

TECHNICAL SPECIFICATION

REAL TIME - CORPORATE DATA

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REAL TIME DATA TECHNICAL SPECIFICATION

CORPORATE DATA

1. INTRODUCTION

DotEx international Ltd. disseminates NSEIL's real time broadcast data to various information agencies. It provides the 3 different types of data to vendors, i.e. Real Time Data, Snapshot Data and End of Day Data. The real time data is a packet broadcast available in TCP/IP format, where as the snapshot data and End of day data is available in the form of files. The Infofeed server provides NSEIL real time broadcast data. The information agencies connect to the Infofeed Server through 128 Kbps or 256 Kbps or 2 Mbps Leased Lines. These leased lines are terminated on Infofeed Router and their data specific pneumatic calls are forwarded to Infofeed server. The Infofeed server accepts these pneumatic calls and creates a socket connection. The TCP/IP data flows to the information agencies through these socket connections.

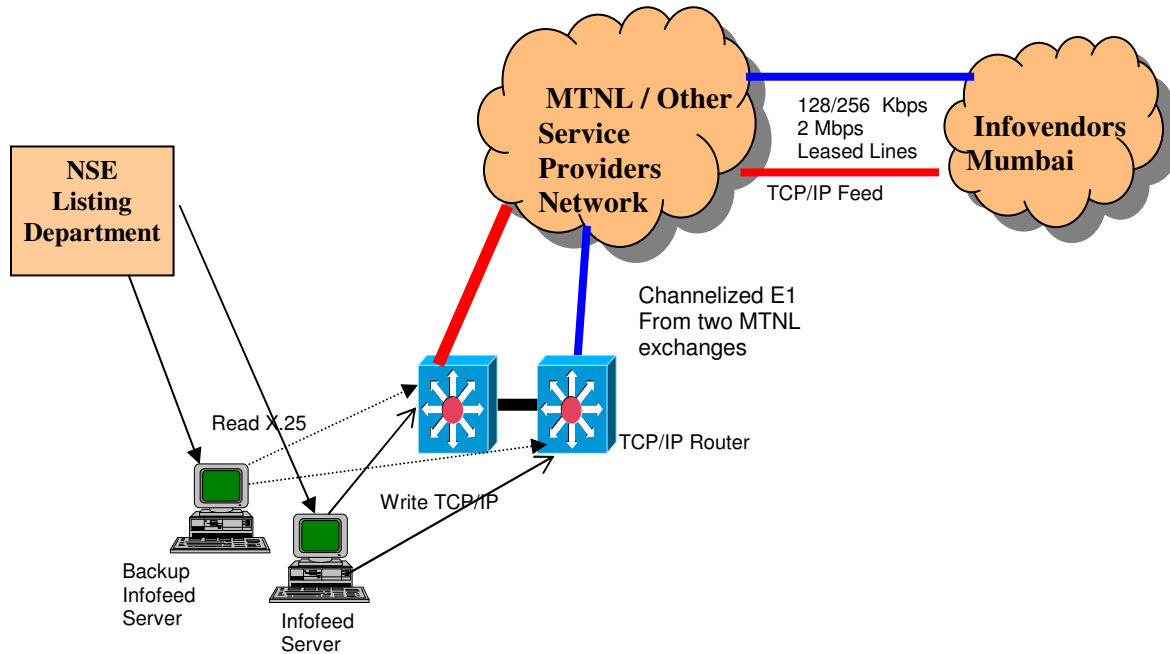
In real time Corporate Data product following information will be disseminates by Infofeed server.

1. Corporate Announcements – (Online)
2. Company Results – (End Of Day)
 - a. Company Financial Result
 - b. Segment wise result
3. Distribution schedule – (End of Day)
 - a. Main Shareholding Details
 - b. Promoters Shareholding Details
 - c. Public Shareholding details
 - d. Locked in Shareholding Details
 - e. DR Details
 - f. DR Holders Details
 - g. Other Holders Details
 - h. Main Shareholding Total Details
 - i. Promoter Shareholding Total Details
 - j. Public Shareholding Total Details
 - k. Locked In Shareholding Total Details
 - l. DR Total Details
 - m. DR Holders Total Details

2. CONNECTION DETAILS

2.1 STRUCTURAL DIAGRAM

The structural diagram of Real Time data connection has been explained below -



2.2 ONLINE REQUIREMENTS

- A Router / Switch or a card with TCP/IP capabilities to connect to 128 Kbps or 256 kbps or 2 Mbps transmission lines for receiving NSEIL's Real time information.
- The Information agency should develop applications that initiate TCP/IP calls through 128 kbps or 256 Kbps or 2 Mbps Leased Line.

2.3 STEPS FOR AUTHENTICATION AND RECEIVING FEED

- a) Client applications at vendor end, establish the connection with Infofeed Server application using specified IP address and Port.
- b) After establishing the connection, client application sends the login packet to Infofeed server application.

Packet format of Login packet (ST_LOGIN_REQ) is as follows,

```
typedef struct
{
    ST_INFO_HEADER stHeader;
    ST_LOGIN_REQ_DATA stData;
    ST_INFO_TRAILER stTrailer;
}ST_LOGIN_REQ;
```

```
typedef struct
{
    SHORT iCode;
    SHORT iLen;
    LONG lSeqNo;
}ST_INFO_HEADER;
```

```
typedef struct
{
    CHAR cUserId[10];
    CHAR cPassword[9];
    CHAR cNewPassword[9];
    CHAR cConfmPassword[9];
    LONG lCSeqno;
    LONG lRESeqno;
    LONG lINDSSeqno;
}ST_LOGIN_REQ_DATA
```

```
typedef struct
{
    SHORT iChecksum;
    CHAR cEOT;
}ST_INFO_TRAILER;
```

- c) Password field is case sensitive, password should be minimum 6 characters long, password and user id should not be same, password should start with alphabet and password should be alphanumeric (No wild characters are allowed).
- d) If user wants to change his password then the user needs to specify new password & confirm password (Both fields should match) otherwise leave it

blank. Next time for login user need to put changed password in the password field.

- e) Based on the above information, user will get Log on response (ST_LOGIN_RESPONSE) from Infofeed Server.

```
typedef struct
{
    ST_COM_HEADER stCOMHeader;
    ST_LOGON_RESPONSE_DETAIL stDetail;
}ST_LOGON_RESPONSE
```

```
typedef struct
{
    ST_INFO_HEADER stHeader;
    ST_LOGON_RESPONSE_DATA stData;
    ST_INFO_TRAILER stTrailer;
}ST_LOGON_RESPONSE_DETAIL;
```

```
typedef struct
{
    CHAR cCompOrNot;
    SHORT iPackLen;
    SHORT iNoOfPack;
}ST_COM_HEADER;
```

```
typedef struct
{
    LONG iErrCode;
    CHAR cMesg[50];
}ST_LOGON_RESPONSE_DATA;
```

Following Error code will be returned which client needs to interpret as:-

1000- Successful

1001- Password Update Successfully

1002- Wrong UserId-Password Combination

1003- Password is not valid in password change request.

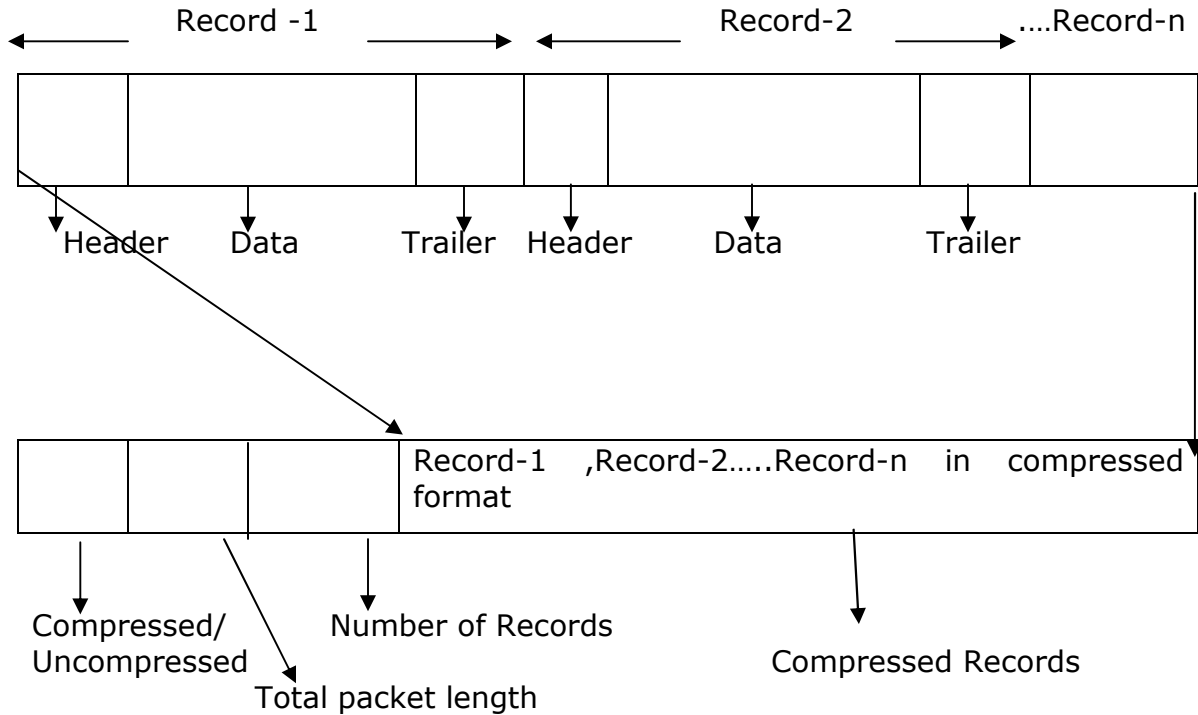
1004- Login request is not correct.

1007- Invalid sequence no

Error code other than above - Error in receiving logon response

- f) After successful login, Infofeed Application starts sending packets in the below mentioned format,

2.4 PACKET FORMAT



Compressed/Uncompressed:

This field tells whether packet is compressed or not compressed.

If this Field = 0 then Compressed.

Field = 1 then Uncompressed.

Number of Records:

This field tells the number of records present in the compressed packets.

Packet length:

This field specifies the total packet length.

```
Structure COM_HEADER
{
    char cCmpOrNot;
    short iPackLen;
    short iNoOfPack;
};
```

g) As the data packets are sent in compressed format there is a need to decompress them. The compression algorithm used is LZ0.

h) The Decompression algorithm used should be LZ0

2.5 STEPS FOR DECOMPRESSING FEED

- LZO Algorithm Details:
 - LZO is a data compression library which is suitable for data de-/compression in real-time. This means it favors speed over compression ratio.
 - LZO is written in ANSI C. Both the source code and the compressed data format are designed to be portable across platforms.

LZO implements a number of algorithms with the following feature

- Decompression is simple and **very** fast.
- Requires no memory for decompression.
- Compression is pretty fast.
- Requires 64 KB of memory for compression.
- Allows you to dial up extra compression at a speed cost in the Compressor.
- The speed of the decompression is not reduced.
- Includes compression levels for generating pre-compressed data which achieve a quite competitive compression ratio.
- There is also a compression level which needs only 8 KB for Compression.
- Algorithm is thread safe.
- Algorithm is lossless.

LZO supports overlapping compression and in-place decompression.

- Files required for LZO algorithm.
 - Include files, source files (src) provided by LZO
 - LZO.lib

For more information on LZO library and downloads visit:

http://www.nseindia.com/content/press/prs_whatsnew.htm#2

Specifications for utilizing on-line broadcast information

- **Decompression steps:**

- Receive the packet in the temporary buffer i.e. array of characters.
- First field will identify whether the packet is compressed or not.
- If this field is **0** then Decompress it using LZO algorithm else if **1 don't** decompress it and proceed in normal way as it is being done today.
- The second field is packet length.
- The third field contains the number of records in the packet.
- If compressed use following function of LZO to Decompress.
r = lzo1z_decompress ((unsigned char *) cInputBuf, ipLength, (unsigned char*) cOutputBuf, opLength, NULL);

lzo1z_decompress: Function which decompresses the data packet receive

CInputBuf: Input buffer in which compressed data is received

IpLength: The length of the packet which application has received using Receive ().

COutputBuf: The uncompressed output data which is result of decompression.

OpLength: Length of uncompressed data

- After decompression data will be available in Output Buffer.
- Map the outputbuf to existing Header structure according to **iCode field available in header structure.**
- Look for Record size in the length field and Code .
- Steps to recover data from OutputBuf.

Algorithm:

```
Length_of_Record = Header->length;
Sequence_no = Header->Sequence_num;
For I = 0 to Number of records (obtained in step 4)
  Begin
    Bytes_to_seek = Length_of_Record * I
    Seek to number of Bytes_to_seek
    Map (Length_of_Record) of Bytes to proper structure according
    to iCode as found in Header part.
    Do the required processing....
  ....
  End
End for Loop.
```

3. DATA DETAILS

The real time data is disseminated in the form of TCP/IP packets and each single packet generated by Infofeed system with a definite structure i.e. Header, Data body and Trailer.

THE HEADER

The header in turn consists of 3 fields – Code, Length and Sequence number. The details of these fields are explained as below.

Code – It is a short data type field that provides the information about the type of packet or the type of data that each packet contains. The NSEIL corporate data contains various types of packets. Each packet can be differentiated with the code filed. The various types of packets disseminated as real time corporate data feed are - Login Request **(1000)**, Logon Response **(1001)**, Resend Request **(1002)**, Resend Request Response **(1003)**, Corporate Announcement **(1004)**, Company Financial Result **(1005)**, Segment Wise Result **(1006)**, Main Shareholding Details **(1007)**, Promoter Shareholding Details**(1008)**, Public Shareholding Details **(1009)**, Locked In Shareholding Details **(1010)**, DR Details **(1011)**, DR Holders Details **(1012)**, Other Holders Details **(1013)**, End of Feed **(1014)**, Heart Beat Signal **(1015)**, Main Shareholding Total Details **(1016)**, Promoter Shareholding Total Details**(1017)**, Public Shareholding Total Details **(1018)**, Locked In Shareholding Total Details **(1019)**, DR Total Details **(1020)** and DR Holders Total Details **(1021)**

Length – It is a 2 byte short data type field that provides the length of record within the each packet of NSEIL real time data. This includes the length of Header, Data and Trailer.

Sequence Number – It is a 4-byte ASCII field that provides the sequence number of each packet that is disseminated in NSEIL real time data. Corporate Announcement, Company Result and Distribution Schedule packets maintain its own sequence number. All the three sequence numbers will start from 1 everyday. When there is no data to disseminate, infofeed server will send the heart beat signal. Heartbeat sequence number is also maintained separately.

DATA BODY:

The following information is provided in data block -

- a. Login Request
- b. Logon Response
- c. Corporate Announcement
- d. Company Result
- e. Segment Wise Result

- f. Main Shareholding Details
- g. Promoter Shareholding Details
- h. Public Shareholding Details
- i. Locked In Shareholding Details
- j. DR Details
- k. DR Holders Details
- l. Other Holders Details
- m. End of Feed
- n. Heartbeat Signal
- o. Main Shareholding Total Details
- p. Promoter Shareholding Total Details
- q. Public Shareholding Total Details
- r. Locked In Shareholding Total Details
- s. DR Total Details
- t. DR Holders Total Details

TRAILER

Trailer contains a 2 byte checksum and an end of trailer character.

- Checksum is calculated using the algorithm given in point no 6.
- End of trailer character is '\r'

4. DATA STRUCTURE DETAILS

4.1 LOGIN REQUEST (Sent by client application)

Login Request packet will be send by the client application for login into the Infofeed application. If user wants to change his password he will specify the new password and confirm password field. Password is case sensitive. Format of this packet is as follows.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
INFO HEADER		
Code	Short Integer (2 bytes)	Code = 1000
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	Always 0
DATA		
User Id	CHAR (10 Bytes)	Infofeed Client Id
Password	CHAR (9 Bytes)	Default password would be 'infofeed'
New Password	CHAR (9 Bytes)	If client wants to change the default password he needs to specify these fields
Confirm Password	CHAR (9 Bytes)	
CA Sequence No	LONG (4 Bytes)	Corporate Announcement sequence number
RE Sequence No	LONG (4 Bytes)	Result sequence number
DS Sequence No	LONG (4 Bytes)	Distribution Schedule sequence number
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Bytes)	'\r'

4.2 LOGON RESPONSE

Logon response packet will be send by the Infofeed server application after receiving the Login Request packet from the client application.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 Bytes)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets

		* Sizeof (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1001
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	Always 0
DATA		
Error Code	Long (4 Bytes)	Refer point no 2.3 for error codes
Message	CHAR (50 Bytes)	Refer point no 2.3 for error codes description
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.3 RESEND REQUEST (Sent by client application)

The new system supports interactive data feed. In case client is not able to get the data due to any reason it could be retrieved on same day by sending appropriate sequence number in resend request.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
INFO HEADER		
Code	Short Integer (2 bytes)	1002
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	Always 0
DATA		
CA Sequence No	Long (4 Bytes)	CA sequence no up to which client has received the data
RE Sequence No	Long (4 Bytes)	RE sequence no up to which client has received the data
NDS Sequence No	Long (4 Bytes)	NDS sequence no up to which client has received the data
INFO TRAILER		

Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Bytes)	'\r'

4.4 RESEND REQUEST RESPONSE

Resend Request response packet will be send by the Infofeed server application after receiving the Resend Request packet from the client application. After Resend response the sequence numbers will be reset to the requested sequence numbers.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	1003
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	Always 0
DATA		
Error Code	Long (4 Bytes)	1005 = Resend request process successfully 1006 = Client not connected 1007 = Invalid sequence no
Message	CHAR (50 Bytes)	Refer Error code field
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.5 CORPORATE ANNOUNCEMENT

Corporate Announcement packet will be send by the Infofeed server application as and when any announcement is published by NSE.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1004
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	CA Sequence number
DATA		
Symbol	CHAR (11 Bytes)	Security Symbol
CA Description	CHAR (65 Bytes)	Brief Description about announcements
CA Details	CHAR (2048 Bytes)	Details about the announcement
CA Date	CHAR (13 Bytes)	Announcement date
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.6 COMPANY RESULT

4.6.1 COMPANY FINANCIAL RESULT

Company Financial Result packet will be sent by the Infofeed server application as and when any result is published on NSE.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1005
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	CR Sequence number
DATA		
Result Sequence Number	Long (4 Bytes)	This result record sequence no is referred in 'Segment Wise Result' packet structure
Symbol	CHAR (11 bytes)	Security Symbol
Category	CHAR (1 byte)	B-Banking and N- Nonbanking, A- Alternative
From Date	CHAR (11 bytes)	YYYY-MM-DD. Result Period From
To Date	CHAR (11 bytes)	YYYY-MM-DD. Result Period To
Result Type	CHAR (3 bytes)	Audited (A),Unaudited(U), Project Status Report
Period Type	CHAR (3 bytes)	Quarter 1= Q1, Quarter 2= Q2, Quarter 3= Q3, Quarter 4= Q4, Half Yearly =H1,

		Annual(AN), Others(OT)
Cumulative Noncumulative	CHAR (1 byte)	C,N
Consolidated Non Consolidated	CHAR (1 byte)	C,N
Net Sales Income	Double (8 bytes)	Net Sales Income
Other Income	Double (8 bytes)	Other Income
Total Income1	Double (8 bytes)	Total Income1
Increase in Stock in Trade	Double (8 bytes)	Increase in Stock in Trade
Consumption of raw materials	Double (8 bytes)	Consumption of raw materials
Employee Cost	Double (8 bytes)	
Total Expenditure1	Double (8 bytes)	excluding other exp
Other Expenditure	Double (8 bytes)	
Total Expenditure2	Double (8 bytes)	
Interest	Double (8 bytes)	
PBDT	Double (8 bytes)	Gross profit after interest
Depreciation	Double (8 bytes)	Depreciation
Profit(+)/Loss(-) from Ordinary Activities before Tax	Double (8 bytes)	Profit(+)/Loss(-) from Ordinary Activities before Tax
Tax Expenses	Double (8 bytes)	Tax Expenses
Other Provision	Double (8 bytes)	Other Provision
Misc expenditure w/o	Double (8 bytes)	Misc expenditure w/o
Net Profit(+)/Loss(-)) for the Period	Double (8 bytes)	Net Profit(+)/Loss(-)) for the Period
Non Rec Income	Double (8 bytes)	Non Rec Income
Non Rec Expenses	Double (8 bytes)	Non Rec Expenses
Adjusted net profit	Double (8 bytes)	Adjusted net profit
Face value of share (In Rs.)	Double (8 bytes)	Face value of share (In Rs.)
Paid-up equity share capital	Double (8 bytes)	Paid-up equity share capital
Reserves excluding revaluation reserves	Double (8 bytes)	Reserves excluding revaluation reserves
Dividend (%)	Float (4 Bytes)	Dividend (%)
Basic EPS after Extraordinary Items (in Rs.)	Double (8 bytes)	Basic EPS after Extraordinary Items (in Rs.)
Diluted EPS after Extraordinary Items (in Rs.)	Double (8 bytes)	Diluted EPS after Extraordinary Items (in Rs.)

Non-promoter shareholding (Nos.)	Double (8 bytes)	Non-promoter shareholding (Nos.)
Non-promoter shareholding (%)	Float (4 Bytes)	Non-promoter shareholding (%)
Public shareholding (Nos.)	Double (8 bytes)	Public shareholding (Nos.)
Public shareholding (%)	Float (4 Bytes)	Public shareholding (%)
Interest/discount on advances/bills	Double (8 bytes)	Interest/discount on advances/bills
Income on Investments	Double (8 bytes)	Income on Investments
balances with RBI and other inter bank funds	Double (8 bytes)	balances with RBI and other inter bank funds
Others	Double (8 bytes)	Others
Interest Earned	Double (8 bytes)	Interest Earned
Total Income ²	Double (8 bytes)	Total Income ²
Interest Expended	Double (8 bytes)	Interest Expended
Payment to and provisions for employees	Double (8 bytes)	Payment to and provisions for employees
Other operating expenses	Double (8 bytes)	Other operating expenses
Operating Expenses	Double (8 bytes)	Operating Expenses
Total Expenditures excluding Provisions & Contingencies	Double (8 bytes)	Total Expenditures excluding Provisions & Contingencies
Operating Profit before Provisions & Contingencies	Double (8 bytes)	Operating Profit before Provisions & Contingencies
Provisions (Other than Tax) & Contingencies	Double (8 bytes)	Provisions (Other than Tax) & Contingencies
Shares held by Government of India (%)	Float (4 Bytes)	Shares held by Government of India (%)
Capital Adequacy Ratio	Double (8 bytes)	Capital Adequacy Ratio
Gross Profit	Double (8 bytes)	0 If Result Is Banking Or Non-Banking)
Operating Profit before interest and depreciation	Double (8 bytes)	0 If Result Is Banking Or Non-Banking

General Administrative Expenses	Double (8 bytes)	0 If Result Is Banking Or Non-Banking
Sell distribution	Double (8 bytes)	0 If Result Is Banking Or Non-Banking
Operating Profit after interest and depreciation	Double (8 bytes)	0 If Result Is Banking Or Non-Banking)
FRF Flag	CHAR (1 byte)	V-Revision, F-Refilling, G-Regrouping, N-None(No Change)
FRF Link	INT (4 bytes)	
Result Create Date	CHAR (21 bytes)	For Revision/Refilling/Re grouping "On Date" Format(DD-MON-YYYY HH24:MI:SS)
Purchase of Traded Goods	Double (8 bytes)	Purchase of Traded Goods
Depreciation	Double (8 bytes)	Depreciation
Exceptional Items	Double (8 bytes)	Exceptional Items
Net Profit (+)/Loss(-) from ordinary Activities after Tax	Double (8 bytes)	Net Profit (+)/Loss(-) from ordinary Activities after Tax
Extraordinary Items	Double (8 bytes)	Extraordinary Items
Minority Interest	Double (8 bytes)	Minority Interest
Share of Associates	Double (8 bytes)	Share of Associates
Other related Items (Consolidated)	Double (8 bytes)	Other related Items (Consolidated)
Consolidated Net Profit (+)/Loss (-) for the Period	Double (8 bytes)	Consolidated Net Profit (+)/Loss (-) for the Period
Basic EPS before Extraordinary Items (in Rs.)	Double (8 bytes)	Basic EPS before Extraordinary Items (in Rs.)
Diluted EPS before Extraordinary Items	Double (8 bytes)	Diluted EPS before Extraordinary Items
Gross/Net NPA	Double (8 bytes)	Gross/Net NPA
Percentage Gross/Net NPA	Float (4 Bytes)	Percentage Gross/Net NPA
Return on Assets	Double (8 bytes)	Return on Assets
Operating Profit before Interest	Double (8 bytes)	Operating Profit before Interest
Operating Profit	Double (8 bytes)	Operating Profit

after Interest and Exceptional Items		after Interest and Exceptional Items
Other Operating Income	Double (8 bytes)	Other Operating Income
Profits from operations before Other Income, Interest & Exceptional Items	Double (8 bytes)	Profits from operations before Other Income, Interest & Exceptional Items
Other Income 2	Double (8 bytes)	Other Income
Profit before Interest & Exceptional Items	Double (8 bytes)	Profit before Interest & Exceptional Items
Interest 2	Double (8 bytes)	Interest
Profit after Interest but before Exceptional Items	Double (8 bytes)	Profit after Interest but before Exceptional Items
Exceptional Items 2	Double (8 bytes)	Exceptional Items
Result Remarks	CHAR (2001 bytes)	Result Remarks
Segment Information Remarks	CHAR (2001 bytes)	Segment Information Remarks
Date Time stamp	CHAR (15 bytes)	DDMMYYYYHHMMSS format
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer Point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.6.2 SEGMENT WISE RESULT

Segment wise result packet will be sent by the Infofeed server application as and when it is published on NSE.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1006
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data

		+ Info Trailer)
Sequence Number	Long (4 Bytes)	CA Sequence number
DATA		
Company Result reference sequence Number	Long (4 Bytes)	Reference to the 'Company Result' record sequence number
Segment Type	CHAR(3 Bytes)	CE=Capital Employed RE=Results and RV=Revenue
Primary Segment Name	CHAR (51 bytes)	Primary Segment Name
Secondary Segment Name	CHAR (51 bytes)	Secondary Segment Name
Segment Value	Double (8 bytes)	Segment Value
Field to be added or subtracted	CHAR (1 byte)	A-Added, S-Subtracted
Date Time stamp	CHAR (15 bytes)	DDMMYYYYHHMMS S format
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7 DISTRIBUTION SCHEDULE

4.7.1 MAIN SHAREHOLDING DETAILS

Main Shareholding details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1007
Length	Short Integer (2 Bytes)	Sizeof (

		Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
Category	Short Integer (2 Bytes)	Refer Annexure - I
No Of Share Holders	Integer (8 bytes)	No of share holders
No Of Shares	Integer (8 bytes)	No of shares
No of shares in Demat form	Integer (8 bytes)	No of shares in Demat form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.2 PROMOTERS SHAREHOLDING DETAILS

Promoters Shareholding details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
-------	--------------------	-------------

COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1008
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
Category	Short Integer (2 Bytes)	Refer Annexure - I
Share Holder Name	CHAR (151 bytes)	Share holder name
No Of Shares	Integer (8 bytes)	No of shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.3 PUBLIC SHAREHOLDING DETAILS

Public Shareholding details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed

Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1009
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
Category	Short Integer (2 Bytes)	Refer Annexure - I
Share Holder Name	CHAR (151 bytes)	Share holder name
No Of Shares	Integer (8 bytes)	No of shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.4 LOCKEDIN SHAREHOLDING DETAILS

Locked in Shareholding details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+

		Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1010
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
Share Holder Name	CHAR (151 bytes)	Share holder name
No Of Shares	Integer (8 bytes)	No of shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer Point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.5 DR DETAILS

DR details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1011
Length	Short Integer (2 Bytes)	Sizeof (

		Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
DR Type	CHAR (7 bytes)	Shall be either 'ADR', 'GDR', 'SDR', 'OTHERS'.
No Of Outstanding DR	Integer (8 bytes)	No Of Outstanding DR
No Of Shares Underlying Outstanding DR	Integer (8 bytes)	No Of Shares Underlying Outstanding DR
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.6 DR HOLDERS DETAILS

DR holder's details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		

Code	Short Integer (2 Bytes)	Code = 1012
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
DR Holder Name	CHAR (151 bytes)	Name of DR Holder.
DR Type	CHAR (7 bytes)	Shall be either 'ADR', 'GDR', 'SDR', 'OTHERS'.
No Of Underlying Shares	Integer (8 bytes)	No Of Underlying Shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.7. OTHER HOLDERS DETAILS

Others holder's details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records

INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1013
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
Category Id	Short Integer (2 Bytes)	Refer Annexure - I
Category Name	CHAR (200)	Category Name
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.8 MAIN SHAREHOLDING TOTAL DETAILS

Main Shareholding Total details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer))
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1016
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD- MMM-YYYY format
ST_SUB_TOTAL_A1(structure) - Shareholding of Promoter and Promoter Group - Indian		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form

% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_SUB_TOTAL_A2(structure) - <i>Shareholding of Promoter and Promoter Group - Foreign</i>		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_TOTAL_A (structure) - <i>Total Shareholding of Promoter and Promoter Group - (A)= (A1)+(A2)</i>		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and

		Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_SUB_TOTAL_B1(structure)- Public shareholding - Institutions		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_SUB_TOTAL_B2(structure) - Public shareholding – Non Institutions		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares"

		with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_TOTAL_B (structure)- Total Public Shareholding (B)= (B1)+(B2)		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_TOTAL_A_AND_B(structure) - TOTAL (A)+(B)		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_TOTAL_C(structure) - Shares held by Custodians and against which Depository Receipts have been issued		

No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
ST_TOTAL_A_AND_B_AND_C (structure) - GRAND TOTAL (A)+(B)+(C)		
No Of Share Holders	Integer (8 bytes)	No Of Share Holders
No Of Shares	Integer (8 bytes)	No Of Shares
No Of Shares In Demat Form	Integer (8 bytes)	No Of Shares In Demat Form
% Of A+B	Float (4 Bytes)	A + B stands for the total of "Shareholding of Promoter and Promoter Group" & "Public shareholding". This, therefore, is the percentage of "No of Shares" with respect to (wrt) (A + B
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.9 PROMOTERS SHAREHOLDING TOTAL DETAILS

Promoters Shareholding total details packet structure comes under the Distribution Schedule. This packet will be sent by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1017
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM- YYYY format
No Of Shares	Integer (8 bytes)	No of shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.10 PUBLIC SHAREHOLDING TOTAL DETAILS

Public Shareholding total details packet structure comes under the Distribution Schedule. This packet will be sent by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1018
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM- YYYY format
No Of Shares	Integer (8 bytes)	No of shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.11 LOCKEDIN SHAREHOLDING TOTAL DETAILS

Locked in Shareholding total details packet structure comes under the Distribution Schedule. This packet will be sent by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed,

		1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1019
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
No Of Shares	Integer (8 bytes)	No of shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer Point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.12 DR TOTAL DETAILS

DR total details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of

		(Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1020
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
No Of Outstanding DR	Integer (8 bytes)	No Of Outstanding DR
No Of Shares Underlying Outstanding DR	Integer (8 bytes)	No Of Shares Underlying Outstanding DR
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.7.13 DR HOLDERS TOTAL DETAILS

DR holder's total details packet structure comes under the Distribution Schedule. This packet will be send by the Infofeed server as End Of Day Feed

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of

		(Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1021
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	DS Sequence number
DATA		
Symbol	CHAR (11 bytes)	Security symbol
Series	CHAR (3 bytes)	Series type (e.g. EQ)
Security Name	CHAR (151 bytes)	Security Name
Company Name	CHAR (151 bytes)	Company Name
As On Date	CHAR (12 bytes)	Distribution Schedule provided is recorded on this date. Date in DD-MMM-YYYY format
No Of Underlying Shares	Integer (8 bytes)	No Of Underlying Shares
% Of Total No Of Security	Float (4 Bytes)	% Of Total No Of Security
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6.
End Of Trailer	CHAR (1 Byte)	'\r'

4.8 END OF THE FEED

This packet will indicate that the online feed dissemination is complete and offline data dissemination will start.

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		

Code	Short Integer (2 Bytes)	Code = 1014
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	Always 0
DATA		
Not associated with any data.		
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

4.9 HEARTBEAT SIGNAL

The Heartbeat packets are sent throughout the day from 8:00 a.m. to 19:00 p.m. This packet indicates to the Info-Vendors that data packets are received from the Infofeed server.

A separate sequence number will be maintained for Heart Beat signal

FIELD	DATA TYPE / LENGTH	DESCRIPTION
COM HEADER		
Compressed or Not	CHAR (1 byte)	0 = Compressed, 1 = Uncompressed
Packet Length	Short Integer (2 Bytes)	No of Packets *Size of (Info Header+ Data+ Info Trailer)
No of Packets	Short Integer (2 Bytes)	No of records
INFO HEADER		
Code	Short Integer (2 Bytes)	Code = 1015
Length	Short Integer (2 Bytes)	Sizeof (Info Header +Data + Info Trailer)
Sequence Number	Long (4 Bytes)	Hear beat packet sequence no
DATA		
Not associated with any ASCII data.		
INFO TRAILER		
Check Sum	Short Integer (2 Bytes)	Refer point no 6
End Of Trailer	CHAR (1 Byte)	'\r'

5 CONTACT INFO

Following are the contact details for business assistance:

Name	Email Address	Contact Numbers
Mr. Ved Malla	vmalla@nse.co.in	91-22-26598385
Ms. Prachee Chavan	pracheec@nse.co.in	91-22-26598385
Mr. Pankaj Agarwal	pagarwal@nse.co.in	91-22-26598385

You can also email us on **dotex@nse.co.in**
For technical assistance email us on **infofeed_support@nse.co.in**.

6 CHECKSUM CALCULATION

Checksum is calculated for the Data part of the packet.
The **Checksum routine** followed for Info Vendor Feed is as follows:

```
// Following are the defines for checksum calculation
#define DC1      17
#define DC3      19
#define CR       13
#define LF       10
#define POLY    0x1021
// End of defines

unsigned check_sum (cData, iLength)
char *cData ;
int iLength;
{
    unsigned uAccum = 0;
    unsigned uData;
    unsigned char ucChk[2];
    int i,j;

    for (i=0;i<iLength;i++){
        uData = *(cData+i);
        uData <<= 8;
        for(j=8; j>0 ;j--){
            if((uData^uAccum)&0x8000)
                uAccum=(uAccum<<1)^POLY;
            /* SHIFT AND SUBTRACT POLY */
            else
                uAccum<<=1;
            uData<<=1;
        }
    }
    ucChk[0] = uAccum>>8;
    if (ucChk[0] == DC1 || ucChk[0] == DC3 || ucChk[0] == CR || ucChk[0]
    == LF )
        ucChk[0] -= 1;
    ucChk[1] = uAccum&0xFF;
    if (ucChk[1] == DC1 || ucChk[1] == DC3 || ucChk[1] == CR || ucChk[1]
    == LF )
        ucChk[1] -= 1;
    uAccum = ucChk[1];
    uAccum = (uAccum<<8) + ucChk[0];

    return(uAccum);
}
```

7 EXAMPLE: FUNCTION FOR DECOMPRESSION.

```
lzo_decomp (char cInputBuf [], unsigned int ipLength, char cOutputBuf [], unsigned
*opLength, unsigned short * lzo_errorcode)
{
    int r;
    Char mess [50];
    r = lzo1z_decompress ((unsigned char *) cInputBuf, ipLength,
(unsigned char *) cOutputBuf, opLength,
NULL);

    If ( r == LZO_E_OK)
    {
        Print (mess," Decompressed %lu Bytes back into %lu Bytes\n",
            (long) ipLength, (long) *opLength);

        Return true;
    }

    Else
    {
        OutputDebug ("Internal error - decompression failed");
        Return false;
    }
}
```

8 ANNEXURE-1

Distribution Schedule Category Detail

CATEGORY ID	CATEGORY CODE	MASTER CLASS	MAIN CLASS	SUB CLASS
1	(a)	Shareholding Promoter and Promoter Group ²	Indian	Individuals/ Hindu Undivided Family
2	(b)	Shareholding Promoter and Promoter Group ²	Indian	Central Government/ State Government(s)
3	(c)	Shareholding Promoter and Promoter Group ²	Indian	Bodies Corporate
4	(d)	Shareholding Promoter and Promoter Group ²	Indian	Financial Institutions/ Banks
5	(e)	Shareholding Promoter and Promoter Group ²	Indian	Any Other (specify)
6	(a)	Shareholding Promoter and Promoter Group ²	Foreign	Individuals (Non- Resident Individuals/ Foreign Individuals)
7	(b)	Shareholding Promoter and Promoter Group ²	Foreign	Bodies Corporate
8	(c)	Shareholding Promoter and Promoter Group ²	Foreign	Institutions
9	(d)	Shareholding Promoter and Promoter Group ²	Foreign	Any Other (specify)
10	(a)	Public shareholding ³	Institutions	Mutual Funds/ UTI
11	(b)	Public shareholding ³	Institutions	Financial Institutions/ Banks
12	(c)	Public shareholding ³	Institutions	Central Government/ State

				Government(s)
13	(d)	Public shareholding ³	Institutions	Venture Capital Funds
14	(e)	Public shareholding ³	Institutions	Insurance Companies
15	(f)	Public shareholding ³	Institutions	Foreign Institutional Investors
16	(g)	Public shareholding ³	Institutions	Foreign Venture Capital Investors
17	(h)	Public shareholding ³	Institutions	Any Other (specify)
18	(a)	Public shareholding ³	Non-institutions	Bodies Corporate
19	(b)	Public shareholding ³	Non-institutions	Individual shareholders holding nominal share capital up to Rs. 1 lakh .
20	(c)	Public shareholding ³	Non-institutions	Individual shareholders holding nominal share capital in excess of Rs. 1 lakh.
21	(d)	Public shareholding ³	Non-institutions	Any Other (specify)
22	(C)	Shares held by Custodians and against which Depository Receipts have been issued	Shares held by Custodians and against which Depository Receipts have been issued	Shares held by Custodians and against which Depository Receipts have been issued

9 NOTES

- All the character (i.e. Byte) array fields are terminated with '\0'.
- All the structures fields are packed at a boundary of 1 byte. This can be done as shown below

```
#pragma pack(1)
typedef struct
{
    short iCode
    ...
}ST_INFO_HEADER;
#pragma pack()
```

- If the client side application is running on Big-endian type of machine then that client needs to send all the fields by reversing its byte order. For reversing the byte order following sample program can be used

Sample code for reversing the byte order of any multi-byte data type field

```
void Twiddle(char *buffer, int buffer_size)
{
    char *twiddle_buffer;
    int i;
    /*allocate the buffer for twiddling bytes */
    twiddle_buffer = (char* ) malloc(buffer_size);
    /* copy the buffer into a temporary buffer for twiddling.*/
    memcpy(twiddle_buffer, buffer, buffer_size);
    /* reverse the bytes */
    for( i=0; i < buffer_size; i++)
    {
        buffer[i] = twiddle_buffer[buffer_size - i -1];
    }
    /* free the buffer after twiddling */
    free(twiddle_buffer);
}
```

e.g. The code field in Info header structure is 1000
Then its byte can be reversed by calling the above function as shown below

```
short iCode = 1000;
Twiddle((CHAR*)&iCode , sizeof(short));
```