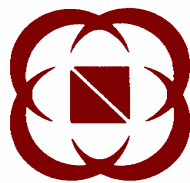


Broadcast Specifications Document For Capital Market Trading System

Version 1.0.3

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Preface

Purpose

This document describes the protocol to be used to receive the broadcast for Capital Market Trading System (CMTS).

Target Audience

This document is written for system designers and programmers of user organizations and third party software developers who are responsible for the development of software to interact with NSE's Capital Market Trading System.

Organization of This Document

This document is organized as follows:

Chapters	Description
Chapter 1	It details the data types used and also covers the Broadcast Header, MESSAGE_HEADER that is prefaced with all the structures.
Chapter 2	Describes the details of header, data and trailer of Bhav Copy.
Chapter 3	Describes the various Broadcast messages and the Compression and Decompression algorithm of Broadcast data.
Appendix	Transaction codes and also covers the various market statuses, market types and book types etc.

Abbreviations and Acronyms Used

The abbreviations and acronyms used in this document are:

AGM	Annual General Meeting
AON	All Or None
ATO	At The Opening
AU	Auction
BCID	Broadcast Circuit ID
EGM	Extraordinary General Meeting
GTC	Good Till Cancellation
GTD	Good Till Date

LTP	Last Traded Price
MBO	Market By Order
MBP	Market By Price
MF	Minimum Fill
NEAT	National Exchange for Automated Trading
NNF	Non Neat Front End
NSE	National Stock Exchange
NT	Negotiated Trade
OL	Odd Lot
RL	Regular Lot
SL	Stop Loss
ST	Special Terms
TM	Trading Member
TWS	Trader Workstation

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1 General Guidelines

1.1 Introduction

This chapter describes general guidelines for the protocol to be used to interpret the broadcast information sent by the Trading System. The System operates on X25 as well as IP protocol.

1.2 Guidelines for Designers

1. All time fields are number of seconds from midnight January 1, 1980.
2. All price fields must be multiplied by 100 before sending to the host end and divided by 100 while receiving from the host end as the host system processes prices in paise.

1.3 Guidelines for Programmers

1. If your system uses little-endian order, the data types such as UINT, SHORT, LONG and DOUBLE contained in a packet, which occupy more than one byte should be twiddled (byte reversed). Twiddling involves reversing a given number of bytes such that the byte in 'n' position comes to the first position; the byte in (n-1) position comes to the second position and so on. For example, if the value to be sent is 1A2B (hexadecimal), reverse the bytes to 2B1A. The same applies while receiving messages. So if the value received is 02BC, the actual value is BC02. So twiddle such data types before sending and after receiving to ensure that correct data is sent and received.

Note:

Twiddling is required because of the variety in endian order—big and little. A big-endian representation has a multibyte integer written with its most significant byte on the left. A little-endian representation, on the other hand, places the most significant byte on the right. Intel's 80x86 processors and their clones are little endian. Sun's SPARC, Motorola's 68K, and the PowerPC families are all big endian. All of the protocol layers in the TCP/IP suite are defined to be big endian.

The trading system host end uses big-endian order. Suppose your machine uses little-endian order. Twiddle the numeric value before sending and after receiving over a TCP/IP connection.

2. All the structures should be defined in the following manner:
 - Items of type char or unsigned char, or arrays containing items of these types, are byte aligned.
 - Structures are word aligned; structures of odd size are padded to an even number of bytes.
 - All other types of structure members are word aligned.
3. All reserved fields mentioned should be mapped to CHAR buffer and initialized to NULL.
4. Inside the broadcast packet, the first byte indicates the market type. Ignore the next 7 bytes. If the first byte is 2 it indicates Futures & Options market. The message header starts from the 9th byte. The remaining portion of the buffer has to be mapped to the broadcast structures mentioned in the document.

Note:

- The values of all the transaction codes given in the document are listed in Appendix.

1.4 Message Structure Details

The message structure consists of two parts namely message header and message data. The message header consists of the fields of the header which is prefaced with all the structures.

The message data consists of the actual data that is sent across to the host or received from the host.

Transaction code, an important field of the message header, is a unique numeric identifier which is sent from the trading system.

1.5 Data Types Used

Data Type	Size in Bytes	Signed/ Unsigned
CHAR	1	Signed
UINT	2	Unsigned
SHORT	2	Signed
LONG	4	Signed
DOUBLE	8	Signed and Floating Point
BIT	1 bit	NA

1.6 Message Header

Each structure is prefaced with a MESSAGE_HEADER which is an interactive header. Some data in the header are fixed whereas some data are variable and set differently for each transaction code. The structure of the Message Header is as follows:

Structure Name: MESSAGE HEADER	
Packet Length: 40 bytes	
Reserved	4 bytes
LONG	LogTime
CHAR	AlphaChar [2]
SHORT	TransactionCode
SHORT	ErrorCode
Reserved	8 Bytes
CHAR	TimeStamp1 [8]
CHAR	TimeStamp2 [8]
SHORT	MessageLength

The fields of Message Header are described below.

Field Name	Description	Comment
LogTime	This field should be set to zero while sending messages.	
AlphaChar	This field should be set to the first two characters of Symbol if the structure contains Symbol and Series; otherwise it should be set to blank.	
TransactionCode	Transaction message number. This	

Field Name	Description	Comment
	describes the type of message received or sent.	
ErrorCode	This field should be set to zero while sending messages to the host. In the messages coming from the host, this field describes the type of error. Refer to <i>Error Messages</i> in Appendix.	
TimeStamp	This field should be set to numeric zero while sending to the host. This is used in host end.	
TimeStamp1	This field should be set to numeric zero while sending. This is the time the message arrives at the trading system host.	In TimeStamp1, time is sent in jiffies from host end. This 8 byte data needs to be typecasted as first four byte into double variable and typecast the other four byte into another double variable. These values need to be used while requesting message area download in the same order.
TimeStamp2	This field should be set to numeric zero while sending to the host. For messages coming from the host, this field contains the machine number from which the packet is coming.	In TimeStamp2, machine number is sent from host end.
MessageLength	This field should be set to the length of the entire message, including the length of message header while sending to host.	

1.7 Broadcast Process Header

The broadcast messages like market open, market close, market in pre-open are prefaced with BCAST_HEADER. Some fields in the header are fixed. The remaining fields are variable and set differently for each transaction code. The structure of the BCAST_HEADER is as follows:

Structure Name: BCAST_HEADER
Packet Length: 40 bytes

Reserved	4 bytes
LONG	LogTime
CHAR	AlphaChar [2]
SHORT	TransCode
SHORT	ErrorCode
LONG	BCSeqNo
Reserved	4 bytes
CHAR	TimeStamp2 [8]
CHAR	Filler2 [8]
SHORT	MessageLength

Field Name	Description	Comment
LogTime	This field should be set to zero while sending to host end. For messages sent from host end this field contains the time when the message was generated by the trading system host.	
AlphaChar	This field is set to the first two characters of Symbol if the structure contains Symbol and Series; otherwise it is set to blank.	
TransactionCode	This field contains the transaction message number. This describes the type of message received or sent.	
ErrorCode	This field contains the error number which describes the type of error. Refer to <i>List of Error Codes</i> in Appendix.	
BCSeqNo	This field contains BCAST Sequence number for Ericsson switch.	
TimeStamp2	This field contains the time when message is sent from the host.	
Filler2	This field contains the machine number.	
MessageLength	This field is set to the length of the entire message, including the length of the message header.	

Note: BCAST_HEADER is prefaced with a system header which is of eight bytes

1.8 Error Message

When the Error Code in the Message Header is not zero, ERROR RESPONSE is sent. The Error Message will describe the error received. The structure is as follows:

Structure Name: ERROR RESPONSE Packet Length: 180 bytes
MESSAGE HEADER SEC_INFO { CHAR Symbol [10] CHAR Series [2] } CHAR Error Message [128]

Field Name	Description	Comment
Symbol	This field should contain the symbol of a security.	
Series	This field should contain the series of a security.	
ErrorMessage	Stores the error message. Refer to <i>List of Error Codes</i> in Appendix.	

2 Bhav Copy

2.1 Introduction

This section describes the end of the trading day activities. It covers the transmission of Security Bhav Copy and Index Bhav Copy. This takes place after the markets close for the day. Broadly, the following activities are done:

- Calculation of closing price and generation of interim bhav copy.
- Generation of main bhav-copy.

Closing Batch: In closing batch, the closing price is calculated and broadcast to the traders. The interim bhav copy is also broadcast to the traders. During *closing session* traders can trade at the closing price.

Closing Session: After closing batch, the market is open for trading for 10 mins. This period is known as **Closing Session** which is not a part of Batch Processing. Traders can place orders at market price (closing price) only.

2.2 Security Bhav Copy

2.2.1 Message Stating the Transmission of Security Bhav Copy Will Start Now

This is the first message which is broadcasted saying that the bhav copy will be started now. The structure sent is:

BROADCAST MESSAGE (Refer to *General Message Broadcast* in Section 1)

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_JRNL_VCT_MSG (6501).	Message: Security Bhav Copy is being broadcast now.

2.2.2 Header of Report on Market Statistics

A header precedes the actual bhav copy that is sent to the trader. The message structure sent is:

Structure Name: MS_RP_HDR
Transaction Code: MARKET_STATS_REPORT_DATA (1833).
Packet Length: 106 bytes
MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) CHAR MsgType LONG ReportDate SHORT UserType CHAR BrokerId [5] CHAR BrokerName [25] SHORT TraderNumber CHAR TraderName [26]

Field Name	Description	Comment
TransactionCode	The transaction code is MARKET_STATS_REPORT_DATA (1833).	
MsgType	This field is set to 'H' denoting Header	
ReportDate	This field is set to the report date.	
UserType	This field contains the type of user. This is set to '-1'.	
BrokerId	This field contains Trading Member ID. This is set to blanks.	
BrokerName	This field contains the name of the broker. This is set to blanks.	
TraderNumber	This field contains the trader/user ID. This is set to zero.	
TraderName	This field contains the name of the trader. This is set to blanks.	

2.2.3 Report on Market Statistics

This is the actual data that is sent for the report. The structure is as follows:

Structure Name: REPORT MARKET STATISTICS
Transaction Code: MARKET_STATS_REPORT_DATA (1833).
Packet Length: 450 bytes

```

MESSAGE HEADER (Refer to Message Header in Chapter 1)
CHAR MessageType
Reserved 1 byte
SHORT NumberOfRecords
MARKET STATISTICS DATA [7]
{
SEC_INFO (Refer to Error Message in Chapter 1)
SHORT MarketType
LONG OpenPrice
LONG HighPrice
LONG LowPrice
LONG ClosingPrice
LONG TotalQuantityTraded
DOUBLE TotalValueTraded
LONG PreviousClosePrice
LONG FiftyTwoWeekHigh
LONG FiftyTwoWeekLow
CHAR CorporateActionIndicator [4]
}
    
```

Field Name	Description	Comment
TransactionCode	The transaction code is MARKET_STATS_REPORT_DATA (1833).	
MessageType	This field is set to 'R' denoting Report Data.	
NumberOfRecords	This field contains the number of markets for which Market Statistics is being sent. In a packet at most 7 records can be packed.	
Symbol	This field contains the Symbol of the security.	
Series	This field contains the series of a security.	
MarketType	This field contains one of the following values indicating the market type as: <ul style="list-style-type: none"> • '1' – Normal • '2' – Odd lot • '3' – Spot • '4' – Auction 	
OpenPrice	This field contains the open price of a security.	

Field Name	Description	Comment
HighPrice	This field contains the highest trade price.	
LowPrice	This field contains the lowest trade price.	
ClosingPrice	This field contains the closing price of a security.	
TotalQuantityTraded	This field contains the total quantity of the security that is traded today.	
TotalValueTraded	This field contains the total value of the securities traded.	
PreviousClosePrice	This field contains the previous day's closing price of the security.	
FiftyTwoWeekHighPrice	This field contains the highest trade price in a security in the immediately previous 52 weeks.	
FiftyTwoWeekLowPrice	This field contains the lowest trade price in a security in the immediately previous 52 weeks.	
CorporateActionIndicator	This field contains the Corporate Action.	The EGM, AGM, Interest, Bonus, Rights and Dividend flags are set depending on the corporate action.

2.2.4 Packet Indicating Data for Depository Securities Begins

This message indicates that hereafter the bhav copy for depository securities will be broadcast. The structure sent is:

REPORT MARKET STATISTICS(Refer to *Report on Market Statistics* discussed earlier in this chapter)

Field Name	Description	Comment
TransactionCode	The transaction code is MARKET_STATS_REPORT_DATA (1833).	
MessageType	This field is set to 'D' denoting Data.	

2.2.5 Data for Depository Securities

This is same as the data packet for non-Depository securities. The structure sent is:

REPORT MARKET STATISTICS (Refer to *Report on Market Statistics* discussed earlier in this chapter)

Field Name	Description	Comment
TransactionCode	The transaction code is MARKET_STATS_REPORT_DATA (1833).	

2.2.6 Trailer Record

This indicates that the transmission of bhav copy ends here. The structure is:

Structure Name: REPORT TRAILER
Transaction Code: MARKET_STATS_REPORT_DATA (1833).
Packet Length: 47 bytes
MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) CHAR MessageType LONG NumberOfRecords Reserved 1 byte

Field Name	Description	Comment
TransactionCode	The transaction code is MARKET_STATS_REPORT_DATA (1833).	
MessageType	This field is set as 'T' for trailer record.	
NumberOfRecords	This field contains the number of data packets sent in the bhav copy.	

2.3 Index Bhav Copy

2.3.1 Message Stating the Transmission of the Index Bhav Copy Will Start Now

This is the first message which is broadcast saying the bhav copy will start now. The structure sent is:

BROADCAST MESSAGE (Refer to *General Message Broadcast* in Chapter 3)

Field Name	Description	Comment
TransactionCode	The transaction code is	Message: Index

	BCAST_JRNL_VCT_MSG (6501).	Bhav Copy is being broadcast now.
--	----------------------------	-----------------------------------

2.3.2 Header of Report on Market Statistics

Refer to *Header of Report on Market Statistics (Security Bhav Copy)* discussed earlier in this chapter.

Field Name	Description	Comment
TransactionCode	The transaction code is MKT_IDX_RPT_DATA (1836).	

2.3.3 Report on Index

This is the actual data that is sent for index data. The structure is as follows:

Structure Name: MS_RP_MARKET_INDEX
Transaction Code: MKT_IDX_RPT_DATA (1836).
Packet Length: 464 bytes
<pre> { MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) CHAR MsgType Reserved 1 byte SHORT NoOfIndexRecs MKT_INDEX [7] } MKT_INDEX { CHAR IndName [21 + 3] LONG MktIndexPrevClose LONG MktIndexOpening LONG MktIndexHigh LONG MktIndexLow LONG MktIndexClosing LONG MktIndexPercent LONG MktIndexYrHi LONG MktIndexYrLo LONG MktIndexStart } </pre>

Field Name	Description	Comment
TransactionCode	The transaction code is MKT_IDX_RPT_DATA (1836).	

Field Name	Description	Comment
MsgType	This field is set to 'R' denoting Report for Index Data.	
NoOfIndexRecs	This field contains the number of index records in the packet.	
IndName	This field contains the name of the index being broadcast.	For example, S&P CNX
MktIndexPrevClose	This field contains the previous days closing index.	
MktIndexOpening	This field contains today's opening index.	
MktIndexHigh	This field contains today's high index.	
MktIndexLow	This field contains today's low index.	
MktIndexClosing	This field contains today's closing index.	
MktIndexPercent	This field contains % change today.	
MktIndexYrHi	This field contains 52 week high index.	
MktIndexYrLo	This field contains 52 week low index.	

2.3.4 Trailer of Index Data Broadcast

Refer to *Trailer Record of Security Bhav Copy* discussed earlier in this chapter.

3 Broadcast

3.1 Introduction

This section describes the Compression and Decompression algorithm of Broadcast data and the various Broadcast messages with their structures.

3.2 Compression of the Broadcast Data

The broadcast traffic from the exchange which gives the on-line quotes to the trading terminals has been continually increasing, especially during market open and market close. To accommodate the increased broadcast traffic, the exchange has come up with a compression algorithm to compress some of the specific broadcast transaction codes, which are as follows:

Transaction Code	Represents
7200	MBO/MBP.
7201	Mkt Watch
7202	Ticker
7208	Only MBP

LZO compression algorithm is used to compress the above specified broadcast transaction codes. The details of the LZO compression algorithm are described below. The LZO stands for Lempel Ziv Oberhaumer. This algorithm is freely available on the internet (URL: <http://www.oberhumer.com/opensource/lzo>). It is made available by free software foundation. The algorithm is tested on various operating systems like UNIX and red hat Linux.

3.3 Decompression Routine

NSE will provide the object file containing the decompression routine.

3.3.1 Sequential Packing

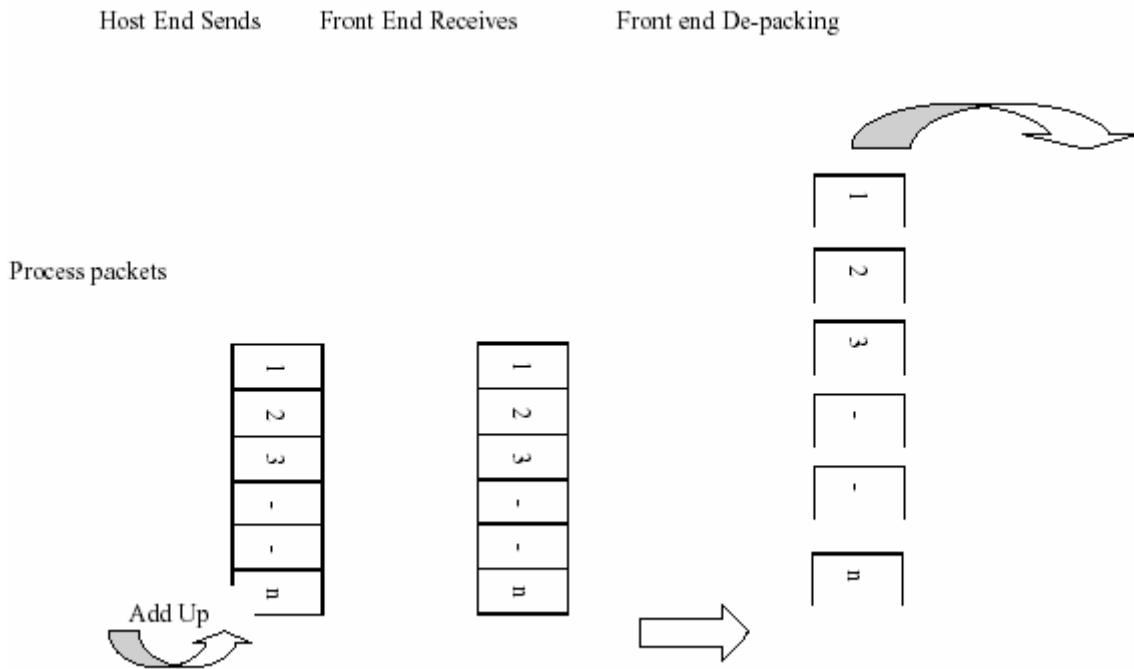
To improve the effective data transfer, the idea of sequential packing along with the lzo compression algorithm has been incorporated. At the host end, sequential packing algorithm packs the incoming data packets, which is then transmitted over the network. The data packets are packed in FIFO order.

For example,

If 'n' packets are packed in a buffer, they are arranged in the following order:

1st packet will be stored at the first place in the buffer, 2nd Packet will be stored at the second place, and so on.

At the front end while packing the buffer, the packets are to be segregated in the same order, that is, isolate each packet and process each packet as per the sequence viz- first packet first and last packet at the end. The packets within a buffer may be a mixture of compressed and uncompressed data packets.



3.4 Calling Convention

The decompression routine is a C-callable routine with the following prototype:

```
Void Sigdec2 (char *ip,
              unsigned short *ipL,
              char *op,
              unsigned short *opL,
              unsigned short *errorcode);
```

3.5 Parameters

Ip: it is the pointer to the input buffer.

IpL: It is the pointer to a short containing the length of input.

Op: it is the pointer of the output buffer.

OpL: It is the pointer to a short containing the length of output.

ErrorCode: it is the pointer to a short containing the error code.

3.6 Packet Format

Incoming packet at the front end can be interpreted by mapping onto the following structure.

```
Struct {  
    CHAR    cNetId [2]  
    SHORT   iNoPackets  
    CHAR    cPackData [512]  
} BcastPackData
```

Where,

cNetId [2] Identifies the machine (CM broadcast or F&O Broadcast)

iNoPackets The number of packets that are sequentially packed

cPackData Buffer containing all the packets.

The buffer when mapped to, by the above structure, the number of packets in the buffer can be known. The next task is to segregate the packets and process the individual packets.

The packets received through the broadcast traffic have to be interpreted as follows

```
COMPRESSION_BROADCAST_DATA  
{  
    SHORT    CompressionLen  
    CHAR     BroadcastData [ ]  
}
```

Note:

- The first two bytes of the broadcast packet indicates the length of the data after compression.
- If the compression length is zero, the data received is not compressed.
- If the length is non-zero, the data following the length should be decompressed by using the decompression routine.

Inside the broadcast data, the first byte indicates the market type. Ignore the rest of the 7 bytes before message header. If the first byte has the value of '4', it is Capital market and if it is '2' then it is futures and options market.

The message header starts from 9th byte.

3.8 General Message Broadcast

Any general message is broadcasted in the following structure. The structure sent is:

Structure Name: BROADCAST MESSAGE
Transaction Code: BCAST_JRNL_VCT_MSG (6501).
Packet Length: 297 bytes
MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) SHORT BranchNumber CHAR BrokerNumber [5] CHAR ActionCode [3] Reserved 4 bytes Note: Use any one of following two BROADCAST DESTINATION structures: For Small Endian Machines BROADCAST DESTINATION { BIT Reserved [7] BIT TraderWs [1] Reserved 1 byte } For Big Endian Machines BROADCAST DESTINATION { BIT TraderWs [1] BIT Reserved [7] Reserved 1 byte } SHORT BroadcastMessageLength CHAR BroadcastMessage [239]

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_JRNL_VCT_MSG (6501).	

BranchNumber	This field contains the branch number of the trader or broker.	
BrokerNumber	This field contains the Trading Member ID of the broker.	
ActionCode	This field Indicates the action taken.	For example, 'SYS' - System 'AUI' - Auction Initiation 'AUC' - Auction Complete 'LIS' - Listing
BroadcastDestination	This field contains the destination of the message, that is, Trader Workstation or Control Workstation.	
BroadcastMessageLength	This field contains the length of the broadcast message.	
BroadcastMessage	This field contains the broadcast message.	

3.9 Change in System Status / Parameters

This message is sent when any global operating parameters are changed or status of markets is changed. The structure of the message is:

Structure Name: SYSTEM_INFORMATION_DATA	
Transaction Code: BCAST_SYSTEM_INFORMATION_OUT (7206)	
Packet Length: 90 bytes	
MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1)	
MARKET STATUS	
SHORT	Normal
SHORT	Oddlot
SHORT	Spot
SHORT	Auction
LONG	MarketIndex
SHORT	DefaultSettlementPeriod (Normal)
SHORT	DefaultSettlementPeriod (Spot)
SHORT	DefaultSettlementPeriod (Auction)
SHORT	CompetitorPeriod

SHORT	SolicitorPeriod
SHORT	WarningPercent
SHORT	VolumeFreezePercent
Reserved	2 bytes
SHORT	TerminalIdleTime
LONG	BoardLotQuantity
LONG	TickSize
SHORT	MaximumGtcDays
Note: Use any one of following two structures:	
For Small Endian Machines:	
SECURITY ELIGIBLE INDICATORS	
BIT	Reserved [5]
BIT	Books Merged [1]
BIT	Minimum Fill [1]
BIT	AON [1]
Reserved	1 byte
For Big Endian Machines:	
SECURITY ELIGIBLE INDICATORS	
BIT	AON [1]
BIT	Minimum Fill [1]
BIT	Books Merged [1]
BIT	Reserved [5]
Reserved	1 byte
SHORT	DisclosedQuantityPercentAllowed
Reserved	8 bytes

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_SYSTEM_INFORMATION_OUT (7206)	
MarketStatus	This field contains a value assigned for market status are: <ul style="list-style-type: none"> • '0' if it is Preopen • '1' if it is Open • '2' if it is Closed • '3' if it is Suspended 	In the pre-open state of the market, orders can only be entered but no matching takes place. The trading starts when the market is open. No orders can be entered for a security when the market is closed.
MarketIndex	This field contains the current market	

	index.	
SettlementPeriod	This field contains the default settlement period in various markets. Default Settlement (Normal), Default Settlement (Spot) and Default Settlement (Auction).	
CompetitorPeriod	This field contains the default competitor period for auction.	
SolicitorPeriod	This field contains the default solicitor period for auction.	
WarningPercent	This field contains the warning percentage. If a broker exceeds his turnover by this value in percent, a warning message is broadcast to all traders.	Refer to Turnover Limit Exceeded Or Broker Reactivated in Chapter 3.
VolumeFreezePercent	This field contains the volume freeze percentage. If a broker exceeds his turnover by this value in percent, the broker is deactivated and a message is broadcasted to all traders.	Refer to Turnover Limit Exceeded Or Broker Reactivated in Chapter 3.
TerminalIdleTime	This field contains the idle time of the TWS terminal.	
BoardLotQuantity	This field contains the board lot quantity. The regular lot order quantity must be a multiple of this quantity.	
TickSize	This field contains the Tick size. The order price and the trigger price, if applicable, must be a multiple of this tick size.	
MaximumGTCDays	This field contains the maximum GTC days, that is, the maximum number of days after which a Good Till Canceled order will be canceled.	
SecurityEligibilityIndicator	If the Minimum Fill flag is set, then orders will have the Minimum Fill attribute set. If the All Or None (AON) flag is set, then orders will have the AON attribute set.	
DisclosedQuantity PercentAllowed	This field contains the disclosed quantity allowed percentage. The disclosed quantity, if set, will not be greater than this percent of the total quantity.	

3.10 Security Master Update

This is sent whenever the parameter of any security is changed. The structure is given below.

Structure Name: SECURITY UPDATE INFORMATION
Transaction Code: BCAST_SECURITY_MSTR_CHG (7305).
Packet Length: 237 bytes
<p>MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1)</p> <p>SHORT Token</p> <p>SEC_INFO (Refer to <i>Error Message</i> in Chapter 1)</p> <p>SHORT InstrumentType</p> <p>SHORT PermittedToTrade</p> <p>DOUBLE IssuedCapital</p> <p>SHORT WarningPercent</p> <p>SHORT FreezePercent</p> <p>CHAR CreditRating [17]</p> <p>Note: Use any one of following two SECURITY ELIGIBILITY PER MARKET structures:</p> <p>For Small Endian Machines:</p> <p>SECURITY ELIGIBILITY PER MARKET [4]</p> <p>{</p> <p> BIT Reserved [7]</p> <p> BIT Eligibility [1]</p> <p> SHORT Status</p> <p>}</p> <p>For Big Endian Machines:</p> <p>SECURITY ELIGIBILITY PER MARKET [4]</p> <p>{</p> <p> BIT Eligibility [1]</p> <p> BIT Reserved [7]</p> <p> SHORT Status</p> <p>}</p> <p>SHORT IssueRate</p> <p>LONG IssueStartDate</p> <p>LONG InterestPaymentDate</p> <p>LONG IssueMaturityDate</p> <p>LONG BoardLotQuantity</p> <p>LONG TickSize</p> <p>CHAR Name [25]</p> <p>Reserved 1 byte</p> <p>LONG ListingDate</p> <p>LONG ExpulsionDate</p>

LONG ReAdmissionDate
 LONG RecordDate
 LONG ExpiryDate
 LONG NoDeliveryStartDate
 LONG NoDeliveryEndDate

Note: Use any one of following two ELIGIBILITY INDICATORS structures:

For Small Endian Machines:

```

ELIGIBILITY INDICATORS
{
    BIT Reserved           [5]
    BIT MinimumFill       [1]
    BIT AON                [1]
    BIT ParticipateInMarketIndex [1]
    Reserved              1 byte
}
    
```

For Big Endian Machines:

```

ELIGIBILITY INDICATORS
{
    BIT ParticipateInMarketIndex [1]
    BIT AON                      [1]
    BIT MinimumFill             [1]
    BIT Reserved                [5]
    Reserved                    1 byte
}
LONG BookClosureStartDate
LONG BookClosureEndDate
    
```

Note: Use any one of following two PURPOSE structures:

For Small Endian Machines:

```

PURPOSE
{
    BIT Reserved [2]
    BIT EGM      [1]
    BIT AGM      [1]
    BIT Interest [1]
    BIT Bonus    [1]
    BIT Rights   [1]
    BIT Dividend [1]
    Reserved    1 byte }
    
```

For Big Endian Machines:

```

PURPOSE
{
    BIT Dividend [1]
    BIT Rights   [1]
    BIT Bonus    [1]
    BIT Interest [1]
    BIT AGM      [1]
}
    
```

BIT	EGM	[1]
BIT	Reserved	[2]
	Reserved	1 byte }
LONG	LocalUpdateDateTime	
CHAR	DeleteFlag	
CHAR	Remark	[25]
LONG	FaceValue	
CHAR	ISINNumber	[12]

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_SECURITY_MSTR_CHG (7305).	
Token	This field contains the token number of the security being updated. This is unique for a particular symbol-series combination.	
SecurityInformation	This field contains the Symbol and Series (EQ / IL / TT) of the security.	
InstrumentType	This field contains the instrument type of the security. It can be one of the following: <ul style="list-style-type: none"> ▪ '0' – Equities ▪ '1' – Preference Shares ▪ '2' – Debentures ▪ '3' – Warrants ▪ '4' – Miscellaneous 	
PermittedToTrade	This field contains one of the following values: <ul style="list-style-type: none"> • '0' – Listed but not permitted to trade • '1' – Permitted to trade 	
IssuedCapital	This field contains issue size of the security.	
WarningPercent	This field contains the warning percent of outstanding volume.	
FreezePercent	This field contains the volume freeze percent.	

Field Name	Description	Comment
CreditRating	This field contains the credit rating of the security.	
Eligibility	The flag is set to '1' if the security is allowed to trade in a particular market.	
Status	This field contains one of the following values: <ul style="list-style-type: none"> • '1' – Preopen (Only for Normal Market) • '2' – Open • '3' – Suspended • '4' – Preopen extended 	
IssueRate	This field contains the price of the issue.	
IssueStartDate	This field contains the date of issue of the security.	
InterestPaymentDate	This field contains the interest payment date of the issue.	
IssueMaturityDate	This field contains the maturity date.	
BoardLotQuantity	This field contains the Regular lot size.	
TickSize	This field contains the Tick size/ Min spread size.	
Name	This field contains the security name.	
ListingDate	This field contains the date of listing.	
ExpulsionDate	This field contains the date of expulsion.	
ReAdmissionDate	This field contains the date of readmission.	
RecordDate	This field contains the date of record changed.	
ExpiryDate	This field contains the last date of trading before any corporate action.	
NoDeliveryStartDate	This field contains the date from when physical delivery of share certificates is stopped for book	

Field Name	Description	Comment
	closure.	
NoDeliveryEndDate	This field contains the date from when physical delivery of share certificates starts after book closure.	
MinimumFill	This flag is set if Minimum Fill attribute is allowed in orders of this security.	
AON	This flag is set if AON attribute is allowed in orders of this security.	
ParticipateInMarketIndex	This flag is set if this security participates in the market index.	
BookClosureStartDate	This field contains the date when the record books in the company for shareholder names starts.	
BookClosureEndDate	This field contains the date when the record books in the company for shareholder names ends.	
Purpose	This field contains the EGM / AGM / Interest / Bonus / Rights / Dividend flags set depending on the corporate action.	
LocalUpdateDateTime	This field contains the local database update date and time.	
DeleteFlag	This field contains the status of the security, that is, whether the security is deleted or not.	
Remark	This field contains remarks.	
FaceValue	This field contains face value of the security.	
ISIN Number	This field contains the ISIN Number of the security.	

3.11 Change Participant Status

This message is sent whenever there is any participant change. The structure sent is:

Structure Name: PARTICIPANT UPDATE INFO
Transaction Code: BCAST_PART_MSTR_CHG (7306)
Packet Length: 83 bytes
MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1)
CHAR ParticipantId [12]
CHAR ParticipantName [25]
CHAR ParticipantStatus
LONG ParticipantUpdateDateTime
CHAR DeleteFlag

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_PART_MSTR_CHG (7306).	
ParticipantId	This field contains the Participant ID.	
ParticipantName	This field contains the name of the participant that is changed.	
ParticipantStatus	This field contains the status of the participant which is changed: <ul style="list-style-type: none"> • 'S' for Suspended • 'A' for Active 	
ParticipantUpdateDateTime	This field contains the time when the participant information was changed. It is in number of seconds from January 1, 1980.	
DeleteFlag	This field indicates whether the participant is deleted: <ul style="list-style-type: none"> • 'Y' means deleted • 'N' means not deleted 	

3.12 Change of Security Status

This message is sent whenever the status of any security changes. The structure sent is:

Structure Name: SECURITY STATUS UPDATE INFORMATION
Transaction Code: BCAST_SECURITY_STATUS_CHG (7320). OR BCAST_SECURITY_STATUS_CHG_PREOPEN (7210).
Packet Length: 472 bytes
MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) SHORT NumberOfRecords TOKEN AND ELIGIBILITY [43] { SHORT Token SECURITY STATUS PER MARKET [4] { SHORT Status } }

Field Name	Description	Comment
TransactionCode	The transaction code is: <ul style="list-style-type: none"> When the status of the security changes BCAST_SECURITY_STATUS_CHG (7320). BCAST_SECURITY_STATUS_CHG_PREOPEN (7210). 	
NumberOfRecords	This field contains the number of records of the structure TOKEN AND ELIGIBILITY.	
Token	This field contains the token number of the security which has been changed.	
Status	This field contains the new status of the security. This can take one of the following values: <ul style="list-style-type: none"> '1' - Preopen '2' - Open '3' - Suspended 	

	<ul style="list-style-type: none"> • '4' - Preopen extended 	
--	--	--

3.13 Auction Activity Message

This structure is sent whenever there is any auction related activity. This includes any change in Auction MBO. The structure is:

Structure Name: MS_AUCTION_INQ_DATA
Transaction Code: BCAST_AUCTION_INQUIRY_OUT (6582).
Packet Length: 76 bytes
<pre> { MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) SHORT NumberOfRecords ST_AUCTION_INQ_INFO } ST_AUCTION_INQ_INFO { SHORT Token SHORT AuctionNumber SHORT AuctionStatus SHORT InitiatorType LONG TotalBuyQty LONG BestBuyPrice LONG TotalSellQty LONG BestSellPrice LONG AuctionPrice LONG AuctionQty SHORT SettlementPeriod } </pre>

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_AUCTION_INQUIRY_OUT (6582).	
Token	This field contains the token number of the security in which the auction is started.	
AuctionNumber	This field contains the number of the auction.	
AuctionStatus	Refer to Auction status in Appendix.	
InitiatorType	This field specifies whether auction is	

Field Name	Description	Comment
	initiated by trader or control. This field is set to control since only Exchange initiated auctions are permitted now.	
TotalBuyQty	This field contains the total Buy Quantity for the auction.	
BestBuyPrice	This field contains the best Buy price. This is the highest price for a Buy auction.	
TotalSellQty	This field contains the total Sell quantity for the auction.	
BestSellPrice	This field contains the best Sell price. This is the lowest price for a Sell auction.	
AuctionPrice	This field contains the price at which auction trade has taken place.	
AuctionQty	This field contains the quantity of securities that have been auctioned.	
SettlementPeriod	This field contains the period by which settlement between the parties should take place. This value is defaulted by the Exchange and cannot be modified by the user.	

3.14 Change of Auction Status

When the status of an auction changes (from pending to active or, competitor period or solicitor period is ended or started) a message is broadcast to all workstations with the following structure and transaction codes:

Structure Name: AUCTION STATUS CHANGE
Transaction Code: BC_AUCTION_STATUS_CHANGE (6581).
Packet Length: 301 bytes

```

MESSAGE HEADER (Refer to Message Header in Chapter 1)
SEC_INFO (Refer to Error Message in Chapter 1)
SHORT      AuctionNumber
CHAR       AuctionStatus
CHAR       ActionCode [3]
Note: Use any one of following two structures:
For Small Endian Machines:

    BROADCAST DESTINATION
    {
        BIT Reserved      [7]
        BIT TraderWs      [1]
        Reserved          1 byte
    }
For Big Endian Machines:
    BROADCAST DESTINATION
    {
        BIT TraderWs      [1]
        BIT Reserved      [7]
        Reserved          1 byte
    }
SHORT      BroadcastMessageLength
CHAR       BroadcastMessage [239]
    
```

Field Name	Description	Comment
TransactionCode	The transaction code is BC_AUCTION_STATUS_CHANGE (6581).	
Symbol	This field contains the symbol of the security.	
Series	This field contains the series of the security.	
AuctionNumber	This field contains the auction number.	
AuctionStatus	This field contains the status of the auction. Refer to Auction Status in Appendix.	
ActionCode	This field contains the action code to indicate the action taken.	For example, 'AUI' - Auction Initiation 'AUC' - Auction Complete
BroadcastDestination	This field contains the destination of the message.	For example, it is for the Trader Workstation.
BroadcastMessageLength	This field contains the length of the	

Field Name	Description	Comment
	broadcast message.	
BroadcastMessage	This field contains the contents of the broadcast message.	

3.15 Change of Market Status

Whenever the status of the market changes, the following structure is sent:

Structure Name: - BCAST_VCT_MESSAGES
Transaction Code: BC_OPEN_MESSAGE (6511). OR BC_CLOSE_MESSAGE (6521). OR BC_PREOPEN_SHUTDOWN_MSG (6531). OR BC_NORMAL_MKT_PREOPEN_ENDED (6571). OR BC_CLOSING_START (6583). OR BC_CLOSING_END (6584).
Packet Length: 297 bytes
BCAST_HEADER (Refer to <i>Bcast_Header</i> in Chapter 1) SEC_INFO (Refer to <i>Error Message</i> in Chapter 1) SHORT MarketType Note: Use any one of following two structures: For Small Endian Machines: BROADCAST DESTINATION { BIT Reserved [7] BIT TraderWs [1] Reserved 1 byte } For Big Endian Machines: BROADCAST DESTINATION { BIT TraderWs [1] BIT Reserved [7] Reserved 1 byte } SHORT BroadcastMessageLength CHAR BroadcastMessage [239]

Field Name	Description	Comment
TransactionCode	The transaction codes are as follows: <ul style="list-style-type: none"> BC_OPEN_MESSAGE (6511). This is 	

Field Name	Description	Comment
	<p>sent when the market is opened.</p> <ul style="list-style-type: none"> • BC_CLOSE_MESSAGE (6521). This is sent when the market is closed. • BC_PREOPEN_SHUTDOWN_MSG (6531). This is sent when the market is reopened. • BC_NORMAL_MKT_PREOPEN_ENDED (6571). This is sent when the preopen period ends. • BC_CLOSING_START (6583). This is sent when the closing session market is opened. • BC_CLOSING_END (6584). This is sent when the closing session market is closed. 	
SecurityInformation	This field contains the symbol and series of a security.	
MarketType	<p>This field indicates the type of market. It contains one of the following values:</p> <ul style="list-style-type: none"> • '1' - Normal • '2' - Odd Lot • '3' - Spot • '4' - Auction 	
BroadcastDestination	This field is set to '1' if it signifies that the message is for the Trader Workstation.	
BroadcastMessageLength	This field contains the length of the broadcast message.	
BroadcastMessage	This field contains the contents of the broadcast message.	

3.16 Ticker and Market Index

Ticker and market index information is sent in the following structure:

Structure Name: TICKER TRADE DATA
Transaction Code: BCAST_TICKER_AND_MKT_INDEX (7202).

Packet Length: 490 bytes
<pre> BCAST_HEADER (Refer to <i>Bcast_Header</i> in Chapter 1) SHORT NumberOfRecords TICKER INDEX INFORMATION [28] { SHORT Token SHORT MarketType LONG FillPrice LONG FillVolume LONG MarketIndexValue } </pre>

Field Name	Description	Comment
TransactionCode	The transaction code sent is BCAST_TICKER_AND_MKT_INDEX (7202).	
NumberOfRecords	This field indicates the number of times (Maximum 28) the structure TICKER INDEX INFORMATION is repeated.	
Token	This field contains the token number—a unique number given to a particular symbol-series combination.	
MarketType	This field contains the market type.	
FillPrice	This field contains the price at which the order has been traded.	
FillVolume	This field contains the quantity of security traded.	
MarketIndexValue	This field contains the value of the market index.	

3.17 Market by Order / Market by Price Update

The information regarding the best buy orders and the best sell orders is given in the following format:

Structure Name: BROADCAST MBO MBP
Transaction Code: BCAST_MBO_MBP_UPDATE (7200).
Packet Length: 432 bytes

```

BCAST_HEADER (Refer to Bcast_Header in Chapter 1)
INTERACTIVE MBO DATA
{
    SHORT    Token
    SHORT    BookType
    SHORT    TradingStatus
    LONG     VolumeTradedToday
    LONG     LastTradedPrice
    CHAR     NetChangeIndicator
    LONG     NetPriceChangeFromClosingPrice
    LONG     LastTradeQuantity
    LONG     LastTradeTime
    LONG     AverageTradePrice
    SHORT    AuctionNumber
    SHORT    AuctionStatus
    SHORT    InitiatorType
    LONG     InitiatorPrice
    LONG     InitiatorQuantity
    LONG     AuctionPrice
    LONG     AuctionQuantity
    CHAR     MBOBuffer [size of (MBO INFORMATION) * 10]
}
CHAR     MBPBuffer [size of (MBP INFORMATION) * 10]
SHORT    BbTotalBuyFlag
SHORT    BbTotalSellFlag
DOUBLE   TotalBuyQuantity
DOUBLE   TotalSellQuantity
Note: Use any one of following two MBO MBP INDICATOR
structures:

For Small Endian Machines:
MBO MBP INDICATOR
{
    BIT Reserved    [4]
    BIT Sell        [1]
    BIT Buy         [1]
    BIT LastTradeLess [1]
    BIT LastTradeMore [1]
    Reserved       1 byte
}

For Big Endian Machines:
MBO MBP INDICATOR
{
    BIT LastTradeMore [1]
    BIT LastTradeLess [1]
    BIT Buy           [1]
    BIT Sell          [1]
    BIT Reserved     [4]
    Reserved         1 byte
}
LONG     ClosingPrice
    
```

```

LONG   OpenPrice
LONG   HighPrice
LONG   LowPrice

MBO INFORMATION
{
    LONG   TraderId
    LONG   Qty
    LONG   Price
Note: Use any one of following two ST MBO MBP TERMS
structures
For Small Endian Machines:

    ST MBO MBP TERMS
    {
        BIT   Reserved1 [6]
        UINT  Aon         [1]
        UINT  Mf          [1]
        UINT  Reserved2 [8]
    }
For Big Endian Machines:
    ST MBO MBP TERMS
    {
        UINT  Mf          [1]
        UINT  Aon         [1]
        BIT   Reserved1 [6]
        BIT   Reserved2 [8]
    }

    LONG MinFillQty
}

MBP INFORMATION
{
    LONG   Quantity
    LONG   Price
    SHORT  NumberOfOrders
    SHORT  BbBuySellFlag
}

```

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_MBO_MBP_UPDATE (7200).	
Token	This field contains the token number—a unique number given to a particular	

Field Name	Description	Comment
	symbol-series combination.	
BookType	This field contains the book type—RL / ST / SL / NT / OL/ SP / AU	
TradingStatus	This field contains the trading status of the security: <ul style="list-style-type: none"> • '1' - Preopen • '2' - Open • '3' - Suspended • '4' - Preopen Extended 	
VolumeTradedToday	This field contains the total quantity of a security traded on the current day.	
LastTradedPrice	This field contains the price at which the latest trade in a security has taken place.	
NetChangeIndicator	This field is a flag which indicates any change of the order price from the LTP. <ul style="list-style-type: none"> • '+' for increase • '-' for decrease 	
NetPriceChange	This field contains the net change between the order price and the LTP.	
LastTradeQuantity	This field contains the quantity at which the last trade took place in a security.	
LastTradeTime	This field contains the time when the last trade took place in a security.	
AverageTradePrice	This field contains the average price of all the trades in a security.	
AuctionNumber	This field contains the auction number. The maximum value this can take is 9999. In other cases, it is set to zero.	
AuctionStatus	Refer to Appendix.	
InitiatorType	This field contains the initiator type—control or trader. Presently initiator type is control, since only the Exchange can initiate an auction. Otherwise it is blank.	
InitiatorPrice	This field contains the price of the security of the initiator's auction order.	

Field Name	Description	Comment
	Otherwise it is set to zero.	
InitiatorQuantity	This field contains the quantity of the security of the initiator's auction order. Otherwise it is set to zero.	
AuctionPrice	This field contains the price at which auction in a security takes place. Otherwise it is set to zero.	
AuctionQuantity	This field contains the quantity at which auction in a security takes place. Otherwise it is set to zero.	
RecordBuffer (MBO INFORMATION)	This field contains five best Buy orders and five best Sell orders from the order book. First five contains Buy orders and next five contains Sell orders.	
RecordBuffer (MBP INFORMATION)	This field contains five best Buy prices and five best Sell prices from the order book .First five are for Buy and next five for Sell.	
BbTotalBuyFlag	This field contains value '1' if there is a buy back order in the buy side else its value is zero. This is useful if the buy back order is not amongst the top five.	
BbTotalSellFlag	Currently, its value is set to zero.	
TotalBuyQuantity	This field contains the total quantity of buy orders in a security.	
TotalSellQuantity	This field contains the total quantity of sell orders in a security.	
Indicator	This structure contains flags which can be set to indicate Buy, Sell and latest trade less than or greater than the immediately previous LTP.	
ClosingPrice	This field contains the closing price of a security.	
OpenPrice	This field contains the open price of a security.	
HighPrice	This field contains the highest trade price.	
LowPrice	This field contains the lowest trade price.	
MBOInformation	This field contains the quantity and price for a maximum of five best	

Field Name	Description	Comment
	prices.	
MBPInformation	This field contains the quantity, price and number of orders for a maximum of five best prices.	

3.18 Only Market by Price Update

The information regarding the best buy orders and the best sell orders is given in the following format:

BROADCAST ONLY MBP

Structure Name: BROADCAST ONLY MBP	
Transaction Code: BCAST_ONLY_MBP (7208).	
Packet Length: 466 bytes	
<pre> BCAST_HEADER (Refer to <i>Bcast_Header</i> in Chapter 1) SHORT NoOfRecords INTERACTIVE ONLY MBP DATA [2] { SHORT Token SHORT BookType SHORT TradingStatus LONG VolumeTradedToday LONG LastTradedPrice CHAR NetChangeIndicator LONG NetPriceChangeFromClosingPrice LONG LastTradeQuantity LONG LastTradeTime LONG AverageTradePrice SHORT AuctionNumber SHORT AuctionStatus SHORT InitiatorType LONG InitiatorPrice LONG InitiatorQuantity LONG AuctionPrice LONG AuctionQuantity CHAR RecordBuffer [size of (MBP INFORMATION) * 10] SHORT BbTotalBuyFlag SHORT BbTotalSellFlag DOUBLE TotalBuyQuantity DOUBLE TotalSellQuantity Note: Use any one of following two MBP INDICATOR structures: For Small Endian Machines: MBP INDICATOR { BIT Reserved [4] BIT Sell [1] BIT Buy [1] BIT LastTradeLess [1] BIT LastTradeMore [1] </pre>	

```

        Reserved    1 byte
    }
For Big Endian Machines:
MBP INDICATOR
{
    BIT LastTradeMore [1]
    BIT LastTradeLess [1]
    BIT Buy [1]
    BIT Sell [1]
    BIT Reserved [4]
    Reserved    1 byte
}

    LONG    ClosingPrice
    LONG    OpenPrice
    LONG    HighPrice
    LONG    LowPrice
}

MBP INFORMATION
{
    LONG    Quantity
    LONG    Price
    SHORT   NumberOfOrders
    SHORT   BbBuySellFlag
}

```

Field Name	Description	Comment
TransactionCode	The transaction code set for the purpose is BCAST_MBO_MBP_UPDATE (7200).	
NoOfRecords	This field contains the number of securities sent.	
Token	This field contains the token number—a unique number given to a particular symbol-series combination.	
BookType	This field contains the book type—RL / ST / SL / NT / OL/ SP / AU	
TradingStatus	This field specifies trading status of the security. It contains one of the following values. <ul style="list-style-type: none"> • '1' - Preopen • '2' - Open 	

Field Name	Description	Comment
	<ul style="list-style-type: none"> • '3' - Suspended • '4' - Preopen Extended 	
VolumeTradedToday	This field contains the total quantity of a security traded on the current day.	
LastTradedPrice	This field contains the price at which the latest trade in a security has taken place.	
NetChangeIndicator	<p>This field is a flag which indicates any change of the order price from the LTP.</p> <ul style="list-style-type: none"> • '+' for increase • '-' for decrease. 	
NetPriceChange	This field contains the net change between the order price and the LTP.	
LastTradeQuantity	This field contains the quantity at which the last trade took place in a security.	
LastTradeTime	This field contains the time when the last trade took place in a security.	
AverageTradePrice	This field contains the average price of all the trades in a security.	
AuctionNumber	This field contains the auction number. The maximum value this can take is 9999. Otherwise it is set to zero.	
AuctionStatus	Refer to <i>Auction Status</i> in Appendix.	
InitiatorType	This field contains the initiator type—control or trader. Presently initiator type is control, since only the Exchange can initiate an auction. Otherwise it is set to blank.	
InitiatorPrice	This field contains the price of the security of the initiator's auction order. Otherwise it is set to zero.	
InitiatorQuantity	This field contains the quantity of the security of the initiator's auction order. Otherwise it is set to zero.	
AuctionPrice	This field contains the price at which auction in a security takes place. Otherwise it is set to zero.	
AuctionQuantity	This field contains the quantity at	

Field Name	Description	Comment
	which auction in a security takes place. Otherwise it is zero.	
Record Buffer (MBP INFORMATION)	This field contains five best Buy prices and five best Sell prices from the order book. First five are for buy and next five for sell.	
BbTotalbuyFlag	This field contains the value of '1' which indicates that there is a buy back order in the buy side else its value is set to zero. This is useful if the buy back order is not amongst the top five.	
BbTotalsellFlag	Currently, this field is set to zero.	
TotalBuyQuantity	This field contains the total quantity of buy orders in a security.	
TotalSellQuantity	This field contains the total quantity of sell orders in a security.	
Indicator	This field contains flags which can be set to indicate Buy, Sell and Latest trade less than or greater than the immediately previous LTP.	
ClosingPrice	This field contains the closing price of a security.	
OpenPrice	This field contains the open price of a security.	
HighPrice	This field contains the highest trade price.	
LowPrice	This field contains the lowest trade price.	
MBPInformation	This field contains the quantity, price and number of orders for a maximum of five best prices.	

3.19 Market Watch Update

The market watch information gives the best buy order and its quantity, best sell order and its quantity and the last trade price. The structure sent for the purpose is:

Structure Name: BROADCAST INQUIRY RESPONSE
Transaction Code: BCAST_MW_ROUND_ROBIN (7201)
Packet Length: 442 bytes

```

BCAST_HEADER (Refer to Bcast_Header in Chapter 1)
SHORT NumberOfRecords
MARKETWATCHBROADCAST [5]
{
    SHORT Token
    MARKET WISE INFORMATION [3]
    {
        Note: Use any one of following two MBO MBP
        INDICATOR structures:
        For Small Endian Machines:

        MBO MBP INDICATOR

        {
            BIT Reserved [4]
            BIT Sell [1]
            BIT Buy [1]
            BIT LastTradeLess [1]
            BIT LastTradeMore [1]
            Reserved 1 byte
        }
        For Big Endian Machines:
        MBO MBP INDICATOR

        {
            BIT LastTradeMore [1]
            BIT LastTradeLess [1]
            BIT Buy [1]
            BIT Sell [1]
            BIT Reserved [4]
            Reserved 1 byte
        }

        LONG BuyVolume
        LONG BuyPrice
        LONG SellVolume
        LONG SellPrice
        LONG LastTradePrice
        LONG LastTradeTime
    }
}
    
```

Field Name	Description	Comment
TransactionCode	The transaction code sent is BCAST_MW_ROUND_ROBIN (7201).	
NumberOfRecords	This field contains the number of times the structure MARKET WATCH BROADCAST is repeated.	

Token	This field contains the token number—a unique number given to a particular symbol-series combination.	
Indicator	This structure contains the flags which can be set to indicate Buy, Sell and Last trade less than or greater than previous LTP.	
BuyVolume	This field contains the quantity of the best Buy order.	
BuyPrice	This field contains the price of the best Buy order.	
SellVolume	This field contains the quantity of the best Sell order.	
SellPrice	This field contains the price of the best Sell order.	
LastTradePrice	This field contains the latest trade price of a security.	
LastTradeTime	This field contains the latest trade time of a security.	

3.20 Security Open Message

When the market opens the open price of the security is sent in the following structure:

Structure Name: MS_SEC_OPEN_MSGS
Transaction Code: SECURITY_OPEN_PRICE (6013)
Packet Length: 58 bytes
<pre> { MESSAGE HEADER (Refer to <i>Message Header</i> in Chapter 1) SEC_INFO (Refer to <i>Error Message</i> in Chapter 1) SHORT Token LONG OpeningPrice }</pre>

Field Name	Description	Comment
TransactionCode	The transaction code sent is SECURITY_OPEN_PRICE (6013).	
SEC_INFO	This structure contains the symbol and series for a particular security.	
Token	This field contains a unique number that is given to a particular symbol-series combination.	
OpeningPrice	This field contains open price of the security.	

3.21 Broadcast Circuit Check

If there has been no data on the broadcast circuit for a stipulated time period, then a pulse is sent. This time is nine seconds now but it can be changed by NSE-Control. This is only to intimate that the circuit is still there but there is no data to send. The structure sent is:

MESSAGE HEADER (Refer to *Message Header* in Chapter 1)

Field Name	Description	Comment
TransactionCode	The transaction code sent is BC_CIRCUIT_CHECK (6541).	

3.22 Multiple Index Broadcast

The multiple index broadcast structure is as follows:

Structure Name: BROADCAST INDICES	
Transaction Code: BCAST_INDICES (7207).	
Packet Length: 474 bytes	
BCAST_HEADER (Refer to <i>Bcast_Header</i> in Chapter 1)	
SHORT	NumberOfRecords
Indices [6]	
CHAR	IndexName [21]
LONG	IndexValue
LONG	HighIndexValue
LONG	LowIndexValue
LONG	OpeningIndex
LONG	ClosingIndex
LONG	PercentChange
LONG	YearlyHigh
LONG	YearlyLow
LONG	NoOfUpmoves
LONG	NoOfDownmoves
DOUBLE	MarketCapitalisation
CHAR	NetChangeIndicator
CHAR	FILLER

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_INDICES (7207).	
NoOfRecords	This field contains the number of indices currently supported by the system. Depending upon this number, there will be records filled up in subsequent Indices structure.	
Indices	This field is an array of structure.	The attributes of this structure are given below in this table itself.
IndexName	This field contains Name of the index.	For example, Defty, Nifty
IndexValue	This field contains the online market index value at that instance of broadcast.	
HighIndexValue	This field contains the day's highest index value at the time of broadcast.	

Field Name	Description	Comment
LowIndexValue	This field contains day's lowest index value at the time of broadcast.	
OpeningIndex	This field contains the opening index value at the time of market open.	
ClosingIndex	If market is open, this field it is set to previous day's closing index. After completion of day's batch processing, this field value shows today's close.	
PercentChange	This field contains the percent change in current index with respect to yesterday's closing index.	
YearlyHigh	This field contains the highest index in the year.	
YearlyLow	This field contains the lowest index in the year.	
NoOfupmoves	This field contains the number of time index has moved up with respect to previous index.	
NoOfdownmoves	This field contains the number of time index has moved down with respect to previous index.	
MarketCapitalization	This field contains the Market Capitalization of securities participating in the index.	
NetChange Indicator	This field contains one of the following values. <ul style="list-style-type: none"> • '+' - if the current index is greater than previous index. • '-' - if the current index is less than previous index. • '' - if the current index is equal to previous index. 	

3.23 Broadcast industry index

This Packet contains the index values of Six Indices with name. The structure is as follows:

Structure Name: Broadcast Industry Indices
Transaction Code: BCAST_IND_INDICES (7203).
Packet Length: 484 bytes
BCAST_HEADER (Refer to <i>Bcast_Header</i> in Chapter 1) SHORT NumberOfRecords Indices [17] CHAR Industry Name [21] LONG IndexValue

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_IND_INDICES (7203).	
NoOfRecords	This field contains the number of indices currently supported by the system. Depending upon this number, there will be records filled up in subsequent Indices structure.	
Indices	This field is an array of structure.	The attributes of this structure are given below in this table itself.
IndexName	This field contains Name of the index.	For example, Defty, CNX IT
IndexValue	This field contains the online market index value at that instance of broadcast.	

3.24 Broadcast buy back Information

This packet will contain the buy back Information which are running on that day. This will be broadcasted for every one hour from Market open till market closes on that day. The structure is as follows:

Structure Name: Broadcast Buy back	
Transaction Code: BCAST_BUY_BACK (7211).	
Packet Length: 414 bytes	
BCAST_HEADER (Refer to <i>Bcast_Header</i> in Chapter 1)	
SHORT	NumberOfRecords
BuyBackData [6]	
SHORT	Token
CHAR	Symbol[10]
CHAR	Series [2]
DOUBLE	PdayCumVol
LONG	PdayHighPrice
LONG	PdayLowPrice
LONG	PdayWtAvg
DOUBLE	CdayCumVol
LONG	CdayHighPrice
LONG	CdayLowPrice
LONG	CdayWtAvg
LONG	StartDate
LONG	EndDate

Field Name	Description	Comment
TransactionCode	The transaction code is BCAST_BUY_BACK (7211)..	
NoOfRecords	This field contains the number of indices currently supported by the system. Depending upon this number, there will be records filled up in subsequent Indices structure.	
BuyBackData	This field is an array of structure.	The attributes of this structure are given below in this table itself.
Token	This field contains a unique number that is given to a particular symbol-series combination.	
Symbol	This field contains the symbol of the security.	

Field Name	Description	Comment
Series	This field contains the series of the security.	
PDayCumVolume	This field contains previous day cumulative Volume	
PDayHighPrice	This field contains Previous day's High Price	
PDayLowPrice	This field contains Previous day's Low Price	
PDayWeightAvg	This field contains Previous day's Weighted Average Price	
CDayCumulativeVolume	This field contains current day's cumulative Volume	
CDayHighPrice	This field contains current day's High Price	
CDayLowPrice	This field contains current day's Low Price	
CDayWeightAvg	This field contains current day's Weighted Average Price	
StartDate	This field contains Start Date of Buy back period	
EndDate	This field contains End Date of Buy back period	

4 Appendix

4.1 Reason Codes

The reason codes and the corresponding values are given below.

Reason Code	Value
Security	5
Broker	6
Branch	7
User	8
Participant	9
Counter Party	10
Order Number	11
Auction Number	15
Price Freeze	17
Quantity Freeze	18

4.2 List of Broadcast Transaction Codes

Transaction Codes	Codes	Structure	Size	B
SECURITY_OPEN_PRICE	6013	MS_SEC_OPEN_MSGS	58	B
BCAST_JRNL_VCT_MSG	6501	BROADCAST_MESSAGES	297	B
BC_OPEN_MESSAGE	6511	BCAST_VCT_MESSAGES	297	B
BC_CLOSE_MESSAGE	6521	BCAST_VCT_MESSAGES	297	B
BC_PREOPEN_SHUTDOWN_MSG	6531	BCAST_VCT_MESSAGES	297	B
BC_CIRCUIT_CHECK	6541	MESSAGE_HEADER	40	B
BC_NORMAL_MKT_PREOPEN_ENDED	6571	BCAST_VCT_MESSAGES	297	B
BC_AUCTION_STATUS_CHANGE	6581	AUCTION_STATUS_CHANGE	301	B
BCAST_AUCTION_INQUIRY_OUT	6582	AUCTION_BROADCAST_DATA	76	B
BCAST_MBO_MBP_UPDATE	7200	BROADCAST MBO MBP	432	B
BCAST_MW_ROUND_ROBIN	7201	BCAST_INQUIRY_RESPONSE	442	B

BCAST_TICKER_AND_MKT_INDEX	7202	TICKER_TRADE_DATA	490	B
BCAST_SYSTEM_INFORMATION_OUT	7206	SYSTEM_INFORMATION_OUT	90	B
BCAST_INDICES	7207	BROADCAST INDICES	474	B
BCAST_ONLY_MBP	7208	BROADCAST ONLY MBP	466	B
BCAST_SECURITY_STATUS_CHG_P EOPEN	7210	SECURITY_STATUS_UPDATE_IN FORMATION	472	B
BCAST_BUYBACK	7211	BUY_BACK_BROADCAST_DATA	414	B
BCAST_SECURITY_MSTR_CHG	7305	SECURITY_UPDATE_INFORMATI ON	238	B
BCAST_PART_MSTR_CHG	7306	PARTICIPANT_UPDATE_INFO	83	B
BCAST_SECURITY_STATUS_CHG	7320	SECURITY_STATUS_UPDATE_IN FORMATION	472	B
BCAST_TURNOVER_EXCEEDED	9010	BROADCAST_LIMIT_EXCEEDED	78	B
BROADCAST_BROKER_REACTIVATED	9011	BROADCAST_LIMIT_EXCEEDED	78	B
MARKET_STATS_REPORT_DATA	1833	REPORT MARKET STATISTICS	450	B

4.3 Market Type

The market types are:

Status	Market Status ID
Normal Market	1
Odd Lot Market	2
Spot Market	3
Auction Market	4

4.4 Market Status

The market can be in one of the following statuses:

Status	Market Status ID
PreOpen (only for Normal Market)	0
Open	1
Closed	2
Preopen ended	3

4.5 Book Types

There are seven books. These books fall in four markets.

Book Type	Book ID	Market Type
Regular Lot Order	1	Normal Market
Special Terms Order	2	Normal Market
Stop Loss Order	3	Normal Market
Negotiated Order	4	Normal Market
Odd Lot Order	5	Odd Lot Market
Spot Order	6	Spot Market
Auction Order	7	Auction Market

4.6 Auction Status

Status	ID	Description
AUCTION_PENDING_APPROVAL	1	If the auction is initiated by the trader an alert is generated at the CWS. The auction status is in pending for approval.
AUCTION_PENDING	2	If any auction in the particular security is already going on, the status of the auction entered next is pending.
OPEN_COMPETITOR_PERIOD	3	When the auction gets initiated, this is the status.
OPEN_SOLICITOR_PERIOD	4	Auction enters solicitor period.
AUCTION_MATCHING	5	After solicitor period ends, the auction enters matching state. The matching of auction orders takes place.
AUCTION_FINISHED	6	Status after matching of orders is done and auction trades are generated.
AUCTION_CXLED	7	Auction is cancelled by NSE-Control.

4.7 Security Status

Status	Status ID
Preopen	1
Open	2
Suspended	3
Preopen Extended	4

Pipe Delimited File Structures

The upload files have a header record at the beginning of the file followed by the detail records. All the fields in both the header and detail records are separated by pipe ('|'). The fields are not of fixed width. Any two fields are separated by a '|' symbol.

4.8 Security File Structure

Header

CHAR NEATCM [6]
Reserved 1 byte
CHAR VersionNumber [7]
Reserved 1 byte
LONG DATE

Stock Structure

SHORT Token
Reserved 1 byte
CHAR Symbol [10]
Reserved 1 byte
CHAR Series [2]
Reserved 1 byte
SHORT InstrumentType
Reserved 1 byte
DOUBLE IssuedCapital
Reserved 1 byte
SHORT PermittedToTrade
Reserved 1 byte
CHAR CreditRating [17]
Reserved 1 byte
ST_SEC_ELIGIBILITY_PER_MARKET [4]
{

```

        SHORT      Security Status
        Reserved 1 byte
        CHAR       Eligibility
        Reserved 1 bytes
    }
LONG      BoardLotQuantity
Reserved 1 byte
LONG      TickSize
Reserved 1 byte
CHAR      Name [25]
Reserved 1 byte
SHORT     IssueRate
Reserved 1 byte
LONG      IssueStartDate
Reserved 1 byte
LONG      IssueIPDate
Reserved 1 byte
LONG      MaturityDate
Reserved 1 byte
SHORT     FreezePercent
Reserved 1 byte
LONG      ListingDate
Reserved 1 byte
LONG      ExpulsionDate
Reserved 1 byte
LONG      ReAdmissionDate
Reserved 1 byte
LONG      ExDate
Reserved 1 byte
LONG      RecordDate
Reserved 1 byte
LONG      NoDeliveryDateStart
Reserved 1 byte
LONG      NoDeliveryDateEnd
Reserved 1 byte
CHAR      ParticipantInMktIndex
Reserved 1 byte
CHAR      AON
Reserved 1 byte
CHAR      MF
Reserved 1 byte
SHORT     WarningPercent
Reserved 1 byte
LONG      BookClosureStartDate
Reserved 1 byte
LONG      BookClosureEndDate
Reserved 1 byte
CHAR      Dividend
Reserved 1 byte
CHAR      Rights
Reserved 1 byte

```

CHAR Bonus
 Reserved 1 byte
 CHAR Interest
 Reserved 1 byte
 CHAR AGM
 Reserved 1 byte
 CHAR EGM
 Reserved 1 byte
 CHAR Remarks [25]
 Reserved 1 byte
 LONG LocalDBUpdateDateTime
 Reserved 1 byte
 CHAR DeleteFlag
 Reserved 1 byte
 LONG FaceValue
 Reserved 1 byte
 CHAR ISINNumber [12]

Field Name	Descriptions	Comments
Token	Token number of the security being updated. This is unique for a particular symbol-series combination.	
Symbol	This field should contain the symbol of a security.	
Series	This field should contain the series of a security	
InstrumentType	This field contains the instrument type of the security. It can be one of the following: <ul style="list-style-type: none"> ▪ '0' – Equities ▪ '1' – Preference Shares ▪ '2' – Debentures ▪ '3' – Warrants ▪ '4' – Miscellaneous 	
IssuedCapital	Issue size of the security.	
PermittedToTrade	<ul style="list-style-type: none"> • '0' - Listed but not permitted to trade • '1' - Permitted to trade 	

Field Name	Descriptions	Comments
CreditRating	Credit rating of the security.	
SecurityStatus	<ul style="list-style-type: none"> • '1' - Preopen (Only for Normal market) • '2' - Open • '3' - Suspended • '4' - Preopen extended • '5' - Stock Open With Market 	
BoardLotQuantity	Regular lot size.	
TickSize	Tick size/ Min spread size.	
Name	Security name.	
IssueRate	Price of the issue.	
IssueStartDate	Date of issue of the security.	
IssueIPDate	Interest Payment Date	
IssueMaturityDate	Maturity Date.	
FreezePercent	Freeze percent.	
ListingDate	Date of listing.	
ExpulsionDate	Date of expulsion.	
ReAdmissionDate	Date of readmission.	
ExDate	Last date of trading before any corporate action.	
RecordDate	Date of record changed.	
NoDeliveryStartDate	Date from when physical delivery of share certificates is stopped for book closure.	
NoDeliveryEndDate	No delivery end date.	
NoDeliveryEndPrice	Minimum price at which order can be placed without causing a price freeze.	
ParticipateInMktIndex	'1' – Security is present in NIFTY Index. '0' – Security is not present in NIFTY Index.	
AON	'1'- AON is allowed. '0'- AON is not allowed	
MF	'1'- MF is allowed. '0'- MF is not allowed	
WarningPercent	Warning percent	
BookClosureStartDate	Date at which the record	

Field Name	Descriptions	Comments
	books in the company for shareholder names starts.	
BookClosureEndDate	Date at which the record books in the company for shareholder names ends.	
Dividend	'1' – Dividend '0' – No Dividend	
Rights	'1' – Rights '0' - No Rights	
Bonus	'1' – Rights '0' - No Rights	
Interest	'1' – Interest '0' - No Interest	
AGM	'1' – AGM '0' - No AGM	
EGM	'1' – EGM '0' – No EGM	
Remark	Remarks	
LocalLDBUpdateDateTime	This is the local database update date-time.	
DeleteFlag	This indicates the status of the security, whether the security is deleted or not. <ul style="list-style-type: none"> • 'N' : Active • 'Y' : Deleted 	
FaceValue	This field contains face value of the security	
ISIN Number	This field contains the ISIN Number of the security.	

4.9 Contract File Structure

Header

CHAR NEATFO [6]
Reserved 1 byte
CHAR VersionNumber [5]
Reserved 1 byte

Stock Structure

LONG Token

```

Reserved      1 byte
LONG          AssetToken
Reserved      1 byte
CHAR          InstrumentName [6]
Reserved      1 byte
CHAR          Symbol   [10]
Reserved      1 byte
CHAR          Series   [2]
Reserved      2 bytes
LONG          ExpiryDate (in seconds from January 1, 1980)
Reserved      1 byte
LONGStrikePrice
Reserved      1 byte
CHAR          OptionType [2]
Reserved      1 byte
CHAR          Category [1]
Reserved      1 byte
SHORT          CALevel
Reserved      2 bytes
SHORT          PermittedToTrade
Reserved      1 byte
SHORT          IssueRate
Reserved      1 byte
ST_SEC_ELIGIBILITY_PER_MARKET [4]
    {
        SHORT      Security Status
        Reserved 1 byte
        CHAR       Eligibility
        Reserved 2 bytes
    }
LONG          IssueStartDate
Reserved      1 byte
LONG          InterestPaymentDate
Reserved      1 byte
LONG          Issue Maturity Date
Reserved      1 byte
LONG          MarginPercentage
Reserved      1 byte
LONG          MinimumLotQuantity
Reserved      1 byte
LONG          BoardLotQuantity
Reserved      1 byte
LONG          TickSize
Reserved      1 byte
DOUBLE        IssuedCapital
Reserved      1 byte
LONG          FreezeQuantity
Reserved      1 byte
LONG          WarningQuantity
Reserved      1 byte

```

LONG	ListingDate
Reserved	1 byte
LONG	ExpulsionDate
Reserved	1 byte
LONG	ReadmissionDate
Reserved	1 byte
LONG	RecordDate
Reserved	1 byte
LONG	NoDeliveryStartDate
Reserved	1 byte
LONG	NoDeliveryEndDate
Reserved	1 byte
LONG	LowPriceRange
Reserved	1 byte
LONG	HighPriceRange
Reserved	1 byte
LONG	ExDate
Reserved	1 byte
LONG	BookClosureStartDate
Reserved	1 byte
LONG	BookClosureEndDate
Reserved	1 byte
LONG	LocalLDBUpdateDateTime
Reserved	1 byte
LONG	ExerciseStartDate
Reserved	1 byte
LONG	ExerciseEndDate
Reserved	1 byte
SHORT	TickerSelection
Reserved	1 byte
LONG	OldTokenNumber
Reserved	1 byte
CHAR	CreditRating [12]
Reserved	1 byte
CHAR	Name [25]
Reserved	1 byte
CHAR	EGMAGM
Reserved	1 byte
CHAR	InterestDivident
Reserved	1 byte
CHAR	RightsBonus
Reserved	1 byte
CHAR	MFAON
Reserved	1 byte
CHAR	Remarks [24]
Reserved	1 byte
CHAR	ExStyle
Reserved	1 byte
CHAR	ExAllowed
Reserved	1 byte
CHAR	ExRejectionAllowed

Reserved 1 byte
 CHAR PIAAllowed
 Reserved 1 byte
 CHAR CheckSum
 Reserved 1 byte
 CHAR IsCOorporateAdjusted
 Reserved 1 byte
 CHAR SymbolForAsset [10]
 Reserved 1 byte
 CHAR InstrumentOfAsset [6]
 Reserved 1 byte
 LONG BasePrice
 Reserved 1 byte
 CHAR DeleteFlag

Field Name	Descriptions	Comments
Token	Token number of the security being updated. This is unique for a particular symbol-series combination.	
AssetToken	Token Number of the asset.	
SecurityInformation	This contains the Instrument Name, Symbol & Series (EQ / IL / TT), Expiry date, Strike Price, Option Type, Category, Corporate Action level of the security	
PermittedToTrade	<ul style="list-style-type: none"> • '0' - Listed but not permitted to trade • '1' - Permitted to trade 	
IssueRate	Price of the issue.	
Eligibility	The flag is set to 1 if the security is allowed to trade in a particular market.	
SecurityStatus	<ul style="list-style-type: none"> • '1' - Preopen (Only for Normal market) • '2' - Open • '3' - Suspended • '4' - Preopen extended • '5' - Stock Open With Market 	
IssueStartDate	Date of issue of the security.	

Field Name	Descriptions	Comments
InterestPaymentDate	Interest Payment Date	
IssueMaturityDate	Maturity Date.	
MarginPercent	It is Initial margin percent to be collected on a contract.	
MinimumLotQuantity	It is minimum lot of the order which can be placed.	
BoardLotQuantity	Regular lot size.	
TickSize	Tick size/ Min spread size.	
IssuedCapital	Issue size of the security.	
FreezeQuantity	Freeze quantity.	
WarningQuantity	Warning quantity.	
ListingDate	Date of listing.	
ExpulsionDate	Date of expulsion.	
ReAdmissionDate	Date of readmission.	
RecordDate	Date of record changed.	
NoDeliveryStartDate	Date from when physical delivery of share certificates is stopped for book closure.	
NoDeliveryEndDate	No delivery end date.	
NoDeliveryEndPrice	Minimum price at which order can be placed without causing a price freeze.	
HighPriceRange	Minimum price at which order can be placed without causing a price freeze.	
ExDate	Last date of trading before any corporate action.	
BookClosureStartDate	Date at which the record books in the company for shareholder names starts.	
BookClosureEndDate	Date at which the record books in the company for shareholder names ends.	
LocalLDBUpdateDateTime	This is the local database update date-time.	
ExerciseStartDate	This is the starting date for Exercise.	
ExerciseEndDate	This is the last date for Exercise.	
OldTokenNumber	Not used.	
CreditRating	Credit rating of the security.	
Name	Security name.	
EGM/AGM	<ul style="list-style-type: none"> '0' - No EGM/AGM 	

Field Name	Descriptions	Comments
	<ul style="list-style-type: none"> • '1' - EGM • '2' - AGM • '3' - Both EGM and AGM 	
InterestDividend	<ul style="list-style-type: none"> • '0' - No Interest/ Dividend • '1' - Interest • '2' - Dividend 	
RightsBonus	<ul style="list-style-type: none"> • '0' - No Rights/Bonus • '1' - Rights • '2' - Bonus • '3' - Both Rights and Bonus 	
MFAON	<ul style="list-style-type: none"> • '0' - MF/AON not allowed • '1' - MF allowed • '2' - AON allowed • '3' - MF and AON allowed 	
Remark	Remarks	
ExStyle	<ul style="list-style-type: none"> • 'A' - American style Exercise allowed • 'E' - European style Exercise allowed 	
ExAllowed	Exercise is allowed on this contract if this Flag is set to true.	
ExRejectionAllowed	Exercise rejection is allowed on this contract if this bit is set to true.	
PIAllowed	Position liquidation is allowed on this contract if this flag is set to true.	
Checksum	Not used.	
IsCorporateAdusted	This field shows whether this Contract is Corporate Adjusted.	
AssetName	Name of the underlying asset.	For example, NIFTY.
InstrumentIDOfAsset	ID of the Instrument for the underlying asset of this contract.	
AssetInstrument	Underlying asset type.	For example, INDEX.

Field Name	Descriptions	Comments
BasePrice	Base price of the security.	
DeleteFlag	This indicates the status of the security, whether the security is deleted or not. <ul style="list-style-type: none"> • 'N' : Active • 'Y' : Deleted 	

4.10 Participant Structure

Header

CHAR NEATCM [6]
 Reserved 1 byte
 CHAR VersionNumber [7]
 Reserved 1 byte
 LONG DATE
 Reserved 1 byte

Structure

CHAR ParticipantId [12]
 Reserved 1 byte
 CHAR ParticipantName [25]
 Reserved 1 byte
 CHAR ParticipantStatus
 Reserved 1 byte
 CHAR DeleteFlag
 Reserved 1 byte
 LONG LastUpdateTime

Field Name	Descriptions	Comments
ParticipantId	ID of the Participant	
ParticipantName	Name of the participant	
ParticipantStatus	If this field is 'S' then the Participant is Suspended. If this is 'A' then the Participant is Active.	
DeleteFlag	If this field is 'Y' then the participant is deleted from the system, else he is present in the system.	
LastUpdateTime	The last time this record was modified.	