



**MARKET FEED**  
**Capital Market (CM)**  
**Real Time Snapshot Data**

**Version:1.22**

**Date: 08 November 2024**

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### Revision History

| Name         | Description   | Date              |
|--------------|---|-------------------|
| Version 1.0  | New Specification issued  | 31 March 2015     |
| Version 1.1  | Addition of a new Index   | 12 June 2015      |
| Version 1.2  | Index name renamed  | 29 September 2015 |
| Version 1.3  | 15-Min Delayed product details added  | 06 November 2015  |
| Version 1.4  | Addition of 10 New Indices and Indices renamed  | 08 March 2016     |
| Version 1.5  | Addition of 4 New Indices   | 31 January 2018   |
| Version 1.6  | Index renamed   | 22 March 2018     |
| Version 1.7  | Index renamed   | 03 July 2018      |
| Version 1.8  | Addition of 5 New Indices   | 04 January 2019   |
| Version 1.9  | Addition of 2 New Indices   | 06 August 2020    |
| Version 1.10 | Addition of 2 New Indices   | 30 September 2020 |
| Version 1.11 | Addition of 5 New Indices   | 03 August 2021    |
| Version 1.12 | Field Name changed from Warning Percent to Settlement Cycle in Security Information   | 21 December 2021  |
| Version 1.13 | Addition of 7 new indices   | 08 January 2022   |
| Version 1.14 | Added the note regarding Inclusion of Dummy symbols in MBP file   | 25 November 2022  |
| Version 1.15 | Increased token number range from short to long   | 23 August 2023    |
| Version 1.16 | Addition of 2 Dummy Indices   | 20 October 2023   |
| Version 1.17 | Addition of 2 New Indices   | 12 January 2024   |
| Version 1.18 | <ol style="list-style-type: none"> <li>1. Addition in Note of T+0 definition in settlement cycle field for Security information</li> <li>2. Removal in Note of T+2 definition in settlement cycle field for Security information</li> </ol>                   | 18 March 2024     |
| Version 1.19 | Addition of 4 New Indices   | 28 March 2024     |
| Version 1.20 | Increased total traded quantity range from long to unsigned long  | 24 April 2024     |
| Version 1.21 | <ol style="list-style-type: none"> <li>1. Increased range of total traded quantity and interval total traded quantity from unsigned long to long long and from long to long long respectively.</li> <li>2. Addition of Decoding Snapshot files and</li> </ol> | 28 August 2024    |

|              |   |                  |
|--------------|---|------------------|
|              | <p>addition of Indicative Close Value in Indices Information</p> <p>3. Increased range of best buy quantity, best sell quantity and indicative traded quantity from long to long long.</p> <p>4. Addition of Indicative Close Price in Market Information</p> <p>5. Addition of FAQ Section</p> |                  |
| Version 1.22 | Addition of 12 New Indices  | 08 November 2024 |



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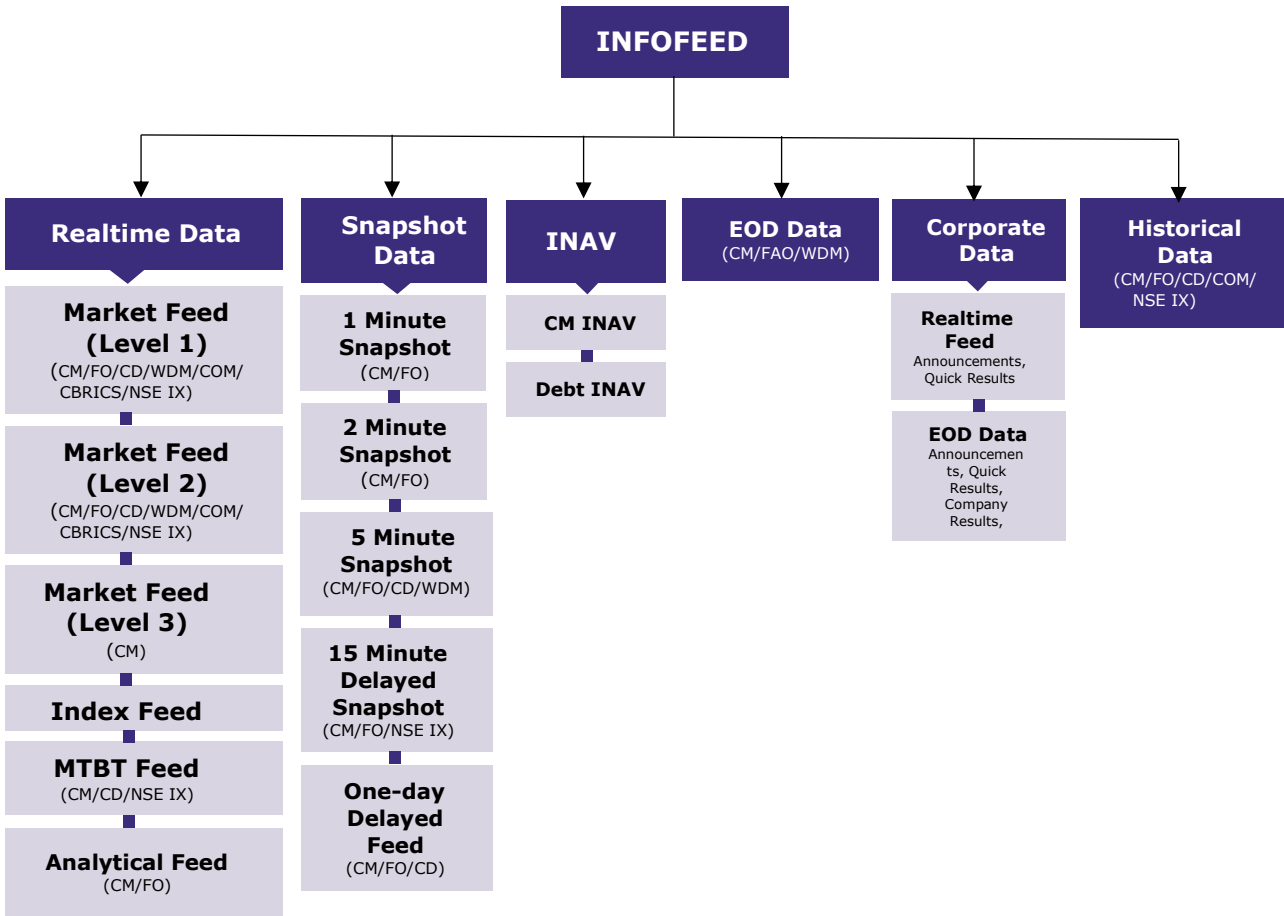


# CAPITAL MARKET - SNAPSHOT DATA

## 1 Introduction

NSE Data & Analytics Ltd. disseminates NSEIL’s Real Time Broadcast data to various information agencies. It provides the 3 different types of data to Info Vendors, i.e. Real Time Data, Snapshot Data and End of Day Data. The Real Time Data is a packet broadcast available in Multicast whereas the Snapshot Data and End of day data are available in the form of files. Certain products based on the Real Time Data are also made available through files.

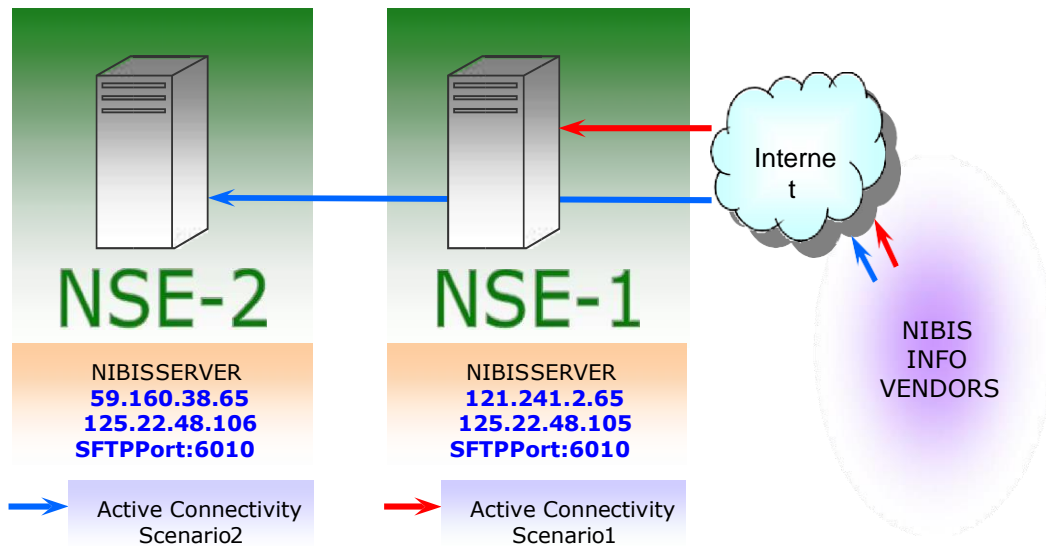
The NIBIS (NSE Internet Based Information System) server that caters the NIBIS Info Vendors is available through Internet. All NIBIS Info Vendors connect the server through internet and use SFTP protocol to download the files. The files on this server are generated on regular intervals. The Info Vendors are provided with credentials which are enabled for the agreement period.



## 2 Connection Details

The Info Vendors connect to NIBIS server over the Internet using SFTP protocol. In NSE premises two NIBIS Production Servers operate in an active-active configuration. Each server can be accessed using two IP addresses, for ISP-level redundancy, as shown in the Structural Diagram. In case a server becomes inaccessible through both its IP addresses, the Info Vendor software requires to fail-over to the other server.

### 2.1 Structural diagram



### 2.2 Platform notes

1. The SFTP service can be simultaneously accessed through both redundant IP addresses on each server. This is to enable Info Vendors to access the servers in case of link failure.
2. Info Vendors may use both IP addresses of a server during normal course of operations to put both available links to use.
3. There may be slight differences between the data disseminated by the two servers because of factors impacting sampling such as CPU clock skew, differences in routing of data, etc.
4. Time stamp on the files on the server is in 24-hour format.
5. Certain files are compressed using ZLIB (gzip). The files may be decompressed using the popular "gunzip" command on Unix/Linux systems. Tools to decompress these files are also freely available for Windows on the World Wide Web, Gzip for Windows and 7-Zip being popular examples.
6. The Exchange does not provide software or support for decompression, SFTP, etc.

### 3 Overview

#### 3.1 Products and “Product Root”

The files are productized as per the generation frequency and are generated under their designated Product Roots on the server.

Product Root is the name of the top-level directory under which files for a product are generated.

| Snapshot Frequency                 | Generation Frequency                  | Product Root |
|------------------------------------|---------------------------------------|--------------|
| 1 Minute Snapshot Product          | Every 1 Minute                        | /CM01        |
| 2 Minute Snapshot Product          | Every 2 Minutes                       | /CM02        |
| 5 Minute Snapshot Product          | Every 5 Minutes                       | /CM05        |
| 15 Minute Delayed Snapshot Product | Every 1 Minute, delayed by 15 Minutes | /CM30        |

The Product Roots may further contain subdirectories as specified in the relevant sections of this document.

Info Vendors may subscribe to product of their choice depending on their data snapshot frequency requirement.

Delayed data products are also available, wherein the files generated on regular 1 minute interval basis is delayed by the specified time.

#### 3.2 Types of files generated.

The files are generated in binary format on the servers inside the corresponding type-wise sub-directories as specified in this document and can be broadly classified as follows:

| Description                           | Frequency              |
|---------------------------------------|------------------------|
| Market Information Files              | At a specific interval |
| Call-Auction Market Information Files | At a specific interval |
| Security Information Files            | Once a day (EOD)       |
| Bhavcopy Information Files            | Once a day (EOD)       |

For each trading day, files are generated in date-wise sub-directories prefixed with the full month name (MonthDDYYYY) as specified in the relevant sections of this document.

The files generated at fixed frequency are continuously numbered, starting from 1.





### 3.3 Compression

Certain files are compressed using ZLIB (gzip). The files may be decompressed using the popular “gunzip” command on Unix/Linux systems. Tools to decompress these files are also freely available for Windows on the World Wide Web, Gzip for Windows and 7-Zip being popular examples. It may be noted that the Exchange does not provide software or support for decompression.

### 3.4 Data Types

| Data Type | Size In Bytes |
|-----------|---------------|
| CHAR      | 1             |
| SHORT     | 2             |
| LONG      | 4             |
| DOUBLE    | 8             |
| LONG LONG | 8             |

Byte order - Little Endian  
All structures are pragma pack 1.



## 4 Data Details

### 4.1. Market Information

The Market information data files (MBP and Index) are generated on the server at regular intervals.

#### 4.1.1. Market Files

The \*.mkt ("\*" stands for a number) files contain market statistics and order information of the securities that are being traded during the last interval, including their open, high, low and close price. The file contains a single record for every security that is traded during that file interval. These files are generated during normal trading period To Close Session These files are generated in incremental count number on a trading day starting from 1 (for example, 1.mkt, 2.mkt and so on).

During the special trading session (mahurat trading), the first file will be generated after 15 minutes after the trading session starts.

Actual timing circular will be published by the exchange at the appropriate time.

#### 4.1.2. Indices Files

The \*.ind ("\*" stands for a number) files contain NSEIL Indices information, including open, high, low and close index 4. Each file contains data of all indices of Exchange. These files are generated at regular intervals. These files are generated during normal trading period and during Close Session.

### 4.2. Call Auction Market Information

Two new market types Call Auction and Reserved (for future use) are introduced in the capital market trading system.

#### 4.2.1. Call Auction Market

Multiple sessions of call auction market can be held in a trading day.

The call auction session shall consist of

- Order collection period (Order entry, modification and cancellation is allowed)
- Order matching period.

The computation of Indicative Opening Price (IOP) and matching logic shall be same as pre-open session for Cash Market segment. In call auction market, after matching period is over all the outstanding orders shall be cancelled.

The Call Auction Market information data files are generated on the server with the extension \*.ca1.



The \*.ca1 ("\*" stands for a number) files contain market statistics and order information of the securities that are being traded in the call auction market in the last 1 minutes along with their open, high, low and close price. The file contains a single record for every security that is traded during that file interval. These files are generated during normal trading period. These files are generated in incremental count number on a trading day starting from 1.ca1.

#### 4.2.2 Call auction in pre-open session (IPO & Re-listed securities)

A new market for IPO & Re-listed securities is introduced by NSE. Reserved market type will be used to generate the data files for this market.

The business functionality for this market type is same as the Call Auction Market (i.e. Order Collection and Order Matching period).

Following is the only difference for this market.

The Buy back and market maker concept is also not there in this market so the 'BBMM Flag' for buy and sell side will be sent as '0' (zero).

This Market information data files are generated on the server with the extension \*.ca2

The \*.ca2 ("\*" stands for a number) files contain market statistics and order information of the securities that are being traded in the SML market in the last 1 minutes along with their open, high, low and close price. The file contains a single record for every security that is traded during that file interval. These files are generated during normal trading period. These files are generated in incremental count number on a trading day starting from 1.ca2.

#### 4.3. Security Information

The Securities.dat file is the master file that contains the updated information of all securities traded on the Exchange. The Info Vendors need to download this file and decode it to resolve the "token number" of required security. The Token number of each security is unique.

#### 4.4. Bhavcopy Information

The bhavcopy information file is generated at around 17:00 hrs on each trading day. The file name is CMBHAVCOPY\_DDMMYYYY.TXT. This file contains the End of the Day values of the securities that are traded on that trading day.

**Note:** Dummy symbols shall be received in MBP file in an affixed pattern where the last 7 character shall remain "NSETEST". Kindly ignore dummy securities trade volume and pricing information which is coming in MBP file.



## 5 Data Structure Details

### 5.1. Market Information

|                             |                                    |
|-----------------------------|------------------------------------|
| <b>Directory Path</b>       | /<Product Root>/DATA/<MonthDDYYYY> |
| <b>File Name</b>            | *.mkt                              |
| <b>Compression</b>          | Compressed (.gz)                   |
| <b>Generation Frequency</b> | At fixed intervals                 |

| Field Name                | Data Type | Value          | Brief Description   |
|---------------------------|-----------|----------------|---|
| <b>INFO HEADER</b>        |           |                |   |
| Transcode                 | SHORT     | Numeric        | <a href="#">Transaction message number.</a><br>This describes the type of message received or sent.                         |
| Timestamp                 | LONG      | Numeric        | This field should be set to numeric zero while sending to the host. This is used in host end.                               |
| Message Length            | SHORT     | Numeric        | This field should be set to the length of the entire message, including the length of message header while sending to host. |
| <b>Info Header Length</b> |           | <b>8 Bytes</b> |   |
| <b>INFO DATA</b>          |           |                |   |
| Security Token            | LONG      | Numeric        | This field contains the token number  |
| Last Traded Price         | LONG      | Numeric        | This field contains the price at which the latest trade in a security has taken place.                                      |
| Best Buy Quantity         | LONG LONG | Numeric        | This field contains the total Buy Quantity  |
| Best Buy Price            | LONG      | Numeric        | The highest price for a Buy auction.  |
| Best Sell Quantity        | LONG LONG | Numeric        | This field contains the total Sell quantity   |
| Best Sell Price           | LONG      | Numeric        | This is the lowest price for a Sell auction   |



|                                |           |                 |   |
|--------------------------------|-----------|-----------------|---|
| Total Traded Quantity          | LONG LONG | Numeric         | This field contains the total quantity of a security traded on the current day  |
| Average Traded Price           | LONG      | Numeric         | This field contains the average price of all the trades in a security.  |
| Open Price                     | LONG      | Numeric         | This field contains the open price of a security  |
| High Price                     | LONG      | Numeric         | This field contains the highest trade price.  |
| Low Price                      | LONG      | Numeric         | This field contains the lowest trade price.   |
| Close Price                    | LONG      | Numeric         | This field contains the closing price of a security.  |
| Interval High Price            | LONG      | Numeric         | This field contains the highest trade price during interval   |
| Interval Low Price             | LONG      | Numeric         | This field contains the lowest trade price during interval  |
| Interval Open Price            | LONG      | Numeric         | This field contains the open price of a security during interval  |
| Interval Close Price           | LONG      | Numeric         | This field contains the closing price of a security during interval   |
| Interval Total Traded Quantity | LONG LONG | Numeric         | This field contains the total quantity of a security traded during interval   |
| Indicative Close Price         | LONG      | Numeric         | This field contains indicative close price of security. It will be sent in the last 30 minutes of normal session. Until then this will be sent as 0 |
| <b>Info Data Length</b>        |           | <b>88 Bytes</b> |   |



## 5.2. Indices Information

|                             |                                    |
|-----------------------------|------------------------------------|
| <b>Directory Path</b>       | /<Product Root>/DATA/<MonthDDYYYY> |
| <b>File Name</b>            | *.ind                              |
| <b>Compression</b>          | Compressed (.gz)                   |
| <b>Generation Frequency</b> | At fixed intervals                 |

| Field Name                | Data Type | Value          | Brief Description   |
|---------------------------|-----------|----------------|---|
| <b>INFO HEADER</b>        |           |                |   |
| Transcode                 | SHORT     | Numeric        | <a href="#">Transaction message number.</a><br>This describes the type of message received or sent.                         |
| Timestamp                 | LONG      | Numeric        | This field should be set to numeric zero while sending to the host. This is used in host end.                               |
| Message Length            | SHORT     | Numeric        | This field should be set to the length of the entire message, including the length of message header while sending to host. |
| <b>Info Header Length</b> |           | <b>8 Bytes</b> |   |
| <b>INFO DATA</b>          |           |                |   |
| Index Token               | LONG      | Numeric        | Token number of the index being updated.  |
| Index Open Value          | LONG      | Numeric        | This field contains the opening index value at the time of market open.   |
| Current Index Value       | LONG      | Numeric        | This field contains the online market index value at that instance of broadcast.  |
| High Index Value          | LONG      | Numeric        | This field contains the day's highest index value at the time of broadcast  |
| Low Index Value           | LONG      | Numeric        | This field contains day's lowest index value at the time of broadcast.  |

|                            |      |                 |   |
|----------------------------|------|-----------------|---|
| Percentage Change in Index | LONG | Numeric         | This field contains the percent change in current index with respect to yesterday's closing index |
| Interval High Index Value  | LONG | Numeric         | This field contains today's high index in interval  |
| Interval Low Index Value   | LONG | Numeric         | This field contains today's low index in interval   |
| Interval Open Index Value  | LONG | Numeric         | This field contains the opening index value at interval   |
| Interval Close Index Value | LONG | Numeric         | This field contains today's closing index at interval   |
| Indicative Close Value     | LONG | Numeric         | This field contains the indicative index close value.   |
| <b>Info Data Length</b>    |      | <b>44 Bytes</b> |   |



### 5.3. Security Information

|                             |  |
|-----------------------------|--|
| <b>Directory Path</b>       | /<Product Root>/SECURITY/<MonthDDYYYY> |
| <b>File Name</b>            | Securities.DAT                         |
| <b>Compression</b>          | Not compressed                         |
| <b>Generation Frequency</b> | Once (EOD)                             |

| Field Name                | Data Type | Value          | Brief Description   |
|---------------------------|-----------|----------------|---|
| <b>INFO HEADER</b>        |           |                |   |
| Transcode                 | SHORT     | Numeric        | <a href="#">Transaction message number.</a><br>This describes the type of message received or sent.   |
| Timestamp                 | LONG      | Numeric        | This field should be set to numeric zero while sending to the host. This is used in host end.   |
| Message Length            | SHORT     | Numeric        | This field should be set to the length of the entire message, including the length of message header while sending to host.   |
| <b>Info Header Length</b> |           | <b>8 Bytes</b> |   |
| <b>INFO DATA</b>          |           |                |   |
| Token Number              | LONG      | Numeric        | Token number of the security being updated.   |
| Symbol                    | CHAR [10] | Character      | This field contains the Symbol of the security.   |
| Series                    | CHAR [2]  | Character      | This field contains the series of a security.   |
| Issued Capital            | DOUBLE    | Numeric        | Issue size of the security  |
| Settlement Cycle          | SHORT     | Numeric        | 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. |
| Freeze Percent            | SHORT     | Numeric        | This field contains the volume freeze percent with respect to issued capital.   |





|                         |           |                  |  |
|-------------------------|-----------|------------------|--|
| Credit Rating           | CHAR [12] | Character        | This field contains the credit rating of the security.                             |
| Issue Rate              | SHORT     | Numeric          | Price of the issue.  |
| Issue Start Date        | LONG      | Numeric          | Date of issue of the security.   |
| Issue Pdate             | LONG      | Numeric          | Interest payment date  |
| Issue Maturity Date     | LONG      | Numeric          | Maturity date  |
| Board Lot Quantity      | LONG      | Numeric          | Regular lot size.  |
| Tick Size               | LONG      | Numeric          | Tick size/ Min spread size   |
| Name of Company         | CHAR [25] | Character        | Name of the company  |
| Record Date             | LONG      | Numeric          | Date of record changed.  |
| Expiry Date             | LONG      | Numeric          | This field contains the last date of trading before any corporate action           |
| No Delivery Start Date  | LONG      | Numeric          | Date from when physical delivery of share certificates is stopped for book closure |
| No Delivery End Date    | LONG      | Numeric          | No delivery end date.  |
| Book Closure Start Date | LONG      | Numeric          | Date at which the record books in the company for shareholder names start.         |
| Book Closure End Date   | LONG      | Numeric          | Date at which the record books in the company for shareholder names end            |
| <b>Info Data Length</b> |           | <b>111 Bytes</b> |  |

**Note:** Settlement Cycle can have two values; either 0 or 1. Value of 0 means Settlement Cycle of the security is T+0 and 1 means Settlement Cycle of the security is T+1.

### 5.4. Bhavcopy Information

This data file does not contain the Header field.

|                             |  |
|-----------------------------|--|
| <b>Directory Path</b>       | /<Product Root>/BHAVCOPY/<MonthDDYYYY> |
| <b>File Name</b>            | CMBhavcopy_DDMMYYYY.txt                |
| <b>Compression</b>          | Not compressed                         |
| <b>Generation Frequency</b> | Once (EOD)                             |

| Field Name                 | Data Type | Value            | Brief Description   |
|----------------------------|-----------|------------------|---|
| <b>INFO DATA</b>           |           |                  |   |
| Symbol                     | CHAR [10] | Character        | This field contains the Symbol of the security.   |
| Series                     | CHAR [2]  | Character        | This field contains the series of a security.   |
| Trade High Price           | CHAR [10] | Character        | This field contains the highest trade price.  |
| Trade Low Price            | CHAR [10] | Character        | This field contains the lowest trade price.   |
| Opening Price              | CHAR [10] | Character        | This field contains the indicative opening price (IOP) of a security for order collection period session and Final Open Price of a security in matching period. |
| Closing Price              | CHAR [10] | Character        | This field contains the closing price of a security   |
| Previous Close Price       | CHAR [10] | Character        | This field contains the previous day's closing price of the security  |
| Total Traded Quantity      | CHAR [12] | Character        | This field contains the total quantity of a security traded on the current day  |
| Total Traded Value         | CHAR [25] | Character        | This field contains the total value of the securities traded  |
| Carriage Return/ Line Feed | CHAR [2]  | Character        | Carriage Return/ Line Feed  |
| <b>Info Data Length</b>    |           | <b>101 Bytes</b> |   |



### 5.5. Call Auction Market Information

|                             |   |
|-----------------------------|---|
| <b>Directory Path</b>       | /<Product Root>/DATA/<MonthDDYYYY>  |
| <b>File Name</b>            | *.ca1: Call Auction Market<br>*.ca2: Reserved Market (IPO & Re-listed securities) |
| <b>Compression</b>          | These files are compressed (.gz)  |
| <b>Generation Frequency</b> | At fixed intervals  |

| Field Name                | Data Type | Value          | Brief Description   |
|---------------------------|-----------|----------------|---|
| <b>INFO HEADER</b>        |           |                |   |
| Transcode                 | SHORT     | Numeric        | <a href="#">Transaction message number.</a><br>This describes the type of message received or sent.                         |
| Timestamp                 | LONG      | Numeric        | This field should be set to numeric zero while sending to the host. This is used in host end.                               |
| Message Length            | SHORT     | Numeric        | This field should be set to the length of the entire message, including the length of message header while sending to host. |
| <b>Info Header Length</b> |           | <b>8 Bytes</b> |   |
| <b>INFO DATA</b>          |           |                |   |
| Security Token            | LONG      | Numeric        | Security Token  |
| Last Traded Price         | LONG      | Numeric        | During order collection as well as during matching, it contains LTP of the security   |
| Best Buy Quantity         | LONG LONG | Numeric        | Best buy side limit order, price and quantity information.  |
| Best Buy Price            | LONG      | Numeric        |   |
| Buy BBMM Flag             | CHAR [1]  | Character      | For BBMM flag refer <a href="#">9.3 Market Maker &amp; Buy Back Flag (MMBB Flag)</a>  |
| Best Sell Quantity        | LONG LONG | Numeric        | Best sell side limit order, price and quantity information.   |
| Best Sell Price           | LONG      | Numeric        |   |
| Sell BBMM Flag            | CHAR [1]  | Character      | For BBMM flag refer <a href="#">9.3 Market Maker &amp; Buy Back Flag (MMBB Flag)</a>  |



|                            |           |                 |  |
|----------------------------|-----------|-----------------|--|
| Total Traded Quantity      | LONG LONG | Numeric         | This field contains the total quantity of a security traded on the current day   |
| Indicative Traded Quantity | LONG LONG | Numeric         | During order collection period this field will contain Indicative Equilibrium Quantity   |
| Average Traded Price       | LONG      | Numeric         | During order collection period it will always be zero. Once matching starts it will contain the Average Trade Price.   |
| First Open Price           | LONG      | Numeric         | During first call auction order collection period this field will be zero. Once matching starts it will contain the First Trade Price. Once updated for all subsequent call auctions it will not change. This field may remain zero till the first trade happens |
| Open Price                 | LONG      | Numeric         | This field contains the indicative opening price (IOP) of a security for order collection period session and Final Open Price of a security in matching period.  |
| High Price                 | LONG      | Numeric         | During order collection period it will always be zero. Once matching starts it will be updated.  |
| Low Price                  | LONG      | Numeric         | During order collection period it will always be zero. Once matching starts it will be updated.  |
| Close Price                | LONG      | Numeric         | This field contains the closing price of a security.   |
| Filler                     | LONG      | Numeric         | Zero   |
| <b>Info Data Length</b>    |           | <b>78 Bytes</b> |  |



## 6. File Transcode List

| Details   | Transcode number |
|---|------------------|
| <a href="#">MARKET PRE-OPEN INFORMATION</a>     | 3                |
| <a href="#">MARKET STATISTICS INFORMATION</a>   | 5                |
| BROADCAST MESSAGE INFORMATION                   | 6                |
| <a href="#">NEW SECURITY INFORMATION</a>        | 7                |
| <a href="#">MARKET INDICES INFORMATION</a>      | 8                |
| <a href="#">CALL AUCTION MARKET INFORMATION</a> | 9                |

## 7. Index Token Numbers List

The Indices generated during the trading cycle are identified by Index names. The feed shall not bear these names. Instead, a unique Index token shall identify each index. The Info Vendors need to decode the index files by providing following combinations of the Index Token number and Index Name.

| Index Token | Index Name               |
|-------------|--------------------------|
| 0           | NIFTY 50                 |
| 1           | NIFTY IT                 |
| 2           | NIFTY NEXT 50            |
| 3           | NIFTY50 USD (NOT IN USE) |
| 4           | NIFTY BANK               |
| 5           | NIFTY MIDCAP 100         |
| 6           | NIFTY 500                |
| 7           | NIFTY 100                |
| 8           | NIFTY MIDCAP 50          |
| 9           | NIFTY REALTY             |
| 10          | NIFTY INFRA              |
| 11          | INDIA VIX                |
| 12          | NIFTY ENERGY             |
| 13          | NIFTY FMCG               |
| 14          | NIFTY MNC                |
| 15          | NIFTY PHARMA             |
| 16          | NIFTY PSE                |
| 17          | NIFTY PSU BANK           |
| 18          | NIFTY SERV SECTOR        |
| 19          | NIFTY SMLCAP 100         |
| 20          | NIFTY 200                |
| 21          | NIFTY AUTO               |
| 22          | NIFTY MEDIA              |
| 23          | NIFTY METAL              |
| 24          | NIFTY DIV OPPS 50        |
| 25          | NIFTY COMMODITIES        |
| 26          | NIFTY CONSUMPTION        |
| 27          | NIFTY FIN SERVICE        |

|    |                       |
|----|-----------------------|
| 28 | NIFTY50 DIV POINT     |
| 29 | NIFTY100 LIQ 15       |
| 30 | NIFTY CPSE            |
| 31 | NIFTY GROWSECT 15     |
| 32 | NIFTY50 TR 2X LEV     |
| 33 | NIFTY50 PR 2X LEV     |
| 34 | NIFTY50 TR 1X INV     |
| 35 | NIFTY50 PR 1X INV     |
| 36 | NIFTY50 VALUE 20      |
| 37 | NIFTY100 QUALTY30     |
| 38 | NIFTY MID LIQ 15      |
| 39 | NIFTY PVT BANK        |
| 40 | NIFTY GS 8 13YR       |
| 41 | NIFTY GS 10YR         |
| 42 | NIFTY GS 10YR CLN     |
| 43 | NIFTY GS 4 8YR        |
| 44 | NIFTY GS 11 15YR      |
| 45 | NIFTY GS 15YRPLUS     |
| 46 | NIFTY GS COMPSITE     |
| 47 | NIFTY50 EQL WGT       |
| 48 | NIFTY100 EQL WGT      |
| 49 | NIFTY100 LOWVOL30     |
| 50 | NIFTY ALPHA 50        |
| 51 | NIFTY MIDCAP 150      |
| 52 | NIFTY SMALLCAP 50     |
| 53 | NIFTY SMALLCAP 250    |
| 54 | NIFTY MIDSMALLCAP 400 |
| 55 | NIFTY200 QUALITY 30   |
| 56 | NIFTY FINSRV25 50     |
| 57 | NIFTY ALPHALOWVOL     |
| 58 | NIFTY200MOMENTM30     |
| 59 | NIFTY100ESGSECLDR     |
| 60 | NIFTY HEALTHCARE      |
| 61 | NIFTY CONSUR DURBL    |

|    |                   |
|----|-------------------|
| 62 | NIFTY OIL AND GAS |
| 63 | NIFTY500MULTICAP  |
| 64 | NIFTY LARGEMID250 |
| 65 | NIFTY MID SELECT  |
| 66 | NIFTY TOTAL MKT   |
| 67 | NIFTY MICROCAP250 |
| 68 | NIFTY IND DIGITAL |
| 69 | NIFTY100 ESG      |
| 70 | NIFTY M150 QLTY50 |
| 71 | NIFTY INDIA MFG   |
| 74 | NIFTY200 ALPHA 30 |
| 75 | NIFTYM150MOMNTM50 |
| 76 | NIFTY TATA 25 CAP |
| 77 | NIFTY MIDSML HLTH |
| 78 | NIFTY MULTI MFG   |
| 79 | NIFTY MULTI INFRA |
| 80 | BHARATBOND-APR25  |
| 81 | BHARATBOND-APR30  |
| 82 | BHARATBOND-APR31  |
| 83 | BHARATBOND-APR32  |
| 84 | BHARATBOND-APR33  |
| 85 | Nifty Ind Defence |
| 86 | Nifty Ind Tourism |
| 87 | Nifty Capital Mkt |
| 88 | Nifty500Momentm50 |
| 89 | NiftyMS400 MQ 100 |
| 90 | NiftySml250MQ 100 |
| 91 | Nifty Top 10 EW   |

List of Dummy indices:

| Index Token | Index Name     |
|-------------|----------------|
| 72          | INDEX1 NSETEST |
| 73          | INDEX2 NSETEST |



## 8. Data Field Details

### 8.1 Security Token Number

The Security Token numbers uniquely identify each security listed on the National Stock Exchange of India Ltd. The token number, Symbol and Series identify a single and unique security. The Info Vendor will be provided with a binary file i.e. securities.dat giving the combinations of all securities traded on the Exchange. Any further additions, modifications and deletions will be updated in securities.dat file as part of the feed in /<Product Root>/Security directory.

### 8.2 Timestamp

The timestamp is the number of seconds elapsed from midnight Jan 1, 1980.



## 9. Notes

### 9.1 All prices are in Paisa

All price fields are multiplied by 100 and this implies that the prices received by the Info Vendors must be divided by 100.

For India VIX index, the index value is of four decimal precisions. Hence, the values received by the Info Vendors for the India VIX index must be divided by 10000.

### 9.2 Call Auction Market and Reserved Market

Two new market types have been added in Capital Market segment. The first market has been added to support Call Auctions and the other market type has been added for future use. It has been termed as reserved market.

### 9.3 Market Maker & Buy Back Flag (MMBB Flag)

For the probable values of BBMM flag refer the table given below

1. **Sell BBMM Flag:** Buy Back or Market Maker order at that price point.
2. **Buy BBMM Flag:** Buy Back or Market Maker order at that price point.

| Buy_Back_Order<br>Exists | Market_Maker_Order<br>Exists | Sell BBMM Flag/<br>Buy BBMM Flag |
|--------------------------|------------------------------|----------------------------------|
| No                       | No                           | '0'                              |
| Yes                      | No                           | '1'                              |
| No                       | Yes                          | '2'                              |
| Yes                      | Yes                          | '3'                              |

E.g. If Buy Back and Market Maker orders exist at particular price point then the above fields will contain '3'.

## 10. About SFTP (Secure File Transfer Protocol)

The file transfer takes place over SFTP (Secure FTP) protocol over the Internet.

The Info Vendor requires to provide the Exchange with the SSH RSA Public Key of their machine for receiving login details from the Exchange.

The following details will be provided once the request is processed by the Exchange:

- Server IP
- SSH Service Port
- User ID
- File Path

General information on SFTP has been provided in the following sections for popular OS platforms.

### 10.1 SFTP on Linux platform

The OpenSSH suite, which comes pre-installed in most Linux distributions, can be used for transferring files securely using SFTP.

The SSH key-pair is generally generated in the “.ssh” directory in the user’s home directory.

It is highly recommended that you consult your systems administrator to generate/locate the key-pair and set up SFTP for you.

Continue reading for information on how to generate the key-pair.

#### 10.1.1. Generation of the SSH RSA key-pair on Linux

- Generate the new key-pair with following command:

```
ssh-keygen -t rsa -C "user@host"
```

- You will receive the following prompt:

```
Generating public/private rsa key pair.  
"Enter file in which to save the key".
```

Press the Enter to continue with the defaults.

You will receive the following prompt:

```
Enter file in which to save the key  
(/home/user/.ssh/id_rsa):
```

Press the Enter to continue with the defaults.

- If a file already exists with the same name, then you will receive the following prompt:

```
/host/users/user/.ssh/id_rsa already exists.  
Overwrite (y/n)?
```

Type "y" and press Enter to overwrite.

- You will be prompted to enter a passphrase as follows:

```
Enter passphrase (empty for no passphrase):
```

Press Enter to continue without a passphrase.

Your will be prompted to re-enter the passphrase:

```
Enter same passphrase again:
```

Press Enter again to continue without a passphrase.

- After you enter a passphrase, you will be presented with the "Fingerprint" (or ID) of your SSH key.

It will look something like this:

```
Your identification has been saved in  
/host/users/user/.ssh/id_rsa.  
Your public key has been saved in  
/host/users/user/.ssh/id_rsa.pub.  
The key fingerprint is:  
87:c4:85:90:91:16:39:de:c2:26:49:4a:b3:38:80:97 user@host
```

After generating public key, user needs to share the Public Key file with exchange for requesting the credentials.

**NOTE:** In above steps the words "host" and "user" are used to represent the host name and username of the machine. This is used for demo purpose only. The same will differ as per your server and usernames.

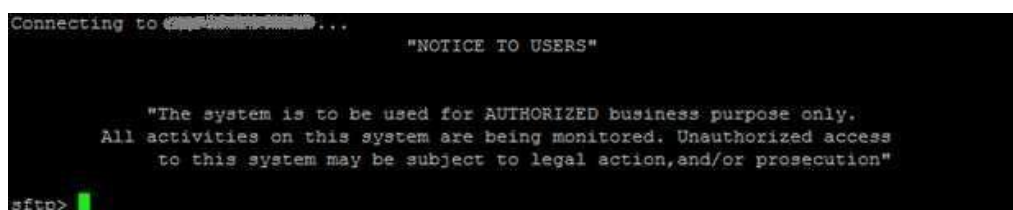
### 10.1.2. SFTP Login

Login to the Exchange Server over SFTP using the following command:

```
sftp -o PORT=6010 remote_user@remote_host
```

Where remote\_user is the User ID provided to you by the Exchange upon sharing your Public Key and remote\_host is the Exchange Server IP.

You should get the SFTP prompt as below, upon successful login:



```
Connecting to [redacted]...  
"NOTICE TO USERS"  
  
"The system is to be used for AUTHORIZED business purpose only.  
All activities on this system are being monitored. Unauthorized access  
to this system may be subject to legal action, and/or prosecution"  
  
sftp> █
```

### 10.1.3. Fetching files over SFTP

The SFTP “get” command may be used at the SFTP prompt for fetching the files while logged into the host over SFTP.

### 10.1.4. Ending the SFTP session

The SFTP “bye” command may be used for terminating the session

### 10.1.5. SFTP commands help

Help may be obtained with SFTP commands by typing the “help” command at the SFTP prompt.

## 10.2 SFTP on Windows platform

### 10.2.1. Generation of the SSH RSA key-pair on Windows

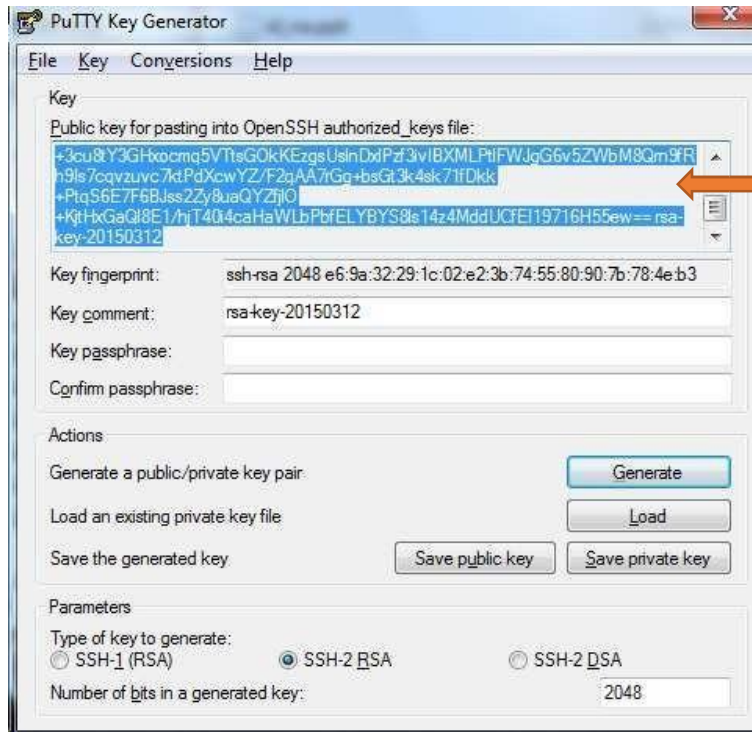
This guide explains how to generate the SSH RSA key-pair using the PuttyGen application.

Download the PuttyGen application (freely available on the Internet). Then follow these steps to generate the key-pair:

- Start the PuttyGen application.  
You will be presented with a dialog which looks something like this:



- Select "SSH2RSA" with 2048-bit size or greater.
- Press the "Generate" button.
- After generating the key, you will be shown the screen below. Keep the "Key passphrase" and "Confirm passphrase" as blank.



SSH RSA Public Key should be copied from here after generation

- Create a blank file with the name "id\_rsa.pub". This will be the public key file which will be populated with your Public Key and shared with the Exchange.
- Copy the public key content as presented on the screen (selected area in the below screenshot) and paste into newly created public key file (id\_rsa.pub) and save the file.
- Share this Public Key File (id\_rsa.pub) with the Exchange when requesting for SFTP credentials.

### 10.2.2. SFTP Client Software on Windows

There are multiple SFTP Client Programs (paid for and free) available for transferring files over SFTP.

One such software is WinSCP, available for free from the WinSCP website.

This program is intuitive, user friendly and can be used in interactive mode (GUI) as well as from the command line (for automation/batch processing).

Information on using WinSCP can be found on the WinSCP website.

### **10.3 Further support**

Apart from the above guide, many of the online resources can be referred on the World Wide Web for more information on how to set up and use SFTP at the Client's site on various OS platforms.

**Note:** This "About SFTP" section is intended as a guide used to understand and become familiarized with this transfer protocol.

It may be noted that the Exchange does not provide SFTP software or support for configuring and using SFTP at Client site.



## 11. Decoding Snapshot files

Please refer following C snippet for decoding snapshot files:

```

HEADER header      = {0};
DATA_MBP data_mbp  = {0};
DATA_CA1 data_ca1  = {0};
DATA_CA2 data_ca2  = {0};
DATA_IND data_ind  = {0};
TRAILER trailer    = {0};

int main()
{
    gzFile  fpFile = gzopen("1.mkt.gz", "rb");
    while
    {
        int nRetVal = gzread(fpFile, &header ,sizeof(HEADER));
        if(header.nTranscode == MBP)
        {
            gzread(fpFile, &data_mbp, sizeof(data_mbp));
            print(&data_mbp);
        }

        else if(header.nTranscode == CA1)
        { gzread(fpFile, &data_ca1, sizeof(data_ca1)); }

        else if(header.nTranscode == CA2)
        { gzread(fpFile, &data_ca2, sizeof(data_ca2)); }

        else if(header.nTranscode == IND)
        { gzread(fpFile, &data_ind, sizeof(data_ind)); }

        nRetVal = gzread(fpFile, &trailer, sizeof(TRAILER));
        if(gzEOF(fpFile) == 1)
        {
            printf("EOF reached ");
            break;
        }
    }
    gzclose(fpFile);
}

void print(DATA_MBP *data_mbp)
{
    printf("Security Token = %d ,Last Traded Price = %d,
    Best Buy Quantity = %d, .....",data_mbp->SecurityToken,
    data_mbp->LastTradedPrice,data_mbp->BestBuyQuantity);
}

```



## 12. FAQs

- 1) Download of files through SFTP was working till last week, suddenly our connection to sftp is failing. How do we resolve it?

If using SFTP on Windows, please ensure you are using the latest version of Winscp or any other equivalent tool.

If you are using SFTP programmatically or through an API, please ensure you **don't use the following cipher**:

- diffie-hellman-group-exchange-sha1
- diffie-hellman-group14-sha1
- diffie-hellman-group1-sha1

- 2) How do we decode compressed \*.mkt and \*.oi files?

Please refer [section 11](#) for decoding Snapshot Files, which involves decompression and reading of \*.mkt and \*.oi files.

### 13. Contact Information

| Name                         | Email                | Contact Number  |
|------------------------------|----------------------|-----------------|
| Business & Technical Support | marketdata@nse.co.in | +91-22-26598385 |

