Protocol for Drop Copy Service

Capital Markets Segment

Version 2.0

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Notice

Drop Copy Service - Capital Market Segment Revision History		
Version	Page No	Description
2.0	1-40	Document for the new Trade Only and Order & Trade Drop Copy API, including details on Message Structure and connection mechanism. The document should be referred in its entirety and not in parts.

CONTENTS

Chapter 1 Introduction

The NSE Drop Copy (DC) service provides dedicated Trade Only and Order & Trade data. It disseminates information about members / users order and trades on a real time basis. The data is sent to users on a TCP/IP communication protocol connection. At the time of initial login, all members connect to the Drop Copy Gateway Router, which will assign a Drop Copy Gateway. Members will initiate the connection to the assigned DC Gateway using the existing login credentials being used for login to the Trading System. A Corporate Manager user will get all member firm level trade data only (no order data). However, branch manager and dealer users will get respective user order and trade data. Any changes to the login credentials during the day on the Trading System will be effective on drop copy gateway on the same day.

The order and trades data structures are now revised for the Drop Copy service.

Chapter 2 General Guidelines

Introduction

This chapter provides general guidelines for the designers and programmers who develop Drop Copy consumers. It also provides information on data types and their size which can help in understanding various structures.

Message Structure Details

The message structure consists of two parts namely message header and message data. The message header consists of the fields of the header which is prefaced with all the structures. The message data consists of the actual data that is sent across to the drop copy system (i.e., host) or received from the drop copy system (i.e., host).

Transaction code, an important field of the message header, is a unique numeric identifier which is sent to or received from the system. This is used to identify the transaction or activity type.

Guidelines for Programmers

1. All time fields are time values with base as midnight January 1, 1980.
2. If your system uses little-endian order, the data types such as UINT, SHORT, LONG and DOUBLE contained in a packet, which occupy more than one byte should be twiddled (byte reversed). Twiddling involves reversing a given number of bytes such that the byte in 'n' position comes to the first position; the byte in (n-1) position comes to the second position and so on. For example, if the value to be sent is 1A2B (hexadecimal), reverse the bytes to 2B1A. The same applies while receiving messages. So, if the value received is 02BC, the actual value is BC02.

   Note: Twiddling is required because of the variety in endian order—big and little. A big-endian representation has a multibyte integer written with its most significant byte on the left. A little-endian representation, on the other hand, places the most significant byte on the right. The system host end uses big-endian order.

3. All alphabetical data must be converted to upper case except password before sending to the host. A combination of alphabet, numbers and special characters are allowed in the password. More details on password are explained in later chapters in this document. No NULL terminated strings should be sent to the host end. Instead, fill it with blanks before sending. The strings received from the host end are padded with blanks and are not NULL terminated.
4. All the structures should be defined in the following manner:
   - Items of type char or unsigned char, or arrays containing items of these types, are byte aligned.
   - All structures are pragma pack 2. Structures of odd size should be padded to an even number of bytes.
   - All other types of structure members are word aligned.
5. All numeric data must be set to zero (0) before sending to the host unless a value is assigned to it.
6. All reserved fields mentioned, should be mapped to CHAR buffer, and initialized to NULL.

   Note:

   - The values of all the constants and transaction codes given in the document are listed in Appendix.
   - The suffix IN in the transaction codes implies that the request is sent from the user system to the service host end whereas OUT implies that the message is sent from the service host end to user system.

Data Types Used

Table 2.1 DATA TYPES

Data Type	Size of Bytes	Signed / Unsigned
CHAR	1	Signed
UINT	2	Unsigned
SHORT	2	Signed
LONG	4	Signed
LONG LONG	8	Signed
DOUBLE	8	Signed and Floating Point
BIT	1 bit	NA

Message Header

Each structure is prefaced with a MESSAGE_HEADER which is an interactive header. Some data in the header are fixed whereas some data are variable and set differently for each transaction code. The structure of the Message Header is as follows:

Table 2.2 MESSAGE HEADER

Structure Name	MESSAGE_HEADER		
Packet Length	40 bytes		
Field Name	Data Type	Size in Byte	Offset
TransactionCode	SHORT	2	0
Reserve	CHAR	4	2
AlphaChar [2]	CHAR	2	6
TraderId	LONG	4	8
ErrorCode	SHORT	2	12
TimeStamp	LONG LONG	8	14
SequenceNumber [8]	CHAR	8	22
MachineNumber [8]	CHAR	8	30
MessageLength	SHORT	2	38

The fields of Message Header are described below.

Field Name	Brief Description
TransactionCode	Transaction message number. This describes the type of message received or sent.
AlphaChar	This field contains the stream id in the first character and environment type in second character. It should be interpreted as an integer for both the values. For environment type, please interpret the value as: • '1' for Production Environment • '2' for Prod Parallel (Mock) Environment • '3' for Testing Environment
TraderId	This field contains the user ID.
ErrorCode	This field describes the type of error. Refer to List of Error Codes in Appendix.
TimeStamp	For transcodes listed in appendix, time in this field will be populated in nanoseconds (from 01-Jan-1980 00:00:00). This time is stamped at the matching engine in the Trading System.
SequenceNumber	Sequence number for the messages being sent by the Drop Copy Service system.
MachineNumber	For messages coming from the host, this field contains the machine number from which the packet is coming.
MessageLength	This field contains the length of the entire message, including the length of message header.

Order Flags

Table 2.4 ST_ORDER_FLAGS

For Small Endian Machines:

Structure Name	ST_ORDER_FLAGS		
Packet Length	2 bytes		
Field Name	Data Type	Size in Bit	Offset
MF	BIT	1	0
AON	BIT	1	0
IOC	BIT	1	0
GTC	BIT	1	0

Structure Name	ST_ORDER_FLAGS		
Packet Length	2 bytes		
Field Name	Data Type	Size in Bit	Offset
Day	BIT	1	0
OnStop	BIT	1	0
Mkt	BIT	1	0
ATO	BIT	1	0
Reserved	BIT	1	1
STPC	BIT	1	1
Reserved	BIT	1	1
Preopen	BIT	1	1
Frozen	BIT	1	1
Modified	BIT	1	1
Traded	BIT	1	1
MatchedInd	BIT	1	1

For Big Endian Machines:

Structure Name	ST_ORDER_FLAGS		
Packet Length	2 bytes		
Field Name	Data Type	Size in Bit	Offset
ATO	BIT	1	0
Mkt	BIT	1	0
OnStop	BIT	1	0
Day	BIT	1	0
GTC	BIT	1	0
IOC	BIT	1	0
AON	BIT	1	0
MF	BIT	1	0
MatchedInd	BIT	1	1
Traded	BIT	1	1
Modified	BIT	1	1
Frozen	BIT	1	1
Preopen	BIT	1	1

Structure Name	ST_ORDER_FLAGS		
Packet Length	2 bytes		
Field Name	Data Type	Size in Bit	Offset
Reserved	BIT	1	1
STPC	BIT	1	1
Reserved	BIT	1	1

Error Response

When the Error Code in the Message Header is having nonzero value, ERROR RESPONSE is sent. The Error Message will describe the error received. The structure is as follows:

Table 2.7 ERROR_RESPONSE

Structure Name	ERROR RESPONSE		
Packet Length	180 bytes		
Field Name	Data Type	Size in Byte	Offset
MESSAGE_HEADER (Refer Table 2.2)	STRUCT	40	0
Reserved	CHAR	12	40
Error Message [128]	CHAR	128	52

Field Name	Brief Description
ErrorMessage	Stores the error message. Refer to List of Error Codes in Appendix.

Book Types

Table 2.8 BOOK_TYPES

Book Type	Book ID	Market Type
Regular Lot Order	1	Normal Market
Special Terms Order	2	Normal Market
Stop Loss Order	3	Normal Market
Negotiated Order	4	Normal Market
Odd Lot Order	5	Odd Lot Market

Book Type	Book ID	Market Type
Spot Order	6	Spot Market
Auction Order	7	Auction Market
Call Auction1	11	Call auction1 market
Call Auction2	12	Call auction2 market

Heartbeat Exchange

Member systems must exchange heartbeat signals with drop copy service system during periods of inactivity. Service Host will consider the member system as inactive after missing two heartbeats in succession and disconnect the socket connection. Heartbeats will carry following data in *MessageData* segment of the message. Heartbeat is to be sent only if there is inactivity for 30 seconds. The format is MESSAGE_HEADER with following detail.

Table 2.9 HEARTBEAT

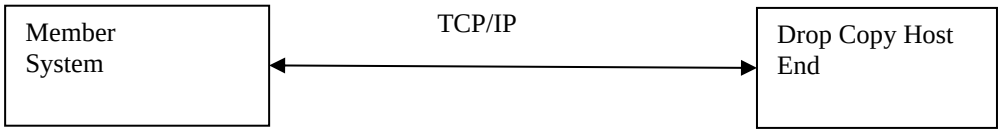
Structure Name	**HEARTBEAT**		
Packet Length	**40 bytes**		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0

Field Name	Brief Description
TransactionCode	The transaction code is HEARTBEAT (23506)

Chapter 3 Drop Copy Communication

Introduction

TCP/IP communication protocol shall be used between Member System and Drop Copy Host end as per the Network setup.



Packet Format

Packet structure for communication between Member System and Host End

This structure is applicable to all messages that flow between Client and Drop Copy Host

Length (2 bytes)	Sequence number (4 bytes)	Checksum (MD5) for Message data (16 bytes)	Message Data (Variable length)

- Max length will be the predefined value of 1024 bytes.
  Length = size of length field (2 bytes) +
  size of sequence number field (4 bytes) +
  size of the checksum field (16 bytes) +
  size of Message data (variable number of bytes as per the transcode).
- Sequence number will start from 1 and will be incremented for every packet.
- Message data will be of variable length and comprises of 28 bytes of message header + variable sized data buffer as per transcode being sent.
- The checksum algorithm used will be MD5. Checksum is applied only on the Message data field and not on the entire packet.
- For more details on MD5 refer: **RFC** 1321 (rfc1321) - The **MD5** Message-Digest Algorithm (http://www.faqs.org/rfcs/rfc1321.html)

Packet Validation

Validation will be done for all requests flowing between Member System and Host End. Validation will be done through the combination of Checksum, Sequence Number, and length field.

Processing by Host

Before sending the request to Host, Member System will have to generate a sequence number and checksum value. All the requests being sent from Front-End will be sent in the format described above. If validation of sequence number, checksum value & length fails at Host End then the disconnection of the socket connection between Member System and Host End will happen.

Processing By Member System

On receiving the response from Host, Member software is expected to validate sequence number, checksum value & length field.

Sequence number must be in sequential order. For any fresh connection the number should start from 1. Checksum field and the checksum recalculated on the data field must match. Length field must be less than or equal to 1024.

If any one of these validations fails, the Member System needs to drop the connection and reestablish a fresh connection.

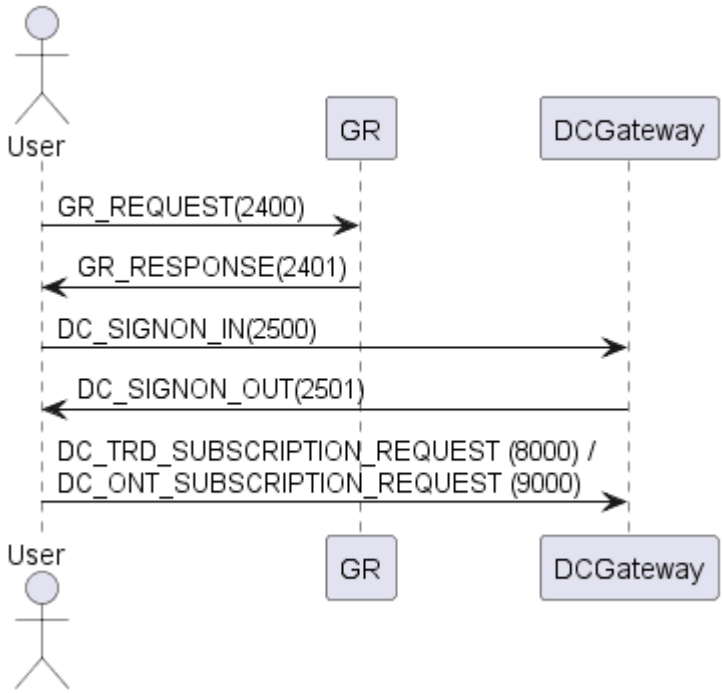
Chapter 4 Logon Process

Introduction

This section describes how a user logs on to the drop copy service system. It covers the log-on request and the system responses. The client system, after issuing a sign-on request, waits for the system response. The response could be a successful logon or an error message.

Order of Events to be followed during Logon for Drop Copy Service

The following sequence explains the order in which transaction codes are sent and received during log-on process. The same can be seen in the diagram below.



Seq No	Transaction Code	Sent By	Received By
1	GR_REQUEST (2400)	Client	Gateway Router (GR)
2	GR_RESPONSE (2401)	GR	Client
3	DC_SIGNON_IN (2500)	Client	Host End

4	DC_SIGNON_OUT (2501)	Host End	Client
5	DC_TRD_SUBSCRIPTION_REQUEST (8000) / DC_ONT_SUBSCRIPTION_REQUEST (9000)	Client	Host End

Logon Request & Response

When the user wants to establish a connection with the host, they send a GR_REQUEST (2400) to Gateway Router (GR). GR will respond to the client with a session key and host details by sending the same in GR_RESPONSE (2400). The client will then send DC_SIGNON_IN (2500) request to the host for establishing a connection. In response to this request DC_SIGNON_OUT (2501) is sent from host.

Table 4.1 GR_REQUEST

Structure Name	**GR_REQUEST**		
Packet Length	**50 bytes**		
Transaction Code	**GR_REQUEST (2400)**		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
ConnectionID	LONG	4	40
BrokerID [5]	CHAR	5	44
Filler	CHAR	1	49

Field Name	Brief Description
TransactionCode	This field is part of MESSAGE_HEADER. The transaction code is 2400.
ConnectionID	This field should contain User ID of user.
BrokerID	This field should contain Trading Member ID.

Table 4.2 GR_RESPONSE

Structure Name	**GR_RESPONSE**		
Packet Length	**78 bytes**		
Transaction Code	**GR_RESPONSE (2401)**		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
ConnectionID	LONG	4	40
BrokerID [5]	CHAR	5	44
Filler	CHAR	1	49
IPAddress [16]	CHAR	16	50
Port	LONG	4	66
SessionKey [8]	CHAR	8	70

Field Name	Brief Description
TransactionCode	This field is part of MESSAGE_HEADER. The transaction code is 2401.
ConnectionID	This field contains User ID of user.
BrokerID	This field contains Trading Member ID.
IPAddress	This field contains IP address of DC Gateway.
Port	This field contains Port of DC Gateway.
SessionKey	This field contains Session Key for the validated session.

Table 4.3 DC_SIGNON_IN

Structure Name	**DC_SIGNON IN**		
Packet Length	**70 bytes**		
Transaction Code	**DC_SIGNON_IN (2500)**		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
UserId	LONG	4	40

Structure Name	DC_SIGNON IN		
Packet Length	70 bytes		
Transaction Code	DC_SIGNON_IN (2500)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
Password [12]	CHAR	12	44
BrokerId [5]	CHAR	5	56
Filler	CHAR	1	61
SessionKey [8]	CHAR	8	62

Field Name	Brief Description
TransactionCode	The transaction code is DC_SIGNON IN (2500)
UserId	This field should contain User ID of user.
Password	This field should contain the password entered by the user. A combination of alphabet, numbers and special characters are allowed in the password. The user should enter the valid password for a successful Logon. If password is less than 12-character length, the password should be padded by NULL.
BrokerId	This field should contain the Trading Member ID.
SessionKey	Session Key as was received in GR_RESPONSE.

Table 4.3 DC_SIGNON_OUT

Structure Name	DC_SIGNON_OUT		
Packet Length	52 bytes		
Transaction Code	DC_SIGNON_OUT (2501)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
UserId	LONG	4	40
BrokerId [5]	CHAR	5	44
Filler	CHAR	1	49
StreamCount	SHORT	2	50

Field Name	Brief Description
TransactionCode	The transaction code is DC_SIGNON_OUT (2501) in login response
UserId	This field contains User ID of user.
BrokerId	This field contains the Trading Member ID.
StreamCount	Total number of streams available.

Logon Error

In case of any error, the structure returned is:

ERROR RESPONSE (Refer to Error Response in Chapter 2)

Field Name	Brief Description
TransactionCode	The transaction code is DC_SIGNON_OUT (2501).
ErrorCode	This contains the error number. Refer to List of Error Codes in Appendix.

Chapter 5 Drop Copy Message Subscription

Introduction

NSE Drop Copy Service sends the user, intended Order & Trade (O&T) or Trade only messages. For receiving these messages, the user must send the subscription request on the drop copy gateways. In response to this request, the Trade only or Order & Trade messages are sent to the user.

The users must send separate subscription request for each stream. The number of streams is obtained in DC_SIGNON_OUT from host during logon sequence.

In case of any disconnection during market hours, it is recommended to make use of the incremental download facility by sending the last received sequence number in the subsequent subscription request. It is advisable to not to initiate full download again.

Drop Copy Message Subscription Request

Table 5.1 DROP COPY MESSAGE SUBSCRIPTION

Structure Name	**DC_SUBSCRIPTION_REQUEST**		
Packet Length	**48 bytes**		
Transaction Code	**DC_TRD_SUBSCRIPTION_REQUEST (8000)** **DC_ONT_SUBSCRIPTION_REQUEST (9000)**		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer to Table 2.2)	STRUCT	40	0
SequenceNumber	LONG LONG	8	40

Field Name	**Brief Description**
TransactionCode	The transaction code is DC_TRD_SUBSCRIPTION_REQUEST (8000) for Trades only subscription and DC_ONT_SUBSCRIPTION_REQUEST (9000) for Order & Trade subscription.

Field Name	Brief Description
SequenceNumber	This contains the last sequence number as received by the user. To retrieve the messages from the beginning of the trading day, this field should be set to '0'.

Trade Subscription

In response to DC_TRD_SUBSCRIPTION_REQUEST (8000), below mentioned message packets will be sent to users:

1. Trade Confirmation Response - TRADE_CONFIRMATION (2222)
2. Trade Cancellation Confirmation Response - TRADE_CANCEL_CONFIRM (2282)
3. Trade Cancellation Rejection Response - TRADE_CANCEL_REJECT (2286)
4. Trade Modification Confirmation Response - TRADE_MODIFY_CONFIRM (2287)
5. Trade Modification Reject Response – CTRL_MSG_TO_TRADER (5295)

The structures for the messages received on Trade Subscription can be found in the section "Message Structures"

Order & Trade (O&T) Subscription

In response to DC_ONT_SUBSCRIPTION_REQUEST (9000), below mentioned message packets will be sent to users:

1. Price Confirmation Response - PRICE_CONFIRMATION (2012)
2. Order Modification Reject Response - ORDER_MOD_REJECT (2042)
3. Order Cancel Reject Response - ORDER_CANCEL_REJECT (2072)
4. Order Confirmation Response - ORDER_CONFIRMATION (2073)
5. Order Modification Confirmation Response - ORDER_MOD_CONFIRMATION (2074)
6. Order Cancel Confirmation Response - ORDER_CANCEL_CONFIRMATION (2075)
7. Freeze to Control - FREEZE_TO_CONTROL (2170)
8. On Stop Notification - ON_STOP_NOTIFICATION (2212)
9. Order Error Response - ORDER_ERROR (2231)
10. Batch Order Cancel - BATCH_ORDER_CANCEL (9002)
11. All Trade Confirmations as listed for **"Trade Confirmations"**

Message structures for Order Confirmations can be found in the section "Message Structures". Order & Trade Subscription service is available only at a user level.

Message Structures

Below are the structures for different types of confirmations:

Table 5.2 TRADE_CONFIRMATION

Structure Name	TRADE_CONFIRMATION		
Packet Length	228 bytes		
Transaction Code	TRADE_CONFIRMATION (2222) TRADE_CANCEL_CONFIRM (2282) TRADE_CANCEL_REJECT (2286) TRADE_MODIFY_CONFIRM (2287)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
ResponseOrderNumber	DOUBLE	8	40
BrokerId [5]	CHAR	5	48
Filler	CHAR	1	53
TraderNumber	LONG	4	54
AccountNumber [10]	CHAR	10	58
BuySell	SHORT	2	68
OriginalVolume	LONG	4	70
DisclosedVolume	LONG	4	74
RemainingVolume	LONG	4	78
DiclosedVolRemaining	LONG	4	82
Price	LONG	4	86
ST_ORDER_FLAGS	STRUCT	2	90
FillNumber	LONG	4	92
FillQty	LONG	4	96
FillPrice	LONG	4	100
Token	LONG	4	104
BookType	SHORT	2	108
ProClient	SHORT	2	110

Structure Name	TRADE_CONFIRMATION		
Packet Length	228 bytes		
Transaction Code	TRADE_CONFIRMATION (2222) TRADE_CANCEL_CONFIRM (2282) TRADE_CANCEL_REJECT (2286) TRADE_MODIFY_CONFIRM (2287)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
PAN [10]	CHAR	10	112
Algo ID	LONG	4	122
ActivityTimeInNanos	LONG LONG	8	126
Reserved	CHAR	12	134
Reserved	CHAR	1	146
Filler	CHAR	1	147
NNFField	DOUBLE	8	148
Segment	SHORT	2	156
Reserved	CHAR	70	158

Field Name	Brief Description
TransactionCode	The transaction code for Trade Confirmation (e.g. 2222, 2282, etc).
ResponseOrderNumber	This field contains the order number of the trader's order taking part in the trade.
BrokerId	This field contains the Trading Member ID.
TraderNumber	This field contains the trader or user ID.
AccountNumber	This field contains the Account Number or Client code.
BuySell	This field contains one of the following values based on Buy or Sell. '1' for Buy '2' for Sell.
OriginalVolume	This field contains the Original traded volume.
DisclosedVolume	This field contains the quantity to be disclosed to the market.
RemainingVol	This field contains the volume remaining after trade(s).
DisclosedVolRemaining	This field contains the disclosed volume remaining after trade(s).

Field Name	Brief Description
Price	This field contains the order price.
OrderFlags	Refer to Table No 2.4 Note: Preopen Indicator will be set as 0 for the trades happening in Normal Market session for Normal Market orders and pre-open carried forward orders Preopen indicator will be set as 1 for trades happening in the call auction 2 market. Applicable for CM Segment only.
FillNumber	This field contains the trade number.
FillQty	This field contains the traded volume.
FillPrice	This field contains the price at which order is traded.
Token	Security identifier
BookType	This field contains the book type - RL/ ST/ SL/ NT/ OL/ SP/ AU/CA/CB.
ProClient	This field is same as Pro/Client /WHS indicator having one of the following values: '1' - client's order '2' - broker's order '4' - warehousing order Applicable for CM segment only.
PAN	This field contains the PAN (Permanent Account Number)
Algo ID	This field contains the Algo ID
ActivityTimeInNanos	Activity time in nanoseconds
NNFField	This field contains a 15 digit a unique identifier for various products deployed as per Exchange circular download ref no 16519 dated December 14, 2010 and as updated from time to time
Segment	Represents the business segment. • '1' – Capital Markets (Cash Equity) • '2' – Equity Derivatives (F&O) • '3' – Currency Derivatives • '4' – Commodity Derivatives

Table 5.3 Trade Modification Rejection Error

Structure Name	DC_TRD_MOD_REJECT		
Packet Length	292 bytes		
Transaction Code	CTRL_MSG_TO_TRADER (5295)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
TraderId	LONG	4	40
ActionCode [3]	CHAR	3	44
Filler	CHAR	1	47
RejectMsgLength	SHORT	2	48
RejectMsg	CHAR	240	50
Segment	SHORT	2	290

Field Name	Brief Description
TransactionCode	The transaction code is CTRL_MSG_TO_TRADER (5295).
TraderId	This field contains the user ID.
ActionCode	This field contains the action code to indicate the action taken. For example, 'SYS' – System 'AUI' – Auction Initiation 'AUC' – Auction Complete 'LIS' - Listing
RejectMsgLength	Length of the message for trade modification rejection.
RejectMsg	Trade modification rejection.
Segment	Represents the business segment. • '1' – Capital Markets (Cash Equity) • '2' – Equity Derivatives (F&O) • '3' – Currency Derivatives • '4' – Commodity Derivatives

Table 5.4 O&T Confirmation Message

Structure Name	**ORD_TRADE_CONFIRMATION**		
Packet Length	**290 bytes**		
Transaction Code	**PRICE_CONFIRMATION (2012)** **ORDER_MOD_REJECT (2042)** **ORDER_CANCEL_REJECT (2072)** **ORDER_CONFIRMATION (2073)** **ORDER_MOD_CONFIRMATION (2074)** **ORDER_CANCEL_CONFIRMATION (2075)** **FREEZE_TO_CONTROL (2170)** **ON_STOP_NOTIFICATION (2212)** **ORDER_ERROR (2231)** **BATCH_ORDER_CANCEL (9002)**		
Field Name	**Data Type**	**Size in Byte**	**Offset**
MESSAGE_HEADER (Refer Table No 2.2)	STRUCT	40	0
ParticipantType	CHAR	1	40
Filler	CHAR	1	41
CompetitorPeriod	SHORT	2	42
SolicitorPeriod	SHORT	2	44
ModCxlBy	CHAR	1	46
Filler	CHAR	1	47
ReasonCode	SHORT	2	48
Token	LONG	4	50
AuctionNumber	SHORT	2	54
Suspended	CHAR	1	56
Filler	CHAR	1	57
OrderNumber	DOUBLE	8	58
AccountNumber	CHAR	10	66
BookType	SHORT	2	76
BuySell	SHORT	2	78
DisclosedVolume	LONG	4	80

Structure Name	ORD_TRADE_CONFIRMATION		
Packet Length	290 bytes		
Transaction Code	PRICE_CONFIRMATION (2012) ORDER_MOD_REJECT (2042) ORDER_CANCEL_REJECT (2072) ORDER_CONFIRMATION (2073) ORDER_MOD_CONFIRMATION (2074) ORDER_CANCEL_CONFIRMATION (2075) FREEZE_TO_CONTROL (2170) ON_STOP_NOTIFICATION (2212) ORDER_ERROR (2231) BATCH_ORDER_CANCEL (9002)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
DisclosedVolRemaining	LONG	4	84
TotalVolRemaining	LONG	4	88
Volume	LONG	4	92
Price	LONG	4	96
TriggerPrice	LONG	4	100
EntryDateTime	LONG	4	104
MinFillOn	LONG	4	108
LastModified	LONG	4	112
ST_ORDER_FLAGS	STRUCT	2	116
BranchId	SHORT	2	118
TraderId	LONG	4	120
BrokerId	CHAR	5	124
Filler	CHAR	1	129
OERemarks	CHAR	25	130
Filler	CHAR	1	155
ProClient	SHORT	2	156
SettlementType	SHORT	2	158
NNFField	DOUBLE	8	160
ExecTimeStamp	DOUBLE	8	168

Structure Name	ORD_TRADE_CONFIRMATION		
Packet Length	290 bytes		
Transaction Code	PRICE_CONFIRMATION (2012) ORDER_MOD_REJECT (2042) ORDER_CANCEL_REJECT (2072) ORDER_CONFIRMATION (2073) ORDER_MOD_CONFIRMATION (2074) ORDER_CANCEL_CONFIRMATION (2075) FREEZE_TO_CONTROL (2170) ON_STOP_NOTIFICATION (2212) ORDER_ERROR (2231) BATCH_ORDER_CANCEL (9002)		
Field Name	**Data Type**	**Size in Byte**	**Offset**
PAN	CHAR	10	176
AlgoID	LONG	4	186
ActivityTimeInNanos	LONG LONG	8	190
Reserved	CHAR	1	198
Filler	CHAR	1	199
Reserved	CHAR	2	200
Reserved	CHAR	1	202
Filler	CHAR	1	203
Segment	SHORT	2	204
Reserved	CHAR	84	206

Field Name	Brief Description
TransactionCode	The transaction code for O&T Confirmation (e.g., 2042, 2072, etc)
ParticipantType	Since only exchange can initiate the auction, this field should not be set to 'I' for initiator. This should be set to 'C' for competitor order and 'S' for solicitor order.
CompetitorPeriod	This field should be set to zero
SolicitorPeriod	This field should be set to zero.

Field Name	Brief Description
ModCxlBy	Identifier of the user who modified the trade.
ReasonCode	This field contains the reason code for a particular order request rejection or order being frozen. This has the details regarding the error along with the error code. This field should be set to zero while sending the request to the host. Refer to Reason Codes in Appendix.
Token	Instrument/token identifier
AuctionNumber	Auction number is available when initiation of auction is broadcast (Auction Status Change Broadcast). For an auction order, valid auction number should be given. For other books, this field should be set to zero. Applicable for CM Segment only.
Suspended	This field specifies whether the security is suspended or not. It should be set to blank while sending order entry request.
OrderNumber	This field contains an Order Number assigned to the order. It is a unique identification for an order. The first two digits will contain the stream number (This will be different from the stream number for Journal Download Request-Response). The next fourteen digits will contain fourteen-digit sequence number.
AccountNumber [10]	If the order is entered on behalf of a trader, the trader account number should be specified in this field. For broker's own order, this field should be set to broker code.
BookType	This field contains the type of order. BOARD_LOT_IN_TR (20000) must have BookType 1 or 11 or 12.
BuySell	This field should specify whether the order is a buy or sell. It should take one of the following values: • '1' for Buy Order • '2' for Sell Order
DisclosedVolume	This field contains the quantity that has to be disclosed to the market. It is not applicable if the order has either the All Or None or the Immediate Or Cancel attribute set. It should not be greater than the volume of the order and not less than the Minimum Fill quantity if the Minimum Fill attribute is set. In either case, it cannot be less than the Minimum Disclosed Quantity allowed. It should be a multiple of the Regular lot
DisclosedVolRemaining	This field contains the disclosed volume remaining from the original disclosed volume after trade(s). This should be set to zero while sending to the host.
TotalVolRemaining	This field specifies the total quantity remaining from the original quantity after trade(s). For order entry, this field should be set to Volume. Thereafter, for every response the system will return this value.
Volume	This field represents the quantity of the order placed.

Field Name	Brief Description
Price	This field contains the price at which the order is placed. For Market orders, the price will be zero.
TriggerPrice	Applicable only for a Stop Loss order, this field provides the price at which the order is to be triggered and brought to the market. For a Stop Loss buy order, the trigger price will be less than or equal to the limit price but greater than the last traded price. For a Stop Loss sell order, the trigger price will be greater than or equal to the limit price but less than the last traded price.
EntryDateTime	This field contains the time at which order confirmed.
MinFillOn / AONVolume	This field specifies the minimum fill quantity when the minimum fill attribute is set for an order. It should not be greater than either the volume of the order or the disclosed quantity and must be a multiple of the regular lot.
LastModified	If the order has been modified, this field contains the time when the order was last modified. It is the time in seconds from midnight of January 1, 1980, this field should be set to zero for the order entry request (it is same as Entry Date Time.)
Order Flags	Refer to Table No 2.4 Note: Preopen Indicator will be set as 0 for the trades happening in Normal Market session for Normal Market orders and pre-open carried forward orders Preopen indicator will be set as 1 for trades happening in the call auction 2 market. Applicable for CM Only.
BranchId	This field contains the ID of the branch of the particular broker
Trader Id	In Request packet, this field contains the ID of the user on whose behalf order is to be modified/cancelled. This field accepts only numbers
BrokerId	This field contains the Trading Member ID.
OERemarks	This field will contain remarks that the dealer may have provided during order entry.
ProClient	This field contains one of the following values based on the order entering is on behalf of the broker or a trader. • 1 represents client's order. • 2 represents broker's order. • 4 represents warehousing order
SettlementType	Settlement type can be one of the following: • 1 – representing T + 1 Settlement • 2 – representing T + 2 Settlement
NNFField	This field contains a 15 digit a unique identifier for various products deployed as per Exchange circular download ref no

Field Name	Brief Description
	16519 dated December 14, 2010 and as updated from time to time
ExecTimeStamp	This field represents the time of writing to the order book.
PAN	This field shall contain the PAN (Permanent Account Number / PAN_EXEMPT) - This field shall be mandatory for all orders (client / participant / PRO orders).
AlgoID	For Algo order this field shall contain the Algo ID issued by the exchange. For Non-Algo order, this field shall be Zero (0)
TimeStamp	This filed is stamped with time at the matching engine in the Trading System.
ActivityTimeInNanos	This field contains the timestamp value in nanoseconds.
Segment	Represents the business segment. • '1' – Capital Markets (Cash Equity) • '2' – Equity Derivatives (F&O) • '3' – Currency Derivatives • '4' – Commodity Derivatives

Drop Copy Error Response

In case any error in request, the system will reject the request and send drop copy error response message to user. The reason of rejection is given in error code field in message header.

ERROR RESPONSE (Refer to Error Response in Chapter 2)

Field Name	Brief Description
TransactionCode	The transaction code is DC_ERROR_RESPONSE (9006).
ErrorCode	This contains the error number. Refer to List of Error Codes in Appendix section.

Appendix

List of Error Codes

Error Code ID	Error Code Value	Description of Error Code
ERR_INVALID_USER_TYPE	16001	Invalid User Type
ERR_INVALID_STREAM_ID	16002	Requested download Stream ID doesn't match with logged in Stream ID.
ERR_BAD_TRANSACTION_CODE	16003	Erroneous transaction code received.
ERR_USER_ALREADY_SIGNED_ON	16004	User already signed on.
ERR_INVALID_SIGNON	16006	Invalid sign-on, please try again.
ERR_SIGNON_NOT_POSSIBLE	16007	Signing on to the Trading System is restricted. Please try later.
ERR_INVALID_SYMBOL	16012	Invalid symbol/series.
ERR_SECURITY_NOT_AVAILABLE	16035	Security is unavailable for trading currently. Please try later.
ERR_INVALID_BROKER_OR_BRANCH	16041	Trading Member does not exist in the system.
ERR_USER_NOT_FOUND	16042	Dealer does not exist in the system.
ERR_TRD_MOD_REJ_END_OF_DAY_PR OCESSING_STARTED	16050	Trade modification request rejected as end of the day processing started.
FUNCTION_NOT_AVAILABLE	16052	When Preopen trade cancel request is rejected OR BOVL/UOVL Limits not allowed to be set as unlimited OR BOVL update not requested by Corporate Manager OR Inconsistent data for BOVL update OR

		Branch Manager not allowed UOVL update for self/CM/other BM/users of other branch. OR Branch Manager not allowed Dealer Limit update for self. OR User Unlock Request not requested by Corporate Manager OR User Unlock Request not allowed for Corporate Manager OR User level COL disabled
ERR_CANNOT_MOD_AUC_ORDER	16397	Modifying Auction Order not allowed
ERR_BROKER_SUSP_TRD_MOD_REJ	16427	Trade modification rejected due to broker suspension.
ERR_CLOSEOUT_TRDMOD_REJECT	16571	This error code will be returned when a user under a broker in 'Close out' state tried to modify any Trade.
ERR_PROGRAM_ERROR	16056	Program error.
ERR_SYSTEM_ERROR	16104	System could not complete your transaction - ADMIN notified.
ERR_CANT_COMPLETE_YOUR_REQUEST	16123	System not able to complete your request. Please try again.
ERR_USER_IS_DISABLED	16134	This Dealer is disabled. Please call the Exchange.
ERR_INVALID_USER_ID	16148	Invalid Dealer ID entered.
ERR_INVALID_TRADER_ID	16154	Invalid Trader ID entered.
ERR_BROKER_NOT_ACTIVE	16285	The broker is not active.
ERR_INVALID_SEQUENCE_NO	16801	Invalid sequence number in drop copy download request.
ERR_INVALID_PAN_ID	17177	Invalid PAN Id

Reason Codes

Reason Code Value	Reason Code Value
Security	5
Broker	6
Branch	7
User	8
Participant	9
Counter Party	10
Order Number	11
Auction Number	15
Order Type	16
Price Freeze	17
Quantity Freeze	18
Call Auction 1	23
Call Auction 2	24

List of Transaction Codes

Transaction Code	Code	Structure
DC_SIGNON_IN	2500	DC_SIGNON_IN
DC_SIGNON_OUT	2501	DC_SIGNON_OUT
DC_TRD_SUBSCRIPTION_REQUEST	8000	DC_TRD_REQUEST
DC_ONT_SUBSCRIPTION_REQUEST	9000	DC_ONT_REQUEST
DC_ERROR_RESPONSE	9006	DC_ERROR_RESPONSE
TRADE_CONFIRMATION	2222	TRADE_CONFIRMATION

Transaction Code	Code	Structure
TRADE_CANCEL_CONFIRM	2282	TRADE_CONFIRMATION
TRADE_CANCEL_REJECT	2286	TRADE_CONFIRMATION
TRADE_MODIFY_CONFIRM	2287	TRADE_CONFIRMATION
CTRL_MSG_TO_TRADER	5295	DC_TRD_MOD_REJECT
ORDER_CONFIRMATION	2073	ORD_TRADE_CONFIRMATION
ORDER_ERROR	2231	ORD_TRADE_CONFIRMATION
ORDER_MOD_CONFIRMATION	2074	ORD_TRADE_CONFIRMATION
ORDER_MOD_REJECT	2042	ORD_TRADE_CONFIRMATION
ORDER_CANCEL_CONFIRMATION	2075	ORD_TRADE_CONFIRMATION
ORDER_CANCEL_REJECT	2072	ORD_TRADE_CONFIRMATION
BATCH_ORDER_CANCEL	9002	ORD_TRADE_CONFIRMATION
ON_STOP_NOTIFICATION	2212	ORD_TRADE_CONFIRMATION
PRICE_CONFIRMATION	2012	ORD_TRADE_CONFIRMATION
FREEZE_TO_CONTROL	2170	ORD_TRADE_CONFIRMATION

List of Transaction Codes Containing Timestamp in Nanoseconds

The transaction codes that will contain timestamp in nanoseconds from 01-Jan-1980 00:00:00 are listed in following table:

Transaction Code	Code
PRICE_CONFIRMATION	2012
ORDER_MOD_REJECT	2042
ORDER_CANCEL_REJECT	2073
ORDER_CONFIRMATION	2073
ORDER_MOD_CONFIRMATION	2074
ORDER_CANCEL_CONFIRMATION	2075
FREEZE_TO_CONTROL	2170
ON_STOP_NOTIFICATION	2212
ORDER_ERROR	2231
BATCH_ORDER_CANCEL	9002
TRADE_CONFIRMATION	2222
TRADE_CANCEL_CONFIRM	2282
TRADE_CANCEL_REJECT	2286
TRADE_MODIFY_CONFIRM	2287
CTRL_MSG_TO_TRADER	5295

FAQs

Q – What do I need to do before I try connecting directly to Drop Copy Service system?

Kindly contact Member Services Team before initiating the connectivity with **Drop Copy Service or any other** Exchange provided system.

Q – Where to connect?

Exchange shall provide a list of addresses, IP address and Port number(s). to connect to the Drop Copy service.

Q – How to connect?

Member's application must initiate a TCP socket connection to the address given by the Exchange and follow the login process as mentioned in the document

Q – How to Logoff?

Member's application must shut down the established TCP connection(s) gracefully to log-off from Exchange Drop Copy service.

Q – What User Ids / Passwords to be used for login to drop copy?

Member should use existing NNF User ID and password, as used for login to Exchange Trading system.

Q – How to reset the password through drop copy?

Through drop copy user can't reset the password but any password change/reset done via the Exchange Trading System will be reflected in Drop Copy system. New login to drop copy service, after password reset via Trading System, should be done with the new password.

Q – With the same user id can we take simultaneously login on Interactive channel for order entry and on Drop Copy channel?

Yes. Drop copy channel is independent of the Interactive channel.

Q – What information shall be provided in the drop copy?

If only trade data API is implemented as per section 1 then following information will be sent through Drop Copy system

- Trade confirmation
- Trade modification confirmation
- Trade modification reject
- Trade cancel confirmation
- Trade cancel reject

If order and trade data API is implemented as per section 2 then following information will be sent through Drop Copy system

- Trade confirmation
- Trade modification confirmation
- Trade cancel confirmation
- Trade cancel reject
- Order confirmation
- Order modification reject
- Order modification confirmation
- Order cancel reject
- Order cancel confirmation
- Price confirmation
- Freeze to Control
- On Stop Notification
- Order error
- Batch Order cancel

Q – Will clearing member also get trade data?

Yes. All the trades related to Clearing Member will be available.

Q – How shall we know that we have received all the trades (End of Day)?

No explicit message will be sent to indicate end of messages.

Q – What happens if I login late or miss receiving some trade in the drop copy channel?

During download request user needs to specify the last received sequence number from where the messages download should start.

Q – For order and trade data how will sequence number field value in Message header be provided?

Sequence number is user wise and streamwise unique value maintained at host end. For different user types i.e. Dealer, Branch manager, Corporate manager and clearing member, sequence number is uniquely maintained for each user. Also, for different streams available at host end, sequence number value is uniquely maintained. For download request, user must send sequence number value which was received in last message from drop copy service.

Q – Will trades executed in IPO Listing / Relisting, Illiquid call auction session, block trades and trades in closing session be available in the drop copy channel?

The trades executed in the following sessions shall be available in the drop copy channel

- Pre-open
- Normal market (Continuous matching)
- Special Pre-open for IPO listing / Relisting
- Auction
- Illiquid call auction session
- Block trades
- Post close session

For trades in CALL AUCTION 2 market Book type will be set as Regular Lot Order (1)

Q – Time from which login available to the system?

Details shall be clarified through a circular.

Q – Can I connect to the drop copy channel after close of market?

Details shall be clarified through a circular.

Q – Till when I can connect to the drop copy channel?

Details shall be clarified through a circular.