

NATIONAL STOCK EXCHANGE OF INDIA LIMITED**DEPARTMENT : FUTURES & OPTIONS**

Download Ref No : NSE/FAOP/38275

Date : July 09, 2018

Circular Ref. No : 65/2018

All Members,

Consolidated circular on Market Data

This circular is in consolidation of all the previous circulars issued on Market data broadcast.

The Exchange provides market data (price and volume related) to its trading members in the form of Market by Price (MBP) and Market by Order (MBO) for Auction market. Some related data is also provided in the form of Trade Ticker, Open Interest (OI), Open High Low (OHL), Auction Inquiry broadcast, Master Updates, Market Open/Close Status message broadcast, Trade Execution Range (TER) etc. Market data broadcast is refreshed either at fixed time interval or are event driven. The Exchange also provides tick by tick order and trade information.

Members may refer the following annexures for access details and setup required on their systems in order to receive the market data broadcast:

Sr. No.	Market Type Data	Segment	Annexure
1.	Price volume, other related data, master updates, market open/close status message broadcast, Trade Execution Range etc.	Capital Market (CM) Futures & Options (FO) Currency Derivatives (CD)	Annexure 1
2.	Tick by Tick order and trade data via Multicast	Capital Market (CM) Futures & Options (FO) Currency Derivatives (CD)	Annexure 2

For and on behalf of
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Annexure 1

A) Price volume (5 depth 1 second refresh), other related data, master updates, market open/close status message broadcast etc.

Stream	Security / Contracts	Multicast IP	Port	Approx. bandwidth utilization
CM (Source 1)	Active	239.50.50.12	10812	600 Kbps
CM (Source 2)		239.50.50.17	10817	600 Kbps
CD (Source 1)	Active	239.50.50.72	10872	300 Kbps
CD (Source 2)		239.50.50.77	10877	300 Kbps
FO (Source 1)	Most Active	239.50.50.21	10821	850 Kbps
FO (Source 2)		239.50.50.26	10826	850 Kbps
FO – Stream A (Source 1)	Active	239.50.50.22	10822	2 Mbps
FO – Stream A (Source 2)		239.50.50.27	10827	2 Mbps

B) Price volume (5 depth 1 second refresh), other related data, master updates, market open/close status message broadcast etc. (New Market data structure broadcast)

Stream	Security / Contracts	Multicast IP	Port	Approx. bandwidth utilization
CM – (Source 1)	Most Active	239.50.52.12	25012	800 Kbps
		239.50.50.13	10813	
CM – (Source 2)	Most Active	239.50.52.132	25132	800 Kbps
		239.50.50.18	10818	
FO – (Source 1)	Most Active	239.50.52.42	25042	1 Mbps
		239.50.50.23	10823	
FO – (Source 2)	Most Active	239.50.52.162	25162	1 Mbps
		239.50.50.28	10828	
FO – (Source 1)	Active	239.50.52.41	25041	1.4 Mbps
		239.50.50.23	10823	
FO – (Source 2)	Active	239.50.52.161	25161	1.4 Mbps
		239.50.50.28	10828	
CD – (Source 1)	Most Active	239.50.52.72	25072	200 Kbps
		239.50.50.73	10873	
CD – (Source 2)	Most Active	239.50.52.192	25192	200 Kbps
		239.50.50.78	10878	

C) Price volume (5 depth 1 second refresh), other related data, master updates, market open/close status message broadcast etc. on additional streams available only in FO segment

Stream	Security / Contracts	Multicast IP	Port	Approx. bandwidth utilization
FO – Stream B (Source 1)	NIFTY option contracts	239.50.51.21	15021	1.5 Mbps
		239.50.51.20	15020	
FO – Stream B (Source 2)		239.50.51.121	15121	1.5 Mbps
		239.50.51.20	15020	
FO – Stream C (Source 1)	NIFTY futures contracts, all other Index futures and option contracts (other than NIFTY and BANKNIFTY)	239.50.51.22	15022	1.5 Mbps
		239.50.51.20	15020	
FO – Stream C (Source 2)		239.50.51.122	15122	1.5 Mbps
		239.50.51.20	15020	
FO – Stream D (Source 1)	Stock futures and Options (For symbol starting S to Z)	239.50.51.23	15023	1.5 Mbps
		239.50.51.20	15020	
FO – Stream D (Source 2)		239.50.51.123	15123	1.5 Mbps
		239.50.51.20	15020	
FO – Stream E (Source 1)	Stock futures and Options (For symbol starting I to L)	239.50.51.24	15024	1.5 Mbps
		239.50.51.20	15020	
FO – Stream E (Source 2)		239.50.51.124	15124	1.5 Mbps
		239.50.51.20	15020	
FO – Stream F (Source 1)	BANKNIFTY futures and option contracts	239.50.51.25	15025	1.5 Mbps
		239.50.51.20	15020	
FO – Stream F (Source 2)		239.50.51.125	15125	1.5 Mbps
		239.50.51.20	15020	
FO – Stream G (Source 1)	Stock futures and Options (For symbol starting A to B)	239.50.51.26	15026	1.5 Mbps
		239.50.51.20	15020	
FO – Stream G (Source 2)		239.50.51.126	15126	1.5 Mbps
		239.50.51.20	15020	
FO – Stream H (Source 1)	Stock futures and Options (For symbol starting C to H)	239.50.51.27	15027	1.5 Mbps
		239.50.51.20	15020	
FO – Stream H (Source 2)		239.50.51.127	15127	1.5 Mbps
		239.50.51.20	15020	
FO – Stream I (Source 1)	Stock futures and Options (For symbol starting M to R)	239.50.51.28	15028	1.5 Mbps
		239.50.51.20	15020	
FO – Stream I (Source 2)		239.50.51.128	15128	1.5 Mbps
		239.50.51.20	15020	

Note:

- Members are requested to note that Only Source 1 Broadcast from Table B is applicable for VSAT users. However for FO users only FO Source -1 Active broadcast is available on VSAT.
- Members can subscribe to Source 1 or Source 2 or both as per their requirement keeping in mind the bandwidth available with them.
- With regards to new market data structure broadcast, NNF users may note that they can refer file “cm_index_token_mstr.txt” to identify the index tokens. This file is available on extranet under path “/common/ntneat/”

D) Trade Execution Range (TER) Broadcast:

Trade Execution Range is applicable only in FO and CD segment and Exchange provides related broadcast for NNF users as below:

Security / Contracts	Multicast IP	Multicast Port	Segment	Approx. bandwidth utilization
Trade Execution Range (TER)	239.55.55.21	55021	FO	50.0 Kbps
	239.55.55.71	55071	CD	2.0 Kbps

Annexure 2

Tick by Tick order and trade data via Multicast (MTBT)

A) Master Files for MTBT

Exchange provides MTBT master files for mapping information about the stream id and token number of the security/contract on specified extranet paths as mentioned below:

Segment	Extranet path	File name
CM	/ftp/common/tbt_masters	cm_contract_stream_info.csv
FO	/faoftp/faocommon/tbt_masters	fo_spd_contract_stream_info.csv fo_contract_stream_info.csv
CD	/cdsftp/cdscommon/tbt_masters	cd_contract_stream_info.csv cd_spd_contract_stream_info.csv

B) Segment wise details of Multicast IP address and port are as below:

Market participants are advised to monitor and adequately size their infrastructure and systems while subscribing to these feeds.

CM						
Stream ID	Contents	New Source 1		New Source 2 (Delayed Feed)		Approx. bandwidth utilization
		Multicast IP Address	Multicast Port	Multicast IP Address	Multicast Port	
1	As per master stream file	239.60.60.41	16641	239.60.60.31	10631	3.5Mbps
2	As per master stream file	239.60.60.42	16642	239.60.60.32	10632	3.5Mbps
3	As per master stream file	239.60.60.43	16643	239.60.60.33	10633	3.5Mbps
4	As per master stream file	239.60.60.44	16644	239.60.60.34	10634	3.5Mbps

FO						
Stream ID	Contents	New Source 1		New Source 2 (Delayed Feed)		Approx. bandwidth utilization
		Multicast IP Address	Multicast Port	Multicast IP Address	Multicast Port	
1	Nifty options	239.70.70.41	17741	239.70.70.31	10831	9.0 Mbps
2	NIFTY futures contracts & all other Index futures and option contracts (other than NIFTY and BANKNIFTY)	239.70.70.42	17742	239.70.70.32	10832	2.0 Mbps
3	Stock futures and Options (For symbol starting S to Z)	239.70.70.43	17743	239.70.70.33	10833	7.5 Mbps

4	Stock futures and Options (For symbol starting I to L)	239.70.70.44	17744	239.70.70.34	10834	8.5 Mbps
5	BANKNIFTY futures and options	239.70.70.45	17745	239.70.70.35	10835	20.0 Mbps
6	Stock futures and Options (For symbol starting A to B)	239.70.70.46	17746	239.70.70.36	10836	6.5 Mbps
7	Stock futures and Options (For symbol starting C to H)	239.70.70.47	17747	239.70.70.37	10837	9.5 Mbps
8	Stock futures and Options (For symbol starting M to R)	239.70.70.48	17748	239.70.70.38	10838	7.5 Mbps

CD						
Stream ID	Contents	New Source 1		New Source 2 (Delayed Feed)		Approx. bandwidth utilization
		Multicast IP Address	Multicast Port	Multicast IP Address	Multicast Port	
1	All currency pairs and interest rate futures	239.80.80.41	18841	239.80.80.31	10831	1.5 Mbps

Note: The approximate bandwidth utilization mentioned above is current utilization of each stream and will vary as per market activity. With respect to using Exchange data, Member's may kindly take note of Exchange circular NSE/MEM/26958 dated June 19, 2014. Exchange data can be used by Member's clients who are registered for trading with the member on the Exchange in any segment.

C) Tick agent

Tick Agent application is an optional utility provided by the Exchange and can be installed at client end server for receiving tick data. Tick data which consists of orders and trades is received from the Exchange on multicast by tick agent. The tick agent forwards the same data to client end applications on multicast.

Tick Agent also provides tick data recovery on TCP. If the client application loses tick data on multicast, it can request the tick agent for recovering the missed tick data on TCP.

Client end applications can receive multicast tick data directly without using tick agent. They can also recover missed tick data from the Exchange directly on TCP.

The TICK Agent application file is available for members on extranet on the below path-

Segment	Tick Agent Setup Path on Extranet
CM	/common/TBT_Linux/TICK_AGENT_LINUX_1.0.3
	/common/TBT_Windows/TICK_AGENT_WINDOWS_1.3
FO	/faofp/faocommon/TBT_Linux/TICK_AGENT_LINUX_1.0.3
	/faofp/faocommon/TBT_Windows/TICK_AGENT_WINDOWS_1.3
CD	/cdsftp/cdscommon/TBT_Linux/TICK_AGENT_LINUX_1.0.3
	/cdsftp/cdscommon/TBT_Windows/TICK_AGENT_WINDOWS_1.3

D) Recovery of tick by tick data

Tick by tick data is available for recovery on TCP. At the Exchange end the recovery requests are managed and serviced through a setup consisting of a load balancer server and multiple recovery servers. If the client end application misses any tick data it can recover the missed ticks by sending request on TCP to the server IP provided by the Exchange (segment wise IPs and ports provided below). The response messages will be provided on TCP. The TCP connections for recovering messages are not persistent.

A new connection has to be made for each and every recovery request. Client end applications using tick agent can recover missed tick data on TCP by sending recovery request to the tick agent. Also, the recovery requests are served from file stored in recovery server. Due to these factors, there is a lag / delay in the tick data from recovery servers, as compared to direct multicast feed.

Segment	IP Address	Port
CM	172.28.124.34	10984
FO	172.28.124.30	10990
CD	172.28.124.32	10970