



NSE

Data &
Analytics

MARKET FEED CAPITAL MARKET (STOCK WISE)

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Revision History

Name	Description	Date
Version 1.0	New Specification Issued	24 May, 2013
Version 1.1	Addition of New fields (Total Buy Quantity, Total Sell Quantity) to the existing format.	20 December, 2013
Version 1.2	Change in regular/market lot field size from char [5] to char [6] in 2 structures 3.4 EOD – Master Addition/Modification/Deletion and 3.6 EOD –Corporate Action Update	27 June, 2018
Version 1.4	Migration from FTP to SFTP.	25 Feb, 2019

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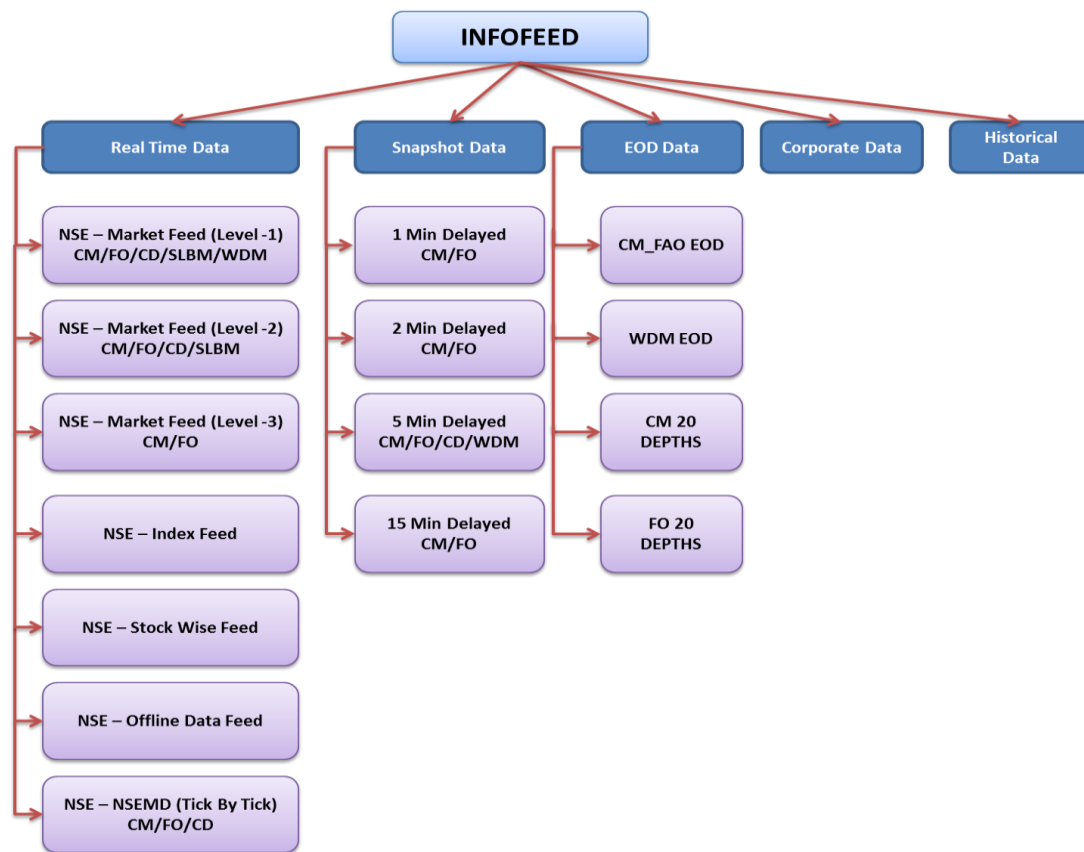
NSE – Stock Wise Feed (CM)

1. Introduction

NSE Data & Analytics Ltd. disseminates NSEIL’s real time broadcast data to various information agencies. It provides the 5 different types of data products viz.

- A. Real Time Data
- B. Snapshot Data
- C. End of Day Data
- D. Corporate Data
- E. Historical Data

The real time data and corporate data is a packet broadcast available in TCP/IP format, whereas the snapshot data, end of day data and historical data is available in the form of files. All these data products come under in Infofeed application.



In Infofeed’s Real Time Data product following sub-products are available

- a. NSE - Market Feed (CM/FO/CD/SLBM/WDM Level 1)
- b. NSE - Market Feed (CM/FO/CD/SLBM Level 2)
- c. NSE - Market Feed (CM/FO Level 3)
- d. NSE - Index Feed
- e. NSE – Stock Wise Feed (CM)
- f. NSE - Offline Data Feed
- g. NSE - NSEMD (CM/FO/CD Tick By Tick)

This document explains about the NSE – Stock Wise Feed (CM) product. Vendors would subscribe to Stocks for which it requires market information. Stock wise feed would be provided in CSV format at specified time interval.

1.1 Connection Details

The vendors would connect the NSE server through **SFTP** protocol. Vendors are provided with a User ID that is enabled for the agreement period. Vendors will have to create a public key-private key pair and share the public key with the NSE Data and Analytics team.

1.2 Subscription details

Vendor would subscribe to security for which it want to receive Stock specific feed.

1.3 Acronyms Used

BOD	Begin Of Day Information
EOD	End Of Day Information
ONLINE	Information Sent During Market Timing
CM	Cash Market
F&O	Future & Options Market
CD	Currency Derivatives Market
SLBM	Securities Lending & Borrowing Market
WDM	Whole Sale & Debt Market

2. File Format

Stock wise feed would generate CSV Files at specific interval during market hours.

2.1 File Name:

Stock wise feed would generate CSV file with following name.

UserId_DDMMYYYY_HHMMSS.csv

Where,

UserId: UserId given to vendor

DDMMYYYY: Date on which file was generated Eg. 24052013

HHMMSS: Time at which file was generated Eg. 153000

2.2 File Structure:

Structure of file would be as follows,

Code	Data
------	------

Where,

Code: Type of data. It could be CT, CN, PN, SN, CA, CM, CD, CU

Data: Respective market information for each type of data detail structure of data for each type of code is mentioned point 3 onwards.

There could be more than one record in a file.

3. Data Packet details

Data packets in the CSV could be of type BOD, Intraday or EOD. Detail information for each type of code with respective structure is as follows.

3.1 BOD - Master Information

These packets are written at the beginning of the each trading day before market open. This feed contains the information about the securities valid in the CM Market for trading.

Field Name	Data Type	Value	Remark
Code	SHORT	'CT'	
DATA			
Token Number	CHAR[10]	Character	Unique identifier for the securities listed on NSE.
Symbol	CHAR[10]	Character	Security symbol
Series	CHAR[2]	Character	Series
ISIN Number	CHAR[12]	Character	An International Securities Identification Number (ISIN) uniquely identifies a security.
Is Deleted	CHAR	Character	'Y' = Deleted 'N' = Not Deleted
Low Price Range	CHAR[10]	Character	Minimum price at which order can be placed without causing a price freeze
High Price range	CHAR[10]	Character	Maximum price at which order can be placed without causing a price freeze
Security Eligibility Per Market	ST_SECURITY_ELIGIBILITY_PER_MARKET[6]	Structure	Refer the table given below ST_SECURITY_ELIGIBILITY_PER_MARKET

Field Name	Data Type	Value	Remark
ST_SECURITY_ELIGIBILITY_PER_MARKET			
Market Type	CHAR	Character	'N'=Normal 'S'=Spot 'O'=Odd Lot 'A'=Auction 'C'=Call Auction 'G'=Reserved Market
Eligibility	CHAR	Character	'1'=Allowed to trade '0'=Not allowed to trade
Security Status	CHAR	Character	'1'=Open '0'=Suspended

3.2 INTRADAY - Normal Market Security Update Information

NSE securities update information for pre-open and normal market is sent through this Message.

Field Name	Data Type	Value	Remark
Code	SHORT	'PN' 'CN'	PN = Pre-open session updates CN = Normal market updates
DATA			
Symbol	CHAR[10]	Character	Symbol of the security
Series	CHAR[2]	Character	Series
Market Type	CHAR	Character	'N' =Normal 'S' =Spot 'O' =Odd Lot 'A' =Auction
Time Stamp	CHAR[11]	Character	No of seconds from 01-01-1970 00:00:00 (DD-MM-YYYY HH:MM:SS)
Best Buy-Order price	CHAR[10]	Character	Best buy sides outstanding order price
Best Buy-Order Quantity	CHAR[12]	Character	Best buy sides outstanding order quantity

Best Sell-Order price	CHAR[10]	Character	Best Sell sides outstanding order price
Best Sell-Order quantity	CHAR[12]	Character	Best Sell sides outstanding order quantity
Last Traded Price(LTP)	CHAR[10]	Character	Price of the last trade happened on the security. If no trade has happened for the day then previous day's trade price is taken or the base price is taken.
Total Traded Quantity (TTQ)	CHAR[12]	Character	Volume traded today
Security Status	CHAR	Character	'S' = Suspended '`' = Non-suspended
Opening Price	CHAR[10]	Character	In pre-open session the indicative open price is sent if security is available in pre-open session. Open price of the security for the day.
High Price	CHAR[10]	Character	High price of the security for the day
Low Price	CHAR[10]	Character	Low price of the security for the day
Close Price	CHAR[10]	Character	Close price of the security. During the day previous day's close price is sent. After market close current day's close price is calculated and sent through this field
Average Trade Price	CHAR[10]	Character	Weighted average price of the security. i.e. value / quantity

Total Buy Quantity	CHAR[12]	Character	Total quantity of the outstanding orders available on buy side
Total Sell Quantity	CHAR[12]	Character	Total quantity of the outstanding orders available on sell side
Total Turnover	CHAR[25]	Character	Security traded value i.e. Average Trade Price * TTQ

3.3 INTRADAY- Call Auction Market Security Update Information

Call Auction and IPO / Relisting markets are introduced in the capital market trading system. These markets securities update information is sent through these messages.

Call Auction Market (Call Auction 1)

SME (Small & Medium Enterprise) securities call auction session is conducted in this market type. For detailed explanation please refer point number 4.4

Reserved Market (Call Auction 2)

IPO, Relisting & illiquid securities call auction session is conducted in this market type. For detailed explanation please refer point number 4.5

Field Name	Data Type	Value	Remark
Code	SHORT	'SN'	
DATA			
Symbol	CHAR[10]	Character	Symbol of the security
Series	CHAR[2]	Character	Series
Market Type	CHAR	Character	'C' = Call Auction 'G' = Reserved Market
Time Stamp	CHAR[11]	Character	No of seconds from 01-01-1970 00:00:00 (DD-MM-YYYY HH:MM:SS)
Best Buy-Order price	CHAR[10]	Character	Best buy sides outstanding order price
Best Buy-Order Quantity	CHAR[12]	Character	Best buy sides outstanding order quantity

Buy BBMM Flag	CHAR	Character	Refer point number 4.6
Best Sell-Order price	CHAR[10]	Character	Best Sell sides outstanding order price
Best Sell-Order quantity	CHAR[12]	Character	Best Sell sides outstanding order quantity
Sell BBMM Flag	CHAR	Character	Refer point number 4.6
Last Traded Price(LTP)	CHAR[10]	Character	During order collection as well as during matching, it contains LTP of the security
Total Traded Quantity (TTQ)	CHAR[12]	Character	This field contains the total quantity of a security traded on the current day
Indicative Traded Quantity	CHAR[12]	Character	During order collection period this field will contain Indicative Equilibrium Quantity
Security Status	CHAR	Character	'S' = Suspended ' ' = Non-suspended
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.
High Price	CHAR[10]	Character	During order collection period it will always be zero. Once matching starts it will be updated.
Low Price	CHAR[10]	Character	During order collection period it will always be zero. Once matching starts it will be updated.

Close Price	CHAR[10]	Character	This field contains the closing price of a security.
Average Trade Price	CHAR[10]	Character	Weighted average price of the security. i.e. value / quantity During order collection period it will always be zero. Once matching starts it will contain the Average Trade Price.
First Open Price	CHAR[10]	Character	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
Total Buy Quantity	CHAR[12]	Character	Total quantity of the outstanding orders available on buy side
Total Sell Quantity	CHAR[12]	Character	Total quantity of the outstanding orders available on sell side
Total Turnover	CHAR[25]	Character	During order collection period it will always be zero. Once matching starts it will updated

3.4 EOD – Master Addition/Modification/Deletion

This packet consists of information about addition, modification or deletion any of the securities.

Field Name	Data Type	Value	Remark
Code	SHORT	'CA' 'CM' 'CD'	CA = Security added CM = Security modified CD = Security deleted
DATA			
Symbol	CHAR[10]	Character	Security symbol
Series	CHAR[2]	Character	Series
Security Description	CHAR[30]	Character	Security Name
Regular Lot	CHAR[6]	Character	Regular Lot
Market Type	CHAR	Character	'N'=Normal 'S'= Spot 'O'=Odd Lot 'A'=Auction 'C'=Call Auction 'G'=Reserved Market
Tick Size	CHAR[6]	Character	Security tick size
Face Value	CHAR[9]	Character	Security face value
Issue Capital	CHAR[12]	Character	Security issued capital
Market Index Participation	CHAR[1]	Character	'Y'= Yes 'N'= No
Last Update Date & Time	CHAR[20]	Character	Format: DD-MON-YYYY HH:MM:SS

3.5 EOD – Market Status

The end of day status of the securities is sent through these messages.

Field Name	Data Type	Value	Remark
Code	SHORT	'CS'	
DATA			
Symbol	CHAR[10]	Character	Security symbol
Series	CHAR[2]	Character	Series
Market Type	CHAR	Character	'N'=Normal 'S'= Spot 'O'=Odd Lot 'A'=Auction 'C'=Call Auction 'G'=Reserved Market
Trade High Price	CHAR[10]	Character	Security high price for the day
Trade Low Price	CHAR[10]	Character	Security low price for

			the day
Opening Price	CHAR[10]	Character	Security open price for the day
Closing Price	CHAR[10]	Character	Security close price for the day
Last Traded Price	CHAR[10]	Character	Security last traded price for the day
Previous Close Price	CHAR[10]	Character	Security previous day's close price
Total Traded Quantity	CHAR[12]	Character	Volume traded today for the security
Total Traded Value	CHAR[25]	Character	Total traded value for the security

3.6 EOD – Corporate Action Update

Corporate action on a security would be sent through this packet.

Field Name	Data Type	Value	Remark
Code	SHORT	'CU'	
DATA			
Symbol	CHAR[10]	Character	Security symbol
Series	CHAR[2]	Character	Series
Instrument Type	CHAR		'0'-Equities '1'- Preference Shares '2' – Debentures '3' – Warrants '4' – Miscellaneous '5'- Others
Issue Capital	CHAR[12]	Character	Security Issue Capital
Face Value	CHAR[9]	Character	Security Face value
Market Lot	CHAR[6]	Character	Security market lot
Dividend/Interest Rate	CHAR[6]	Character	Dividend/Interest Rate
Record Date	CHAR[10]	Character	Format: YYYY-MM-DD
Book Closure Start Date	CHAR[10]	Character	Format: YYYY-MM-DD
Book Closure End Date	CHAR[10]	Character	Format: YYYY-MM-DD
Ex-Date	CHAR[10]	Character	Format: YYYY-MM-DD
No Delivery Start	CHAR[10]	Character	Format:

Date			YYYY-MM-DD
No Delivery End Date	CHAR[10]	Character	Format: YYYY-MM-DD
Dividend	CHAR	Character	'D' or Blank
Rights Flag	CHAR	Character	'R' or Blank
Bonus Flag	CHAR	Character	'B' or Blank
Interest Flag	CHAR	Character	'I' or Blank
AGM Flag	CHAR	Character	'A' or Blank
EGM Flag	CHAR	Character	'E' or Blank
Others Flag	CHAR	Character	'O' or Blank
Corp Data Type	CHAR	Character	'B' =Book Closure 'R'=Record Date, 'N'=None
Corp Action Description	CHAR[25]	Character	Corp Action Description

4. Notes

4.1 Normal Market Session

All orders which are of regular lot size or multiples thereof are traded in the Normal Market. Normal market consists of various book types wherein orders are segregated as Regular lot orders, Special Term orders, Negotiated Trade Orders and Stop Loss orders depending on their order attributes.

4.2 Auction Market Session

In the Auction Market, auctions are initiated by the Exchange on behalf of trading members for settlement related reasons. There are 3 participants in this market.

- Initiator - the party who initiates the auction process is called an initiator
- Competitor - the party who enters orders on the same side as of the initiator
- Solicitor - the party who enters orders on the opposite side as of the initiator

In the auction market the Open price and the Last Traded Price would be zero till the auction ends and the auction price is calculated by the system. Since Auction in any particular scrip is done at a fixed price the High Price, Low Price, Closing Price and Index values is zero for all scrips traded in the Auction Market.

4.3 Pre-Open Session

Pre-open session will be conducted for the Normal Market segment. The session will be conducted before the normal market start time. Exchange may decide to allow all or selective securities in pre-open session. During Pre-open session, only order entry, orders modification and order cancellation will be allowed. Once pre-open session ends, no order activity will be allowed and final open price (i.e. equilibrium price based on accumulated buy and sell orders) will be computed. Pre-open orders will be matched at this final open price resulting into trade execution. Pre-open orders that could not participate in the pre-open matching for the reasons such as demand-supply gap, order price worse than the equilibrium price etc. shall be carried forward to the normal market. The time priority of such orders shall be retained.

In the above context NSE – Stock Wise Feed (CM) product sends messages in following sequence

1. Pre-open session start (PO) – market type 'N'

2. Security Update Information (PN) – Indicative open price in open price field
3. Pre-open session end (PC) - market type 'N'
4. Security Update Information (PN) – Derived final open price in open price field and current security information
5. Normal Market open (CO) - market type 'N'
6. Security Update Information (CN) – With current security
7. Normal Market Close (CC) - market type 'N'

4.4 Call Auction Session 1

SME (small and medium enterprises) securities call auction is done through this session. It is similar to the pre-open session. Multiple sessions of this can be held in a trading day. Market type for this session is 'C'

In the above context NSE – Stock Wise Feed (CM) product sends messages in following sequence in one call auction session.

1. Pre-open session start (PO) – market type 'C'
2. Call Auction Security Update Information (SN) – Indicative open price in open price field
3. Pre-open session end (PC) - market type 'C'
4. Security Update Information (SN) – Derived final open price in open price field and current security information

4.5 Call Auction Session 2

IPO, Relisting and illiquid securities call auction is done through this session. It is similar to the pre-open session. Multiple sessions of this can be held in a trading day. Market type for this session is 'G'. IPO/Relisted securities get transferred to normal market session after deriving the open

In the above context NSE – Stock Wise Feed (CM) product sends messages in following sequence in one call auction session.

1. Pre-open session start (PO) – market type 'G'
2. Call Auction Security Update Information (SN) – Indicative open price in open price field
3. Pre-open session end (PC) - market type 'G'
4. Security Update Information (SN) – Derived final open price in open price field and current security information

4.6 Market Maker & Buy Back Flag (MMBB Flag)

In call auction session 1 & 2 the buy back and market maker orders are allowed. To identify the buy back or market maker orders BBMM flag is sent

in the SN messages. For the probable values of BBMM flag refer the table given below

1. BuyBBMMOrderExists : Buy Back or Market Maker order exist at buy side but not in top five price points.
2. SellBBMMOrderExists : Buy Back or Market Maker order exist at sell side but not in top five price points.
3. Sell BBMM Flag : Buy Back or Market Maker order at that price point.
4. Buy BBMM Flag : Buy Back or Market Maker order at that price point.

Buy Back Order Exists	Market Maker Order Exists	BuyBBMMOrderExists/ SellBBMMOrderExists/ 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 particular price point then the above fields will contain '3'.

5. 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 form 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.

5.1 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.

5.1.1 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.

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 user name of the machine. This is used for demo purpose only. The same will differ as per your server and user names.

5.1.2 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> █
```

5.1.3 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.

5.1.4 Ending the SFTP session

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

5.1.5 SFTP commands help

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

5.2 SFTP on Windows platform

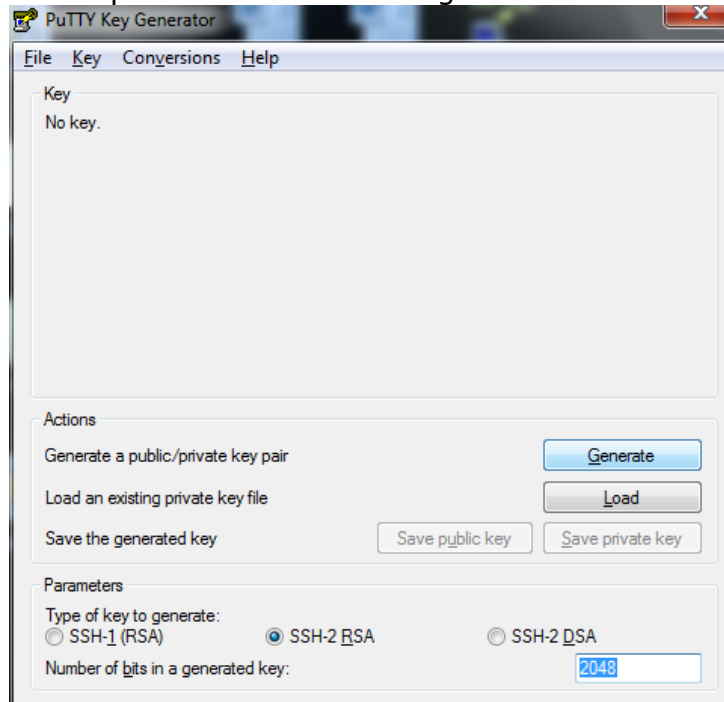
5.2.1 Generation of the SSH RSA key-pair on Windows

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

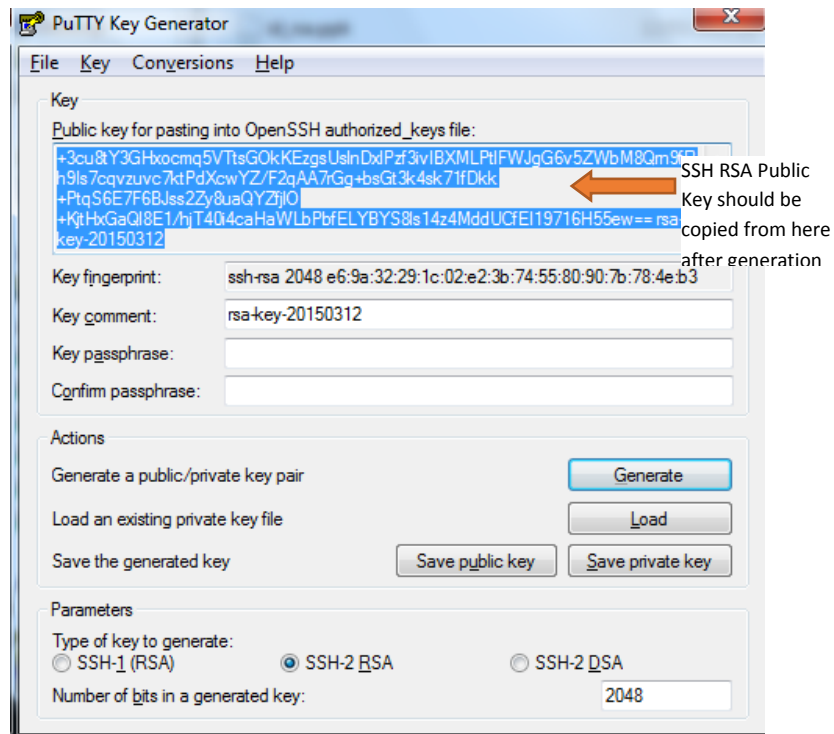
Download the PuttyGen application (freely available on the Internet).

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.

5.2.2 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.

5.3 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.

6. Support Information

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