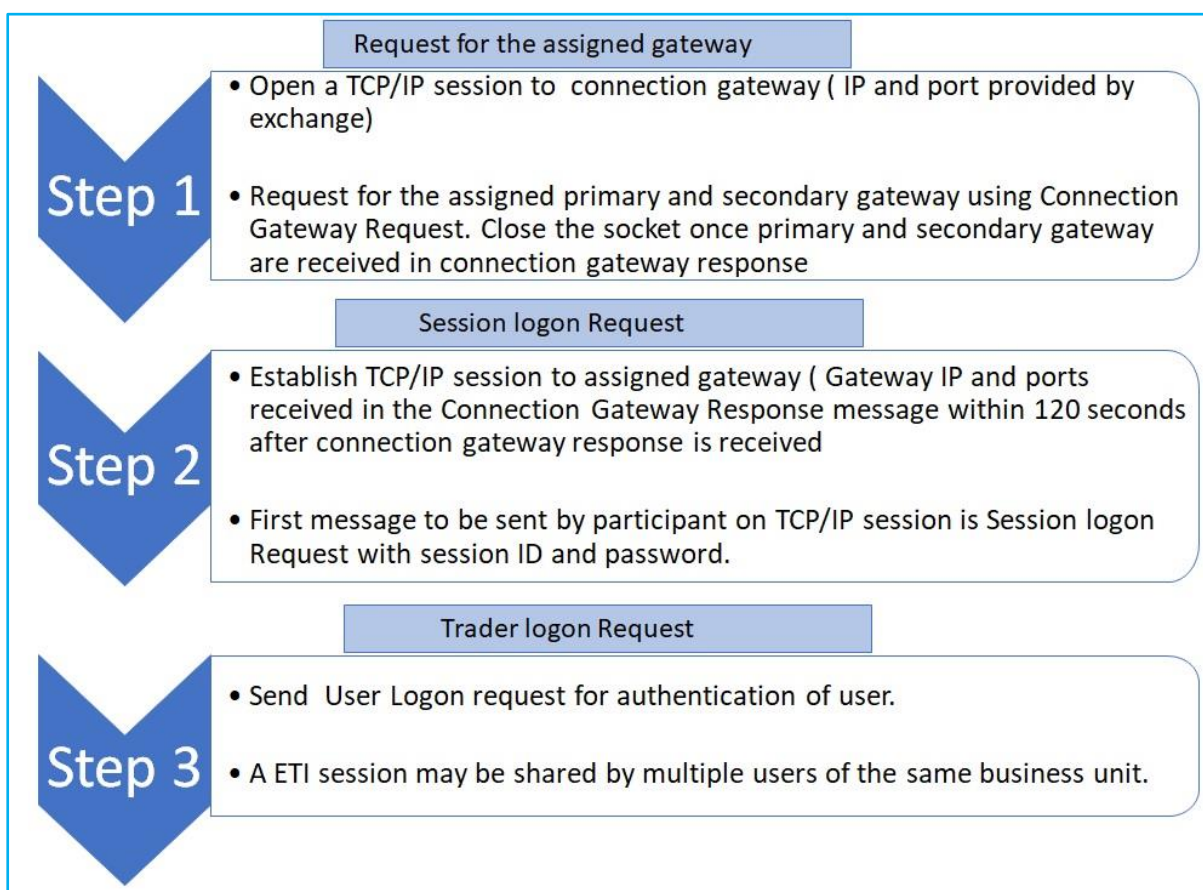


Figure 2: The TCP/IP connection flow of ETI connection

The gateway infrastructure of BSE is built redundantly with set of gateways including a connection gateway, trading gateways for low frequency (LF) sessions and trading gateways for high frequency (HF) sessions.

For each Session ID a pair of primary and secondary gateway remains constant every day. The pair of gateways are provided to each session in the Connection Gateway Response message. Though the pair remains constant the member application cannot directly connect to primary or secondary gateway. The first connection is mandatorily required to be made to the connection gateway IP published by the exchange.

The pair of primary and secondary gateway may remain constant however periodically, exchange does redistribution of connections on gateways based on the load thus the pair of primary and secondary gateway may or may not change after redistribution.

It is highly recommended that the provision for all gateways are made in member network based on the routes provided in the range provided in the section [Routes](#)

## 3 Market Data Streams

BSE support broadly two category of market data interfaces which are designed for low bandwidth client and high bandwidth clients.

### 3.1 Low Bandwidth Interfaces

The low bandwidth interfaces include market data interfaces whose bandwidth consumption is capped by exchange to less than 2MBPS. These interfaces provide netted price level data only. They include the following interfaces

#### 3.1.1 BSE Market Data Interface (MDI)

This interface provides netted price level aggregated market data using multicast technology. The data is in FAST FIX format. The data for all partitions are provided on same feed.

#### 3.1.2 BSE Direct NFCAS

This interface provides netted price level aggregated market data using multicast technology. The data is in proprietary binary format. The data for all partitions are provided on same feed.

### 3.2 High Bandwidth Interfaces

The high bandwidth interfaces include market data interfaces whose bandwidth consumption is not capped by exchange and it varies from 10 MBPS to 200 MBPS. The feeds are provided partition wise. Each partition will be sent on one set of feed only. These interfaces provide un-netted price level data. They include the following interfaces

#### 3.2.1 BSE Enhanced Market Data Interface (EMDI)

This interface provides un-netted price level aggregated market data using multicast technology. The un-netted data is for a defined price level only. The data is in FAST FIX format.

### 3.2.2 BSE Enhanced Order Book Interface (EOBI)

This interface provides every visible order in the order book i.e. tick by tick update is sent in this stream of market data. Most of the functional concepts are like EMDI, however the data is sent in the proprietary binary format.

## 3.3 Reference Data Interface

### 3.3.1 BSE Reference Data Interface (RDI)

This interface provides reference data or the master through multicast channel. The data is continuously published on the channel throughout the day. The reference data is also provided through master data file at EOD.

### 3.4 Comparison Between market data streams:

Attributes	EOBI	EMDI	MDI	Direct NFOCAST
<b>Price Level</b>	Full depth	Depth up to configured level (5 Level)	Depth up to configured level (5 Level)	5 level
<b>Price level Aggregation</b>	Every tick is sent as individual update	Unnetted but price level aggregated	Netted Price level aggregated	Netted Price level aggregated
<b>Format</b>	Binary	FAST	FAST	Binary
<b>Bandwidth</b>	High (Approx. 230 MBPS)	High (Approx. 50 MBPS)	Low (Approx. 2.5 MBPS)	Low (Approx. 2.5 MBPS)
<b>Usage</b>	Algorithmic trading	Algorithmic trading	Used for Terminal based trading application	Used for Terminal based trading application
<b>Recovery</b>	The current pending order book is replayed & should be read again to build the book	The current snapshot up to the configured level is replayed in a separate stream and should be used in case of missed packets	The current snapshot up to the configured level is replayed at regular interval and should be used in case of missed packets	Every update sent is a complete snapshot of 5 level order book, so no separate recovery is required
<b>Availability</b>	Only in BSE Colocation	All networks	All networks	All networks
<b>Composition</b>	Partition wise feed	Partition wise feed	Single feed for all partitions	Single feed for all partitions.

## 4 Routes

In order to have network reachability to each of the connectivity described in the document, necessary routes need to be configured in the client network. Below the routes recommended by exchange to be configured in the client network.

### 4.1 Generic Routes

	Primary Site	DR site	Simulation
<b>Interactive Interfaces for BOLT PLUS</b>	10.255.0.0 Subnet mask: 255.255.0.0	10.255.0.0 Subnet mask: 255.255.0.0	10.255.0.0 Subnet mask: 255.255.0.0
<b>Interactive Interfaces for Shortage Auction</b>	10.1.101.36	10.1.101.194	10.1.101.105
<b>Market Data Interfaces</b>	137.0.0.0	138.0.0.0	137.0.0.0

It is highly recommended that the client should allow the above-mentioned routes in their network. The subnet is kept wide enough to provision any new server in future that will be incorporated in the exchange farm **without impacting the settings done at client side. Also note that the exchange may add a new server in the defined range without prior intimation as well.**

However, if certain client still needs specific Ip address to be configured in the network then following are the list of IP address that are currently in use.

### 4.2 Specific Routes

Interactive Interfaces	Primary Site	DR site	Simulation
<b>EQUITY &amp; EQ. DERIVATIVES</b>	10.255.255.1/26 Port: 12906 to 12920 Port: 15906 to 15920	10.255.241.1/26 Port: 12906 to 12920	10.255.254.1/26 Port: 12406 to 12420
<b>EQUITY SHORTAGE AUCTION</b>	10.1.101.36 Port: 1001	10.1.101.194 Port:1001	10.1.101.105 Port:1000
<b>CURRENCY DERIVATIVES</b>	10.255.255.1/26 Port: 10906 to 10920	10.255.241.1/26 Port: 10906 to 10920	10.255.254.1/26 Port: 10406 to 10420



<b>COMMODITY DERIVATIVES &amp; ELECTRONIC GOLD RECEIPTS ( EGR)</b>	10.255.255.1/26 Port: 14906 to 14920	10.255.241.1/26 Port: 14906 to 14920	10.255.254.1/26 Port: 15406 to 15420
<b>Additional Route for members having servers in BSE Colocation</b>	10.255.253.1/26 Port: 15906 to 15920 Port: 10906 to 10920 Port: 14906 to 14920	Not applicable	Not applicable

### 4.3 Market Data Sources

Market Data Interfaces	Primary Site	DR site	Simulation
<b>EQUITY &amp; EQ. DERIVATIVES</b>	Source: 137.75.9.1 137.75.7.1 137.75.8.3 137.75.21.1  137.75.11.10 137.75.11.11 137.75.11.12 137.75.11.13  10.255.225.15 10.255.225.16 10.255.225.17 10.255.225.18	Source: 138.75.131.5 138.75.131.6 138.75.131.7 138.75.131.8 138.75.131.9 138.75.131.10 138.75.131.11 138.75.131.12	Source: 137.74.11.100 137.74.11.101 137.74.11.1 137.74.11.2
<b>CURRENCY DERIVATIVES</b>	Source: 137.75.11.17 137.75.11.18 10.255.225.11 10.255.225.12  137.75.6.12 137.75.9.1	Source: 138.75.131.5 138.75.131.6 138.75.131.7 138.75.131.8	Source: 137.74.11.100 137.74.11.101 137.74.11.1 137.74.11.2

<b>COMMODITY DERIVATIVES &amp; ELECTRONIC GOLD RECIPTS ( EGR)</b>	Source:	Source:	Source:
	137.75.7.1	138.75.131.5	137.74.11.100
	137.75.6.1	138.75.131.6	137.74.11.101
	137.75.11.17	138.75.131.7	137.74.11.1
	137.75.11.18	138.75.131.8	137.74.11.2
	10.255.225.12		
	10.255.225.11		

## 5 Connection Parameters

The Various Connection parameter for Interactive and market data feed is mentioned below. The Below section provides all the parameters associated with trading and various set-up such Production, Simulation and Disaster Recovery.

5.1 Production: Equity and Equity Derivatives

Interactive Interfaces				Reference Data Interface				
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot	
	Primary	10.255.255.6	12908		227.0.0.11	227.0.0.12	227.0.0.13	227.0.0.14
	Secondary	10.255.255.7	12908		12984	12985	12986	12987
Market Data Interfaces ( Low Bandwidth)								
Equity			Equity Derivatives			NFCAST		
MDI	Service A	Service B	MDI	Service A	Service B	NFCAST	Equity	Equity Derv
	227.0.0.19	227.0.0.20		227.0.0.17	227.0.0.18		227.0.0.21	227.0.0.22
	12994	12995		12992	12993		12996	12997
Market Data Interfaces ( High Bandwidth)								
EMDI	Partition 1	Incremental		Snapshot				
		Service A	Service B	Service A	Service B			
	Partition 2	227.0.0.23	227.0.0.24	227.0.0.25	227.0.0.26			
		12923	12924	12925	12926			
	Partition 3	227.0.0.27	227.0.0.28	227.0.0.29	227.0.0.30			
		12927	12928	12929	12930			
	Partition 4	227.0.0.31	227.0.0.32	227.0.0.33	227.0.0.34			
		12931	12932	12933	12934			
	Indices	227.0.0.35	227.0.0.36	227.0.0.37	227.0.0.38			
		12935	12936	12937	12938			
	227.0.0.15	227.0.0.16	--	--				
	12915	12916	--	--				
EOBI	Partition 1	Incremental		Snapshot				
		Service A	Service B	Service A	Service B			
	Partition 2	237.0.0.1	237.0.0.2	237.0.0.3	237.0.0.4			
		12901	12902	12903	12904			
	Partition 3	237.0.0.5	237.0.0.6	237.0.0.7	237.0.0.8			
		12905	12906	12907	12908			
	Partition 4	237.0.0.9	237.0.0.10	237.0.0.11	237.0.0.12			
		12909	12910	12911	12912			
		237.0.0.13	237.0.0.14	237.0.0.15	237.0.0.16			
		12913	12914	12915	12916			

5.2 Production: Currency Derivatives

Interactive Interfaces				Reference Data Interface				
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot	
	Primary	10.255.255.13	10908		229.0.0.11	229.0.0.12	229.0.0.13	229.0.0.14
	Secondary	10.255.255.12	10908		10984	10985	10986	10987
Market Data Interfaces ( Low Bandwidth)								
MDI	Service A	Service B	NFCAST					Currency
	229.0.0.19	229.0.0.20						229.0.0.21
	10994	10995						10996
Market Data Interfaces ( High Bandwidth)								
EMDI		Incremental		Snapshot				
	Partition 1	Service A	Service B	Service A	Service B			
		229.0.0.23	229.0.0.24	229.0.0.25	229.0.0.26			
	10923	10924	10925	10926				
EOBI		Incremental		Snapshot				
	Partition 1	Service A	Service B	Service A	Service B			
		236.0.0.1	236.0.0.2	236.0.0.3	236.0.0.4			
	10901	10902	10903	10904				

5.3 Production: Commodities Derivatives & Electronic Gold Receipts (EGR)

Interactive Interfaces				Reference Data Interface				
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot	
	Primary	10.255.255.12	14908		228.0.0.11	228.0.0.12	228.0.0.13	228.0.0.14
	Secondary	10.255.255.13	14908		14984	14985	14986	14987
Market Data Interfaces ( Low Bandwidth)								
MDI	Service A	Service B		NFCAS	Commodity	EGR		
	228.0.0.19	228.0.0.20			228.0.0.22	228.0.0.21		
	14994	14995			14996	14997		
Market Data Interfaces ( High Bandwidth)								
EMDI		Incremental		Snapshot				
		Service A	Service B	Service A	Service B			
	Partition 1	228.0.0.23	228.0.0.24	228.0.0.25	228.0.0.26			
		14923	14924	14925	14926			

5.4 Disaster Recovery: Equity and Equity Derivatives

Interactive Interfaces				Reference Data Interface				
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot	
	Primary	10.255.241.10	12908		227.0.0.11	227.0.0.12	227.0.0.13	227.0.0.14
	Secondary	10.255.241.11	12908		12984	12985	12986	12987
Market Data Interfaces ( Low Bandwidth)								
Equity			Equity Derivatives			NFCAST		
MDI	Service A	Service B	MDI	Service A	Service B	NFCAST	Equity	Equity Derv
	227.0.0.19	227.0.0.20		227.0.0.17	227.0.0.18		227.0.0.21	227.0.0.22
	12994	12995		12992	12993		12996	12997
Market Data Interfaces ( High Bandwidth)								
EMDI	Partition 1	Incremental		Snapshot				
		Service A	Service B	Service A	Service B			
	Partition 2	227.0.0.23	227.0.0.24	227.0.0.25	227.0.0.26			
		12923	12924	12925	12926			
	Partition 3	227.0.0.27	227.0.0.28	227.0.0.29	227.0.0.30			
		12927	12928	12929	12930			
	Partition 4	227.0.0.31	227.0.0.32	227.0.0.33	227.0.0.34			
		12931	12932	12933	12934			
	Indices	227.0.0.35	227.0.0.36	227.0.0.37	227.0.0.38			
		12935	12936	12937	12938			
	227.0.0.15	227.0.0.16	--	--				
	12915	12916	--	--				
EOBI	Partition 1	Incremental		Snapshot				
		Service A	Service B	Service A	Service B			
	Partition 2	237.0.0.1	237.0.0.2	237.0.0.3	237.0.0.4			
		12901	12902	12903	12904			
	Partition 3	237.0.0.5	237.0.0.6	237.0.0.7	237.0.0.8			
		12905	12906	12907	12908			
	Partition 4	237.0.0.9	237.0.0.10	237.0.0.11	237.0.0.12			
		12909	12910	12911	12912			
		237.0.0.13	237.0.0.14	237.0.0.15	237.0.0.16			
		12913	12914	12915	12916			

5.5 Disaster Recovery: Currency Derivatives

Interactive Interfaces				Reference Data Interface				
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot	
	Primary	10.255.241.11	10908		229.0.0.11	229.0.0.12	229.0.0.13	229.0.0.14
	Secondary	10.255.241.10	10908		10984	10985	10986	10987
Market Data Interfaces ( Low Bandwidth)								
MDI	Service A	Service B	NFCAST					Currency
	229.0.0.19	229.0.0.20						229.0.0.21
	10994	10995						10996
Market Data Interfaces ( High Bandwidth)								
EMDI		Incremental		Snapshot				
	Partition 1	Service A	Service B	Service A	Service B			
		229.0.0.23	229.0.0.24	229.0.0.25	229.0.0.26			
	10923	10924	10925	10926				
EOBI		Incremental		Snapshot				
	Partition 1	Service A	Service B	Service A	Service B			
		236.0.0.1	236.0.0.2	236.0.0.3	236.0.0.4			
	10901	10902	10903	10904				

5.6 Disaster Recovery: Commodities Derivatives & Electronic Gold Receipts (EGR)

Interactive Interfaces				Reference Data Interface					
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot		
	Primary	10.255.241.11	14908		228.0.0.11	228.0.0.12	228.0.0.13	228.0.0.14	
	Secondary	10.255.241.10	14908		14984	14985	14986	14987	
Market Data Interfaces ( Low Bandwidth)									
MDI	Service A	Service B			NFCAST	Commodity	EGR		
	228.0.0.19	228.0.0.20				228.0.0.22	228.0.0.21		
	14994	14995				14996	14997		
Market Data Interfaces ( High Bandwidth)									
EMDI		Incremental		Snapshot					
	Partition 1	Service A	Service B	Service A	Service B				
		228.0.0.23	228.0.0.24	228.0.0.25	228.0.0.26				
		14923	14924	14925	14926				



5.7 Simulation: Equity and Equity Derivatives

Interactive Interfaces				Reference Data Interface					
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot		
	Primary	10.255.254.6	12408		226.1.0.5	226.1.0.6	226.1.0.7	226.1.0.8	
	Secondary	10.255.254.40	12408		12405	12406	12407	12408	
Market Data Interfaces ( Low Bandwidth)									
Equity			Equity Derivatives			NFCAST			
MDI	Service A	Service B	MDI	Service A	Service B	NFCAST	Equity	Equity Derv	
	226.1.0.2	226.1.0.3		226.1.0.4	226.1.0.5		226.1.0.1	226.1.1.1	
	12402	12403		12404	12405		12401	11401	
Market Data Interfaces ( High Bandwidth)									
EMDI		Incremental		Snapshot					
		Service A	Service B	Service A	Service B				
	Partition 1	226.1.0.13	226.1.0.14	226.1.0.15	226.1.0.16				
		12413	12414	12415	12416				
	Partition 2	226.1.0.17	226.1.0.18	226.1.0.19	226.1.0.20				
		12417	12418	12419	12420				
	Partition 3	226.1.0.21	226.1.0.22	226.1.0.23	226.1.0.24				
		12421	12422	12423	12424				
	Partition 4	226.1.0.25	226.1.0.26	226.1.0.27	226.1.0.28				
		12425	12426	12427	12428				
	EOBI		Incremental		Snapshot				
			Service A	Service B	Service A	Service B			
Partition 1		226.1.0.45	226.1.0.46	226.1.0.47	226.1.0.48				
		12445	12446	12447	12448				
Partition 2		226.1.0.49	226.1.0.50	226.1.0.51	226.1.0.52				
		12449	12450	12451	12452				
Partition 3		226.1.0.53	226.1.0.54	226.1.0.55	226.1.0.56				
		12453	12454	12455	12456				
Partition 4		226.1.0.57	226.1.0.58	226.1.0.59	226.1.0.60				
		12457	12458	12459	12460				

5.8 Simulation: Currency Derivatives

Interactive Interfaces				Reference Data Interface				
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot	
	Primary	10.255.254.6	10408		226.1.3.5	226.1.3.6	226.1.3.7	226.1.3.8
	Secondary	10.255.254.40	10408		10405	10406	10407	10408
Market Data Interfaces ( Low Bandwidth)								
MDI	Service A	Service B	NFCAST					Currency
	226.1.3.2	226.1.3.3						226.1.3.1
	10402	10403						10401
Market Data Interfaces ( High Bandwidth)								
EMDI		Incremental		Snapshot				
	Partition 1	Service A	Service B	Service A	Service B			
		226.1.3.13	226.1.3.14	226.1.3.15	226.1.3.16			
	10413	10414	10415	10416				
EOBI		Incremental		Snapshot				
	Partition 1	Service A	Service B	Service A	Service B			
		226.1.3.33	226.1.3.34	226.1.3.35	226.1.3.36			
	10433	10434	10435	10436				

5.9 Simulation: Commodities Derivatives & Electronic Gold Receipts (EGR)

Interactive Interfaces				Reference Data Interface					
Connection Gateway		Host IP	Port	RDI	Incremental		Snapshot		
	Primary	10.255.254.6	15408		226.1.2.5	226.1.2.6	226.1.2.7	226.1.2.8	
	Secondary	10.255.254.40	15408		15405	15406	15407	15408	
Market Data Interfaces ( Low Bandwidth)									
MDI	Service A	Service B			NFCAST	Commodity	EGR		
	226.1.2.3	226.1.2.4				226.1.2.1	226.1.2.2		
	15403	15404				15401	15402		
Market Data Interfaces ( High Bandwidth)									
EMDI		Incremental		Snapshot					
		Service A	Service B	Service A	Service B				
	Partition 1	226.1.2.9	226.1.2.10	226.1.2.11	226.1.2.12				
		15409	15410	15411	15412				

## 6 Change Log

Sr. No.	Version	Date	Description				
1.	1.0	25 <sup>th</sup> September 2020	Original Document				
2.	1.1	13 <sup>th</sup> November 2021	New Multicast IP 227.0.0.17 and 227.0.0.18 added for Equity Derivative segment in MDI Feed.				
3.	1.2	1 <sup>st</sup> April 2022	<p>Production: New Multicast IP 228.0.0.21 added for EGR in commodities derivatives segment.</p> <p>Simulation: New Multicast IP 226.1.1.2 added for EGR in commodities derivatives segment.</p> <p>Simulation Secondary Connection Gateway IP changed as follows for all segments</p> <table border="1" data-bbox="836 927 1399 1010"> <thead> <tr> <th>OLD IP</th> <th>New IP</th> </tr> </thead> <tbody> <tr> <td>10.255.254.7</td> <td>10.255.254.40</td> </tr> </tbody> </table>	OLD IP	New IP	10.255.254.7	10.255.254.40
OLD IP	New IP						
10.255.254.7	10.255.254.40						