MARKET FEED
Wholesale Debt Market (WDM)
(5 Mins Snapshot)

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Revision History

Name	Description	Date
Version 1.0	Final Specification Issued	27 June 2015
Version 1.1	FAQs Section added	31 October 2025

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Market Feed – Wholesale Debt Market (5 Minutes Snapshot)

1 Introduction

NSE Data & Analytics Ltd. offers real-time data and historical data products from NSEIL to a diverse range of clients. This includes 5 real-time products and 2 historical data products:

Real Time data products

1. Real Time Data
2. Snapshot Data
3. Corporate Data
4. Analytical Products data
5. Indicative NAV Data

Historical data products

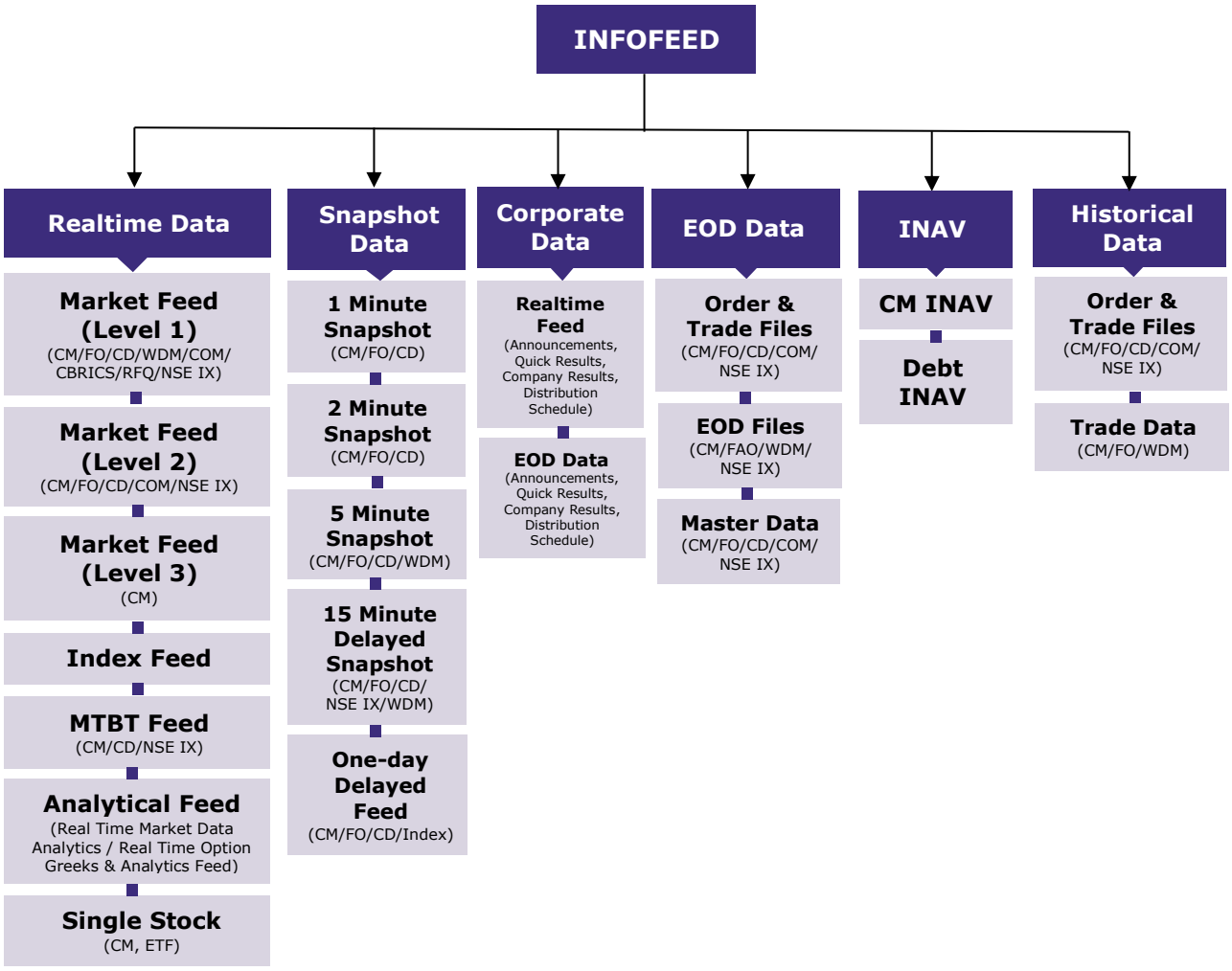
1. End of Day Data
2. Historical Data

The data products are provided through delivery modes mentioned below:

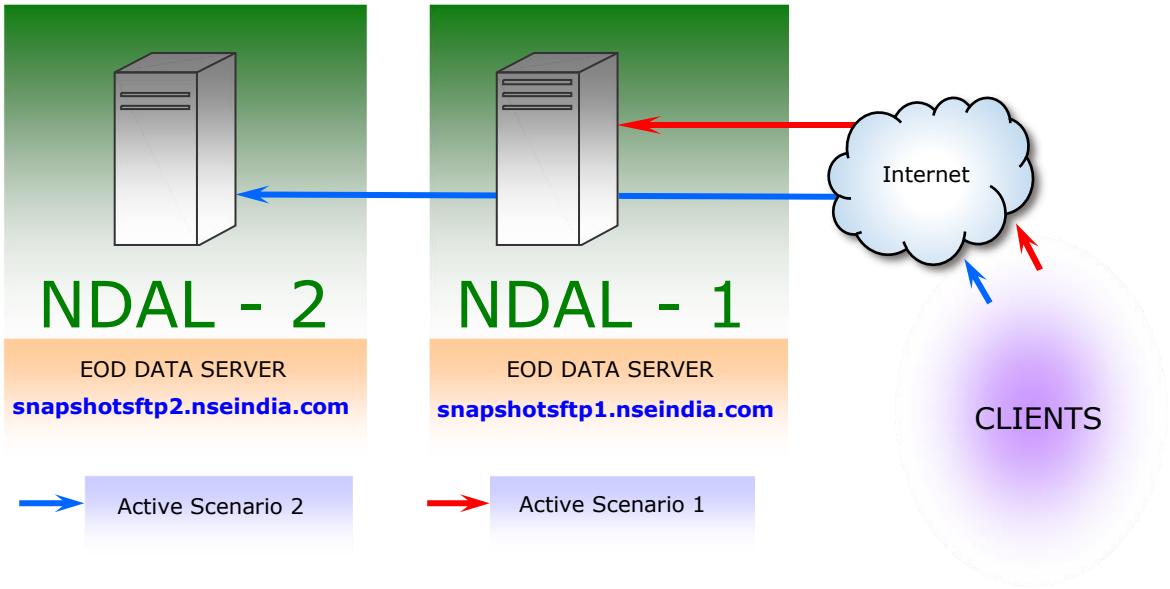
- **Real-time Data**: The information is transmitted as a packet broadcast, facilitating ongoing distribution through data feeds via point-to-point leased line.

- **Snapshot, End-of-Day, and Historical Data**: The data is delivered as downloadable files over the internet using the SFTP protocol.

All these data categories are integrated within the Infofeed platform, ensuring comprehensive coverage and streamlined access.



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



In NDAL premises, these two servers are available in active-active configuration. If one server stops responding, the vendors are expected to switch over to the other server and vice-versa

1.1 SFTP Connection Details

Segment	Server	URL	Port
Snapshot Data	Primary	snapshotsftp1.nseindia.com	7010
	Secondary	snapshotsftp2.nseindia.com	7010

2 Overview

2.1 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
5 Minutes Snapshot Product	Every 5 Minutes	/WDM05

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

2.2 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

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.

2.3 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.

2.4 Data Types

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

Byte order - Little Endian

3 Data Details

3.1 Market Information

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

3.1.1 Market Files

The *.mkt ("*" stands for a number) files contain market statistics and order information of the bonds that are being traded during the last interval, including their high and low price. The file contains a single record for every bond that is traded during that file interval. These files are generated during normal trading period i.e. 10:00 hrs. to end of day. These files are generated in incremental count number on a trading day starting from 1 (for example, 1.mkt, 2.mkt and so on).

4 Data Structure Details

4.1 Market Information

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

Field Name	Data Type	Value	Brief Description
FILE HEADER			
Timestamp	LONG	Numeric	File generation time
Number of Records	LONG	Numeric	Number of records in the file
File Header Length		**8 Bytes**	
RECORD HEADER			
Transcode	SHORT	Numeric	Transaction message number. This describes the type of packet received or sent.
Timestamp	LONG	Numeric	Time when the record is updated
Message Length	SHORT	Numeric	Size of DATA packet
Record Header Length		**8 Bytes**	
RECORD DATA			
Security Type	CHAR [2]	Character	Security Type of Bond
Security Name	CHAR [7]	Character	Security Name of Bond
Issue Name	CHAR [6]	Character	Issue Name of Bond
Settlement Days	CHAR [3]	Character	Settlement Period
Trade Type	CHAR [2]	Character	Security Trade Type
Repo Term	CHAR [3]	Character	Repo Term
Trade High Price	CHAR [10]	Character	High Price
Trade Low Price	CHAR [10]	Character	Low Price
Last Traded Price	CHAR [10]	Character	Last Traded Price
Total Traded Value	CHAR [15]	Character	Total Traded Value
Security Status	CHAR [1]	Character	Security Status
Checksum	CHAR [12]	Character	Checksum
Info Data Length		**81 Bytes**	

5 File Transcode List

Details	Transcode Number
MARKET OPEN INFORMATION	0x4E57

6 Data Field Details

6.1 Transcode

This is a unique field in the header that describes the type of packet.

6.2. Timestamp

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

6.3 Message Length

Length is a hexadecimal value that contains the length of the packet.

6.4 Security Type

The instruments issued by various issuers are clubbed under different homogeneous categories, which are known as Security Types. Security type is a two-character indicator of the security depending on the issuer like Central government (GS), state government (SG), public sector unit, institutions, banks, corporate, mutual funds & local bodies.

6.5 Security Name

Security name is a description of the security containing, short name of issuer and the year of maturity.

6.6 Issue Name

Issue indicates maturity date, coupon rate or mark-up rate over benchmark depending upon nature of the instrument. It is either the rate of interest (in case of coupon bearing instruments) or the date of maturity (in case of non-coupon bearing instruments).

6.7 Trade Type

It is a two-character denomination used for WDM trades type. The WDM trading system offers Non-Repo and Repo trades for trading.

6.7.1 Non-Repo Trades

These are trades in which there is an outright purchase and sale of securities. These are denominated by "NR" in the broadcast.

6.7.2 Repo Trades

These trades are repurchasing agreements in which a trader sells securities to a customer while simultaneously agreeing to repurchase them at a future date. A Repo transaction involves two phases of trading called "Ready Leg" and "Forward Leg". In the ready leg phase, the trade is settled as in a normal transaction. In the forward leg phase, the reverse of the trade is settled after the end of the Repo term. These are denominated by "RE" in the broadcast.

6.8 Repo Term

It indicates period after which Repo transaction matures.

6.9 Number of Trades

It indicates total transactions in a particular security.

6.10 Trade High Price

Highest price at which trade taken place in a security.

6.11 Trade Low Price

Lowest price at which trade taken place in a security.

6.12 Last Traded Price

It is the price at which the last trade for a particular security has taken place.

6.13 Total Traded Value

It is total face value of all the securities that have been traded.

6.14 Weighted Yield

Weighted yield indicated for the traded security is calculated based on all trades done in the security during the day. It is Yield of each security X Value of each security/ total value of the security.

6.15 Market Open

WDM Market opens on each trading day at 10:00 Hrs.

6.16 Market Close

WDM Market closes on each trading day at following timings –

Market Type	Normal Trading Days Market Close Time
Same Day Market	15:00 Hrs.
Other Day Market	17:45 Hrs.

6.17 Settlement Days

It is the number of days after which the trade will be settled.

6.18 Security Status

It is the status of the security available for trading. This can take the following values.

Status	Value
Open	Blank
Suspended	S

7 About SFTP (Secure File Transfer Protocol)

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

The client is required to submit the SSH RSA Public Key of their machine along with their static public IP address to receive access details from NSE Data & Analytics (NDAL).

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

- URL
- SSH Service Port
- User ID
- File Path

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

7.1 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.

7.1.1 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
```

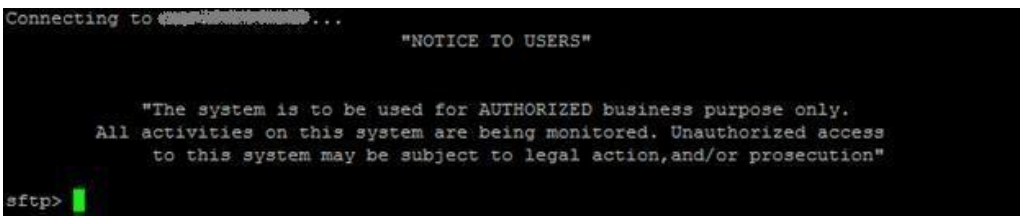
After generating public key, user needs to share the Public Key file with exchange for requesting the credentials.

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

7.1.2 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:



7.1.3 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.

7.1.4 Ending the SFTP session

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

7.1.5 SFTP commands help

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

7.2. SFTP on Windows platform

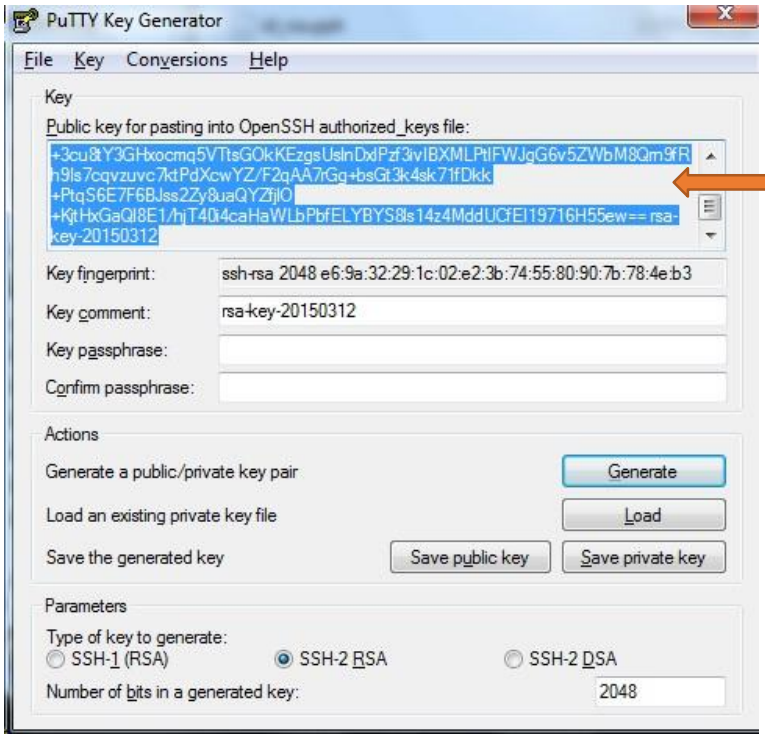
7.2.1. Generation of the SSH RSA key-pair on Windows

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.

7.2.2. 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.

7.3. 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.

8 Decoding Snapshot files

Please refer following C snippet for decoding snapshot files:

```
HEADER header    = {0};
DATA_MBP data_mbp = {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);
      }

  }
  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);
}
```

9 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

10 Contact Information

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