



**MARKET FEED**  
**Capital Market (CM)**  
**(15 Mins Delayed Snapshot)**

**Version: 1.18**

**Date: 28 August 2024**

NSE DATA & ANALYTICS LIMITED  
EXCHANGE PLAZA,  
PLOT NO. C/1, G BLOCK,  
BANDRA-KURLA COMPLEX,  
BANDRA (E), MUMBAI 400 051.  
INDIA.

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### Revision History

Name	Description	Date
Version 1.0	New Specification Issued	06 November 2015
Version 1.1	10 New Indices Addition and Indices Rename Change	08 March 2016
Version 1.2	Addition of 4 New Indices	31 January 2018
Version 1.3	Index Renamed	22 March 2018
Version 1.4	Index Renamed	03 July 2018
Version 1.5	Addition of 5 New Indices	04 January 2019
Version 1.6	Addition of 2 New Indices	06 August 2020
Version 1.7	Addition of 2 New Indices	30 September 2020
Version 1.8	Addition of 5 New Indices	03 August 2021
Version 1.9	Field Name changed from Warning Percent to Settlement Cycle in Security Information	21 December 2021
Version 1.10	Addition of 7 new indices	09 January 2022
Version 1.11	Added the note regarding Inclusion of Dummy symbols in MBP file	25 November 2022
Version 1.12	Increased token number range from short to long	23 August 2023
Version 1.13	Addition of 2 Dummy Indices	20 October 2023
Version 1.14	Addition of 2 New Indices	12 January 2024
Version 1.15	1. Addition in Note of T+0 definition in settlement cycle field for Security information 2. Removal in Note of T+2 definition in settlement cycle field for Security information	18 March 2024
Version 1.16	Addition of 4 New Indices	28 March 2024
Version 1.17	Increased total traded quantity range from long to unsigned long	24 April 2024
Version 1.18	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. 2. Addition of Decoding Snapshot files and addition of Indicative Close Value in Indices Information 3. Increased range of best buy quantity, best sell quantity and indicative traded quantity	28 August 2024

	from long to long long. 4. Addition of Indicative Close Price in Market Information 5. Addition of FAQ Section	
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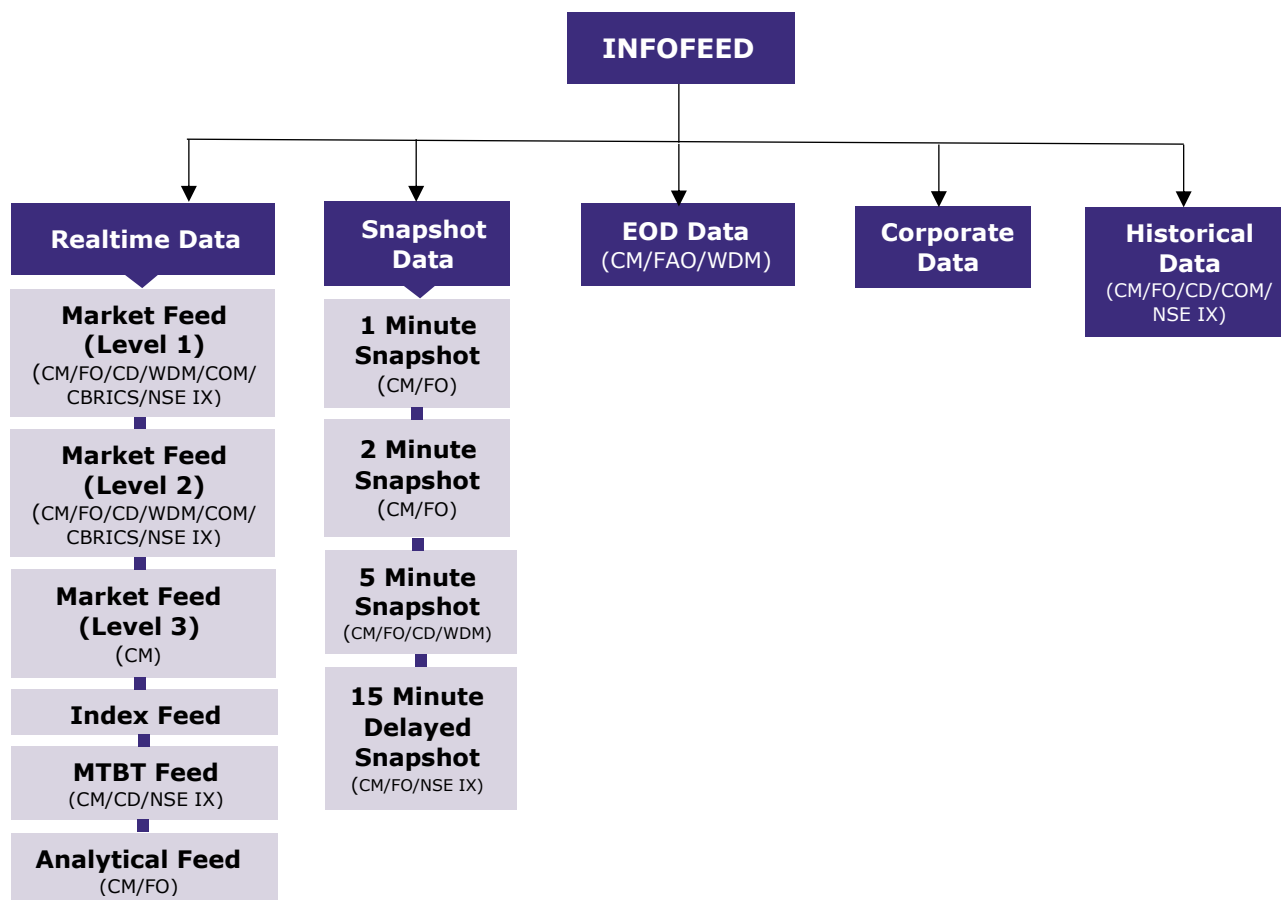
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# Market Feed - Capital Market (15 Minutes Snapshot)

## 1 Introduction

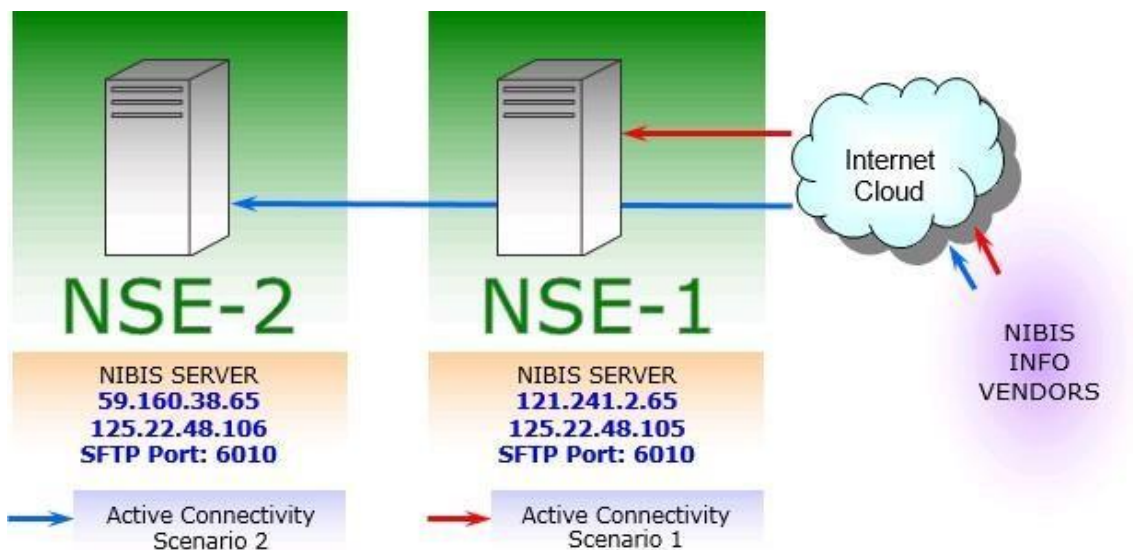
NSE Data & Analytics Ltd. disseminates NSEIL’s real time broadcast data to various information agencies. The NIBIS (NSEIL’s Internet Based Information System) server that caters the NIBIS vendors is available through internet. All NIBIS vendors are required to connect the server through internet and use SFTP protocol to download the files. The files on this server are generated with 15 minutes delay on regular 1 minute interval basis. The vendors are provided with a User ID and password that is 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 Data Types

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

Byte order - Little Endian

### 3. DATA DETAILS

The Capital Market (CM) data files are generated in binary format at a regular interval of 1 minute (15 minutes old data). These are \*.mkt and \*.ind files.

#### 3.1 MARKET INFORMATION

The Market information data files are generated in /CM30/DATA/"<Month>DDYYYY" folder on the server. i.e., \*.mkt and \*.ind

The \*.mkt (Where "\*" stands for a numeric value) files contains market statistics and order information of the securities that are being traded 15 minutes before and generated with 1 minute interval 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 in incremental count number on a trading day starting from 1.mkt.

During 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.

The \*.ind (Where "\*" stands for a numeric value) files contains NSEIL Indices information along with its open, high, low and close index values. Each file contains data of all indices of Exchange. These files are generated at regular interval of 1 minutes with 15 minutes old data. These files are generated during normal trading period and during Close Session.

#### 3.2. CALL AUCTION MARKET INFORMATION

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

##### **Call Auction Market -**

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

The call auction session shall consist of

1. Order collection period (Order entry, modification and cancellation is allowed)
2. 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 in /CM30/DATA/"<Month>DDYYYY" folder on the server. i.e., \*.ca1



The \*.ca1 (Where "\*" stands for a numeric value) files contains market statistics and order information of the securities that are being traded in the call auction market 15 minutes delayed 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.

**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 send the data packets 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.

1. 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'.

This Market information data files are generated in /CM30/DATA/"<Month>DDYYYY" folder on the server. i.e., \*.ca2

The \*.ca2 (Where "\*" stands for a numeric value) files contains market statistics and order information of the securities that are being traded in the call auction market 15 minutes delayed 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. These files are generated in incremental count number on a trading day starting from 1.ca2.

### 3.3. SECURITY INFORMATION

The security update file is generated in /CM30/security/ "<Month>DDYYYY" folder on the server. The securities.dat file is the master file that contains the updated information of all securities traded on the Exchange. The 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.

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

## 4. DATA STRUCTURE DETAILS

### 4.1 MARKET INFORMATION

**FILE PATH - /CM30/DATA/"<MONTH>DDYYYY" FILE NAME - \*.MKT**

Field Name	Data Type	Value	Brief Description
<b>INFO HEADER</b>			
Transcode	SHORT	Numeric	<a href="#">Transaction message number.</a> 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 for the auction
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 for the auction
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 a security. It will be sent in last 30 minutes of normal session. Until then this will be sent as 0
<b>Info Data Length</b>		<b>88 Bytes</b>	



## 4.2. INDICES INFORMATION

**FILE PATH - /CM30/DATA/"<MONTH>DDYYYY" FILE NAME - \*.IND**

### HEADER

Field Name	Data Type	Value	Brief Description
Transcode	SHORT	Numeric	<a href="#">Transaction message number.</a> 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.
Open Index 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>	

### 4.3. SECURITY INFORMATION

**FILE PATH - /CM30/SECURITY/"<MONTH>DDYYYY" FILE NAME - Securities.DAT**

Field Name	Data Type	Value	Brief Description
<b>INFO HEADER</b>			
Transcode	SHORT	Numeric	<a href="#">Transaction message number.</a> 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 starts.
Book Closure End Date	LONG	Numeric	Date at which the record books in the company for shareholder names ends
<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.



#### 4.4. CALL AUCTION MARKET INFORMATION

**FILE PATH** - /CM30/DATA/"<MONTH>DDYYYY"

**FILE NAME** - \*.ca1 for Call Auction Market

\*.ca2 for Reserved Market (IPO & Re-listed securities)

Field Name	Data Type	Value	Brief Description
<b>INFO HEADER</b>			
Transcode	SHORT	Numeric	<a href="#">Transaction message number.</a> 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
<b>Best Buy Quantity</b>	<b>LONG LONG</b>	<b>Numeric</b>	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>
<b>Best Sell Quantity</b>	<b>LONG LONG</b>	<b>Numeric</b>	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>	

## 5. FILE TRANSCODE LIST

DETAILS	TRANSCODE NUMBER
<a href="#">MARKET OPEN INFORMATION</a>	1
<a href="#">MARKET CLOSE INFORMATION</a>	2
<a href="#">MARKET PRE-OPEN INFORMATION</a>	3
<a href="#">MARKET STATISTICS INFORMATION</a>	5
<a href="#">NEW SECURITY INFORMATION</a>	7
<a href="#">CALL AUCTION MARKET INFORMATION</a>	9

## 6. 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 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 CONSR DURBL
62	NIFTY OIL AND GAS
63	NIFTY500 MULTICAP
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

List of Dummy indices:

<b>Index Token</b>	<b>Index Name</b>
72	INDEX1 NSETEST
73	INDEX2 NSETEST

## **7 DATA FIELD DETAILS**

### **7.1 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 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 /CM30/Security folder.

### **7.2. TIMESTAMP**

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



## 8. 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.

### 8.1 SFTP on Linux platform

The Open SSH 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.

#### 8.1.1 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  
(/host/users/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.

You 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.

### 8.1.2 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> █
```

### 8.1.3 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.

### 8.1.4 Ending the SFTP session

The SFTP "bye" command may be used for terminating the session.

### 8.1.5 SFTP commands help

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

## 8.2. SFTP on Windows platform

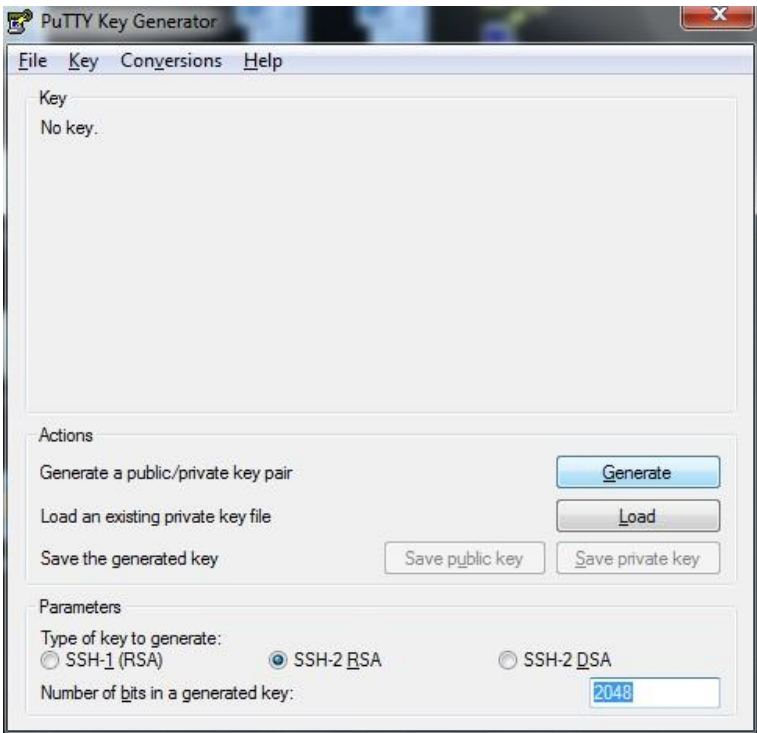
### 8.2.1. Generation of the SSH RSA key-pair on Windows

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:

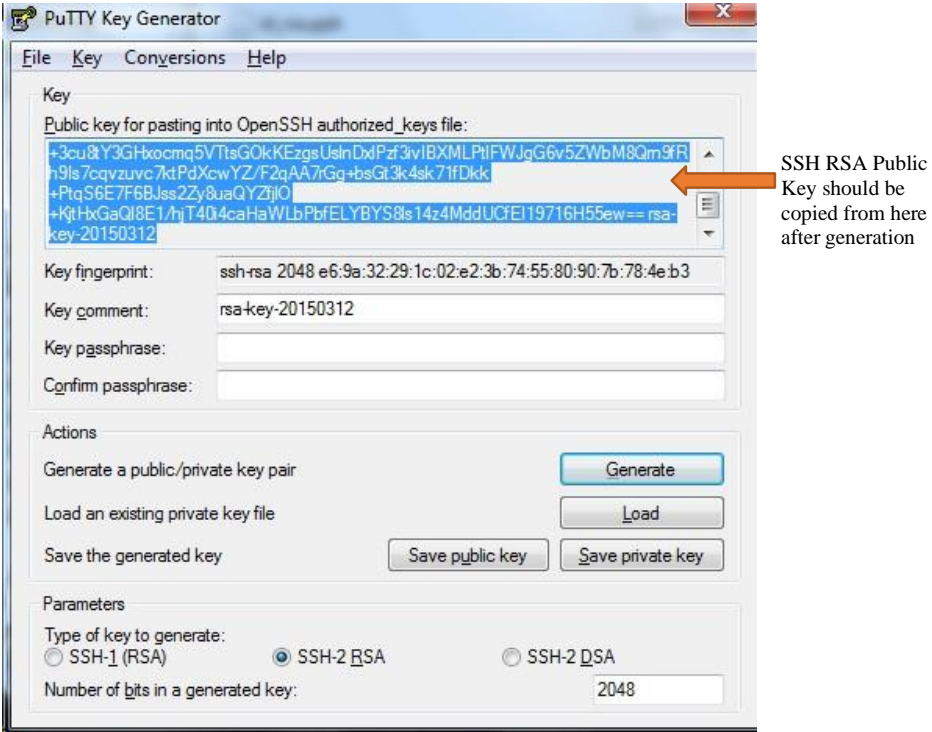
- Start the PuttyGen application.  
You will be presented with a dialog which looks something like this:





- 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.





- 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.

**8.2.2. 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.

### 8.3. 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.



## 9. NOTE

### 9.1 All prices are in Paisa

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

For India VIX index, the index value is of four decimal precisions. Hence, the values received by the 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 Exists	Market_Maker_Order Exists	Sell BBMM Flag/ 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 price point then the above fields will contain '3'.



## 10. 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);
}
    
```

## 11. 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 10](#) for decoding Snapshot Files, which involves decompression and reading of \*.mkt and \*.oi files.

**12. CONTACT INFO**

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

