NYSE TECHNOLOGIES

Document title

NYSE ALERTS CLIENT SPECIFICATION

Version

2.13

Date

21 Jul 2015

PREFACE

DOCUMENT HISTORY

The following table provides a description of all changes to this document.

VERSION NO.	DATE	CHANGE DESCRIPTION
1.0	09/27/02	Initial version for internal review.
1.1	09/29/03	Merged this document with parent spec
1.2	04/29/04	Changes based on feedback received
1.3	05/12/04	Changes based on feedback received
1.4	06/17/04	Changes based on feedback received
1.5	06/25/04	Changes based on feedback received
1.6	08/18/04	Changes based on feedback received
1.7	07/22/05	Removed references to ITS Pre-openings, fixed wrong information related to message version ids, and removed correction option (from Adjustment fields).
1.8	08/26/05	Updating for Alerts 1.2: Re-included references to ITS-pre-openings. Added RCF info
2.0	08/23/06	Updated document to new format
2.1	06/27/07	New Source IPs added
2.2	09/07/07	Added sub penny trading halt condition 'Y'
2.3	11/27/07	Added NYSE Pre-Opening Indications to Msg '132'
2.4	08/10/09	Added New messages types '36' – Security Info '120' – Market Imbalance '121' – Opening Delays/Trading Halts '122' – Indications '123' – Trade Dissemination Time '124' – Circuit Breaker Removed the following Msg Types '130' – Market Imbalance Message '131' – Opening Delays/Trading Halts Message '132' – NYSE Indications Message '133' – Trade Dissemination Time Message '134' – Trading Collar Message '135' – Circuit Breaker Message
2.5	11/9/09	Corrected ExDivAmountPriceScaleCode in the SecurityInfoMessage to be 'Binary Integer' instead of 'ASCII Character' Corrected IP address for Test Retrans Request
2.6	11/24/2009	Updated following review.
2.6a	04/26/2010	Formatted into new template IP addresses removed and link to IP Addresses page added
2.7	05/26/2010	Change to Msg Type 121 – Halt Reason Code field. Change of definition of

VERSION NO.	DATE	CHANGE DESCRIPTION
		the "M" halt reason code
2.8	08/30/2010	Change to Msg Type '36' – Short Sale Restriction indicator added New Message type – '125' Short Sale Restriction Added Halt Condition Codes table
2.9	10/25/2010	125 Short Sale Restriction 31 Bytes Additional values for ShortSaleRestrictionIndicator
2.10	09/12/2011	Added Msg Type '126' – RPI (Retail Price Improvement)
2.11	05/22/2012	Added Section 3.1 (General Timelines) Included reference to NYSE MKT
	07/12/2012	Rebranded with new NYSE Technologies template
	08/22/2012	Minor correction made to 'Date' column for previous entry.
2.12	01/24/2013	Change to Msg Type 121 – Halt Reason Code field 3 new MarketWide Circuit Breaker levels added.
2.13	07/21/2015	Change to Msg Type '36' Security Info Message. LRP related fields changed to reserved.

REFERENCE MATERIAL

The following lists the associated documents, which either should be read in conjunction with this document or which provide other relevant information for the user:

- SFTI US Technical Specification

- SFTI US Customer Guide

- NYSE Symbology

CONTACT INFORMATION

For technical support please contact the Service Desk:

- Telephone: +1 212 383 3640 (International)

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FURTHER INFORMATION

- For additional product information, visit: http://www.nyxdata.com/Data-Products/NYSE-Alerts

- For updated capacity figures, visit our capacity pages at: http://www.nyxdata.com/capacity

- For details of IP addresses, visit our IP address pages at: http://www.nyxdata.com/ipaddresses

- For a full glossary, visit: http://www.nyxdata.com/glossary/

CONTENTS

1.   INTRODUCTION

NYSE Alerts is a real-time data feed information service from New York Stock Exchange that provides real-time messages regarding certain conditions related to the trading of NYSE-traded securities.

Messages include Security Trading Status data such as Market Imbalances, Trading Halts/Delays, ITS Pre-Opening Indications, Price Indications, Short Sale Restrictions, Trading Circuit Breakers and Retail Price Improvements (RPIs).

2.   NYSE ALERTS FEED CONFIGURATION

The following chapter provides connectivity information for the NYSE Alerts data feed.

2.1   MULTICAST GROUPS

The NYSE Alerts data feed will be delivered to the following multicast group as described in the table below.

Table 1 Multicast Groups

FEED NAME	DESCRIPTION
Alerts_AZ	Multicast Groups assigned to deliver alerts messages of symbols starting with letters A - Z

2.2   JOINING MULTICAST GROUPS

To access NYSE Alerts, subscribers must join the multicast groups for primary feeds, as well as secondary feeds to assist in recovery. To request retransmissions of lost packets, subscribers must establish a TCP/IP connection (see Packet Retransmissions). Please refer to Message Processing for diagrams that illustrate message processing and retrieval.

Data feeds for specific stocks are sent to different multicast addresses. This addressing scheme allows customers to subscribe to the specific data feeds and channels they need. Data feeds types are:

■   Multicast NYSE Alerts

■   Multicast Retransmission

2.3   PACKET RETRANSMISSIONS

In the event a packet is lost on the primary feed for a multicast group, clients can retrieve the lost packet from the secondary feed. UDP can at times be unreliable and may drop packets from both the primary and secondary data feeds. If a packet is lost from both the primary and secondary feeds, clients then make a TCP/IP request to have the packets resent. Packets are resent via the Retransmission Multicast Feed.

Subscribers have the option to connect to the TCP/IP Recovery Server to request dropped packets from the Alerts feed. This method is highly recommended in order to maintain a stable and accurate order book. The Recovery Server accepts connections on predefined addresses and ports and requires a heartbeat reply before responding to requests. It accepts primary and secondary connections to assist recovery on the subscriber's end.

After a client establishes a TCP/IP connection, NYSE Alerts will send a heartbeat request message to the client. Clients should respond to this request with a heartbeat response within a specific timeframe. This timeframe is currently set to Sixty (60) seconds but is subject to change — so clients should make this configurable. (Clients will be informed of changes to the timeframe via customer notice.) Regardless of the timeframe, the client should respond immediately with a heartbeat response message. After receiving the initial heartbeat response, the Recovery Server will send heartbeats to the client every 60 seconds to ensure that the TCP/IP connection is live.

Note that the Source ID that the client specifies in the heartbeat response message will be validated by NYSE Alerts. Each Source ID may only be logged in once per port at any given time.

To define a Source ID for retransmission purposes, contact the Service Desk and provide the desired Source ID. The Service Desk team will evaluate and approve or reject the Source IDs. If rejected, a new Source ID

must be defined. If approved, the Service Desk will make the necessary updates on the NYSE Alerts side to add the Source ID and applicable rules.

2.4   RETRANSMISSION REQUEST THRESHOLDS

The table below summarizes the Retransmission request thresholds for the NYSE Alerts feed. The numbers below represent the thresholds per channel.

Table 2 Retransmission Request Thresholds

CAPABILITY	DESCRIPTION	THRESHOLD	ACTION
Prevention of invalid subscribers	Incoming requests from subscribers that are not in the enabled subscriber's source ID list will not be honored. PDP subscribers will need a source ID, which is a string that uniquely identifies the subscriber of the retransmission requests. Please contact the Service Desk to get a unique source ID.	N/A	Request will not be processed.
Limitation of Requests for a large number of packets	Only retransmission requests for 1000 packets or less will be honored.	1000	Request will not be processed.
Limitation of Generic Requests	If the number of a subscriber's generic requests reaches the threshold number of requests per day, the subscriber will be blocked and it's retransmission request will no longer be honored during that particular day.	500	Subsequent retransmissions requests from that subscriber will be blocked.
Limitation of requests for refresh messages	Only refresh requests for 5000 messages or less will be honored.	5000	Request will not be honored.

2.5   NYSE ALERTS TESTING

Replay tests are generally run at night (**Tuesday and Thursday from 7:00pm to 9:00pm**) and over different multicast groups than the production environment so that subscribers do not need to worry about incorrect data over the production lines.

The data replayed over this network is from a previous trading session (canned data) - all messages or a range of messages for a given service in their original sequence.

2.6   NYSE ALERTS UAT TESTING

Replay tests in the User Acceptance environment are generally run intra-day **Monday through Friday from 9:00am to 5:00pm** and over different multicast groups than the production environment and test environment so that subscribers do not need to worry about incorrect data over the production lines.

The data replayed over this network is from a previous trading session - all messages or a range of messages for a given service in their original sequence.

3.   NYSE ALERTS OPERATIONAL INFORMATION

3.1   GENERAL TIMELINES

The PDP Alerts feed starts feeding data at Start of Day (SOD) in the early morning around 2 am until End of Day (EOD) at 5:15 pm.

Symbol information messages are mostly sent in the early morning. After 4pm, mostly Heartbeats are sent.

3.2   PUBLICATION PERIOD BY MESSAGE TYPE

The following section specifies the frequency and publication period for each message type disseminated by the NYSE Alerts product.

Table 3 Publication Period

MESSAGE	MESSAGE TYPE	PUBLICATION PERIOD
Security Info	36	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 2:00am and 4:30pm (EST)
Market Imbalance	120	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)
Delay Halt	121	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)
Indication	122	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)
T-Time	123	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)
Circuit Breaker	124	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)
Short Sale Restriction	125	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)
RPI (Retail Price Improvement)	126	NYSE Alerts is generated based on events. Every message will be transmitted based on that event. These messages may be sent between 8:00am and 4:30pm (EST)

3.3   GAP DETECTION

The PDP Distribution System will assign all data packets a unique, sequential message ID. This will allow recipients to identify 'gaps' in the message sequence and, if appropriate, reconcile them 'locally' with an alternate feed or request retransmission of the missing/corrupted data packet.

3.4   DUAL SITE

NYSE Alerts data is a redundant service with identical data transmitted through Primary and Secondary Multicast groups. This will allow customers to receive two redundant feeds. Additionally, any message can be retransmitted upon request.

4.   NYSE ALERTS MESSAGE SPECIFICATIONS

This service will provide Security Trading Status data for all NYSE Listed Securities. Through the NYSE Alerts product, member firms and their customers will be able to receive market information in a data stream.

The NYSE Alerts messages distributed include:

■   Market Imbalances

■   Opening Delays/Trading Halts

■   Indications (NYSE Market Data only)

■   Trade Dissemination Time

■   Circuit Breaker

■   Short Sale Restriction

■   RPI (Retail Price Improvement)

4.1   DATA DELIVERY FORMAT

The NYSE Alerts service uses the push-based publishing model. This means that data will be published based on its availability. Once an Alert is available, it will be published to NYSE Alert Subscribers.

4.2   GENERAL PROCESSING NOTES

The following processing notes apply to the messages sent through the feed:

■   All fields will be sent for every packet.

■   Only field values will appear in the published messages (e.g. no names, 'tags', sizes will appear in the message). The field names that appear in the descriptions below are for reference purposes only.

■   All the fields are contiguous, with reserved fields for alignment issues.

■   All field sizes are fixed and constant.

■   The source time referenced will be using Eastern Standard Time (EST).

■   Binary fields are provided in Big-Endian format.

■   ASCII string fields are left aligned and null padded.

4.3   SEQUENCE NUMBERS

All messages conform to the line level sequencing. Each channel A, B, C, D, etc has its own sequence number. Subscribers can use sequence numbers to determine the following:

■   Missing (gapped) messages

■   Unordered messages

■   Duplicate messages

Clients should note that the message sequence number per channel might restart from one following a failure recovery. A reset sequence number message will be sent to clients via the Multicast Groups to inform of such event.

4.4   SYMBOLS

The stock symbols represented in this feed include the root and optional suffix utilizing NYSE Symbology.

For example, if a symbol's root is "ABC" and its suffix is "PRA", the symbol's root/suffix will be represented as: "ABC PRA\0\0\0\0". Between the root and the suffix there will be one space. After the suffix, null values follow to fill the 11 characters allocated for the stock symbol field.

Note: "\0" represents a null value

4.5   PRICES

Prices in this feed are represented by two fields, separating the denominator and the numerator. All prices in the feed share a common denominator, which is represented in the PriceScaleCode.

The PriceScaleCode field value represents the common denominator for the following formula:

$$Price = \frac{Numerator}{10^{PriceScaleCode}}$$

For example, a price of 27.56 is represented by a Numerator of 2756 and a PriceScaleCode equals to 2.

4.6   NYSE ALERTS DATA MESSAGES

The following table contains a list of the message types in the NYSE Alerts feed.

Table 4 NYSE Alerts Data Messages

MESSAGE	MESSAGE TYPE	DESCRIPTION
Security Info	36	This message contains the start of day stock reference information.
Market Imbalance	120	This message contains the Market Imbalances
Delay Halt	121	This message contains the Opening Delays/Trading Halts
Indication	122	This message contains the NYSE Trading Indications
T-Time	123	This message contains the Trade dissemination time
Circuit Breaker	124	This message contains the Trading Collars
Short Sale Restriction	125	This message contains the Short Sale Restriction Indicator
RPI	126	This message contains the Retail Price Improvement (RPI) indicator

4.7   MESSAGE HEADER FORMAT

All messages are preceded by a standard header format. The following table describes the header fields of a NYSE Alerts message.

Table 5 Message Header Format

FIELD	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
MsgSize	0	2	Binary Integer	This field indicates the size of the message body in bytes, excluding these two bytes:
				Sequence Number Reset – '18 Bytes'
				Heartbeat Message – '14 Bytes'
				Heartbeat Response Message – '34 Bytes'
				Message Unavailable – '22 Bytes'
				Retransmission Request Message – '42 Bytes'
				Retransmission Response Message – '42 Bytes'
				Security Info – '53 bytes'
				Market Imbalance – '21 bytes'
				Delay Halt – '17 bytes'
				Indication – '26 bytes'
				T-Time – '20 bytes'
				Circuit Breaker – '133 bytes'
				Short Sale Restriction – '31 bytes'
				Retail Price Improvement (RPI) – '16 bytes'
MsgType	2	2	Binary Integer	This field identifies the type of message
				'1' – Sequence Number Reset
				'2' – Heartbeat Message
				'5' – Message Unavailable
				'10' – Retransmission Response message
				'19' – Heartbeat Subscription message
				'20' – Retransmission Request Message
				'24' – Heartbeat Response Message
				'36' – Security Info
				'120' – Market Imbalance
				'121' – Delay Halt
				'122' – Indication

FIELD	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				'123' – T-Time
				'124' – Circuit Breaker
				'125' – Short Sale Restriction
				'126' – Retail Price Improvement (RPI)
MsgSeqNum	4	4	Binary Integer	This field contains the message sequence number assigned by PDP for each product. It is used for gap detection. Also known as Line Sequence Number (LSN).
SendTime	8	4	Binary Integer	This field specifies the time message was created by PDP. The number represents the number of milliseconds since midnight of the same day.
ProductID	12	1	Binary Integer	**'104'** is the product value used in the PDP header to identify the NYSE Alerts feed
RetransFlag	13	1	Binary Integer	A flag that indicates whether this is an original, retransmitted, or 'replayed' message. Valid values include: '1' – Original message '2' – Retransmitted message '3' – Message Replay '4' – Retransmission of a 'replayed' message '5' – Refresh Retransmission '6' - End of Refresh Retransmission '129' – Test Original Message '130' – Retransmission of a test message '131' – Replay of a test message '132' – Retransmission Replay of a Test Message
NumBodyEntries	14	1	Binary Integer	The number of times the message body repeats in the message. For example, if the body consists of only a single field (named Volume) and the "NumBodyEntries" field is 2, this signifies there were two events for the price point and as a result the number of bytes in the message body will be 8
Filler	15	1	Binary Integer	This field is reserved for future use

4.8   SECURITY INFO MESSAGE FORMAT

The table below describes the body fields of an Alerts Security Info message (**MsgType '36'**)

Table 6 Security Info Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTime	0	4	Binary Integer	Indicates the time of the SecurityInfo message. The time is in milliseconds since midnight Example: If the time is 13:12 56 secs and 170 ms This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing the symbol, padded with NULLs
SecurityType	15	1	ASCII Character	This field indicates the Security Type. The valid values are: 'A' - Common Stock 'B' - Preferred Stock 'C' - Warrant 'D' - Right 'E' - Corporate Bond 'F' - Treasury Bond 'G' - Structured Product 'H' - ADR Common 'I' - ADR Preferred 'J' - ADR Warrants 'K' - ADR Rights 'L' - ADR Corporate Bond 'M' - NY Registered Share 'N' - Global Registered Share 'O' - Index 'P' - Fund

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				'Q' - Basket
				'R' - Unit
				'S'- Liquidating Trust
				'U' - Unknown
				Default Value: N
Filler	16	2	Binary Integer	This field is reserved for future use
MPV	18	2	Binary Integer	This field contains Minimum Price Variation. The minimum price amount a stock can move up/down
Post	20	1	Binary Integer	This field contains the post number where the security is trading.
Panel	21	2	ASCII String	This field contains the Panel location where the security is trading '~' - N/A
TickerDesignation	23	1	ASCII Character	This field contains the ticker where issue is reported 'A' -NYSE 'B' - MKT 'Q' - NASDAQ ' ' (Space) - Default value
IPOFlag	24	1	ASCII Character	This field indicates whether this is an IPO. The Valid Values are: 'Y' - Yes 'N' - No ' ' (Space) = Not available
CountryCode	25	3	ASCII String	This field contains the ISO country code. Default value - " " (Space)
UOT	28	2	Binary Integer	This field contains the Unit of trade for a security. Unit share quantity stock trades in Range: 100,50,10,1
PriceScaleCode	30	1	Binary	This field contains the PriceScaleCode

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
			Integer	for the reference price in this message. This represents the number of digits after the decimal place in the price. Example: - For a price of 12.1, the PriceScale code is 1. - For price 13, the code is 0
Reserved	31	1	Binary Integer	This field is reserved for future use
Reserved	32	2	Binary Integer	This field is reserved for future use
BankruptcyFlag	34	1	ASCII Character	This field contains the bankruptcy status of the security The valid values are: 'Y' - Bankrupt 'N' - Not Bankrupt
FinancialStatus	35	1	Binary Integer	This field contains an indicator to identify financial status. Valid values: '0' - normal '1' - below continue listing standards (bc) '2' - late filing (lf) '3' - bc and lf (below continue listing standards and late filing)
ExDistributionFlag	36	1	ASCII Character	This field contains a flag to Denote if stock is in Ex-Distribution 'N' - security is not ExDistribution 'Y' - security is ExDistribution
ExRightsFlag	37	1	ASCII Character	This field indicates that the ex-Rights temporary suffix should be displayed Valid Values: 'Y' - Yes 'N' – No

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
ExDividendFlag	38	1	ASCII Character	This field contains a flag to Denote if stock is in ex-dividend cycle Valid values: 'N' - Security is not ExDividend 'Y' - Security is ExDividend (ExDivDate would be set to "XD ")
ExDivAmountPriceScaleCode	39	1	Binary Integer	The field contains the PriceScalecode for the ExDivAmount price in this message. Represents the number of digits after the decimal place in the ExDivAmount price. Example: For a ExDivAmount price of 12.1, the denom code is 1. For ExDivAmount price 13, the code is 0 Note: If the SpecialDivFlag is set to true, this field is always set to 0
ExDivAmount	40	4	Binary Integer	This field contains the Ex-Div Amount Note: If the SpecialDivFlag is set to true, this field is always set to 0
ExDivDate	44	5	ASCII String	This field is contains the ex-dividend date The length of this field is five bytes. The format of this field is as follows: First two bytes are used for the month followed by ■ one byte for the forward slash and ■ two bytes for the day, zero filled to the left when required Example: "06/11" or "XD" followed by NULLs to indicate Ex-Dividend today or NULLs for N/A
SpecialDivFlag	49	1	ASCII	This field is a Flag that denotes

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
			Character	whether the Dividend is a special/complex value. Note: If the SpecialDivFlag is set to true, the DivAmt is always set to 0 Valid Values: 'Y' - Special Dividend amount 'N' - Not a special Dividend amount, refer to the ExDivAmount for the dividend amount
StockSplit	50	1	ASCII Character	This field indicates if there is a stock split Valid Values: 'N' - Security has not Split 'Y' - Security has Split
Rule19C3	51	1	ASCII Character	This field indicates if Trading allowed away from NYSE floor Valid Values: 'N' - No 'Y' - Yes
ITSEligible	52	1	ASCII Character	This field indicates if the stock is ITS Eligible 'Y' - Yes 'N' - No (Default)

4.9   MARKET IMBALANCE

The table below describes the body fields of a Market Imbalance message (**MsgType '120'**)

Table 7 Market Imbalance Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTime	0	4	Binary Integer	This field specifies the time when the event was generated in the system. The number represents the number of milliseconds since midnight of the same day. Example: If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing the symbol, padded with NULLs
SecurityStatus	15	1	Integer (ASCII)	This is field contains the temporary status of the security. The valid values are: '1' - Regulatory Imbalance '2' - Cancel Regulatory Imbalance
ImbalanceQuantity	16	4	Binary Integer	This field contains the total imbalance quantity at the reference price point
ImbalanceSide	20	1	ASCII Character	This field indicates the side of the order Buy/Sell. Valid Values: 'B' - Buy 'S' - Sell ' ' - No imbalance or N/A

4.10   DELAY HALTS

The table below describes the body fields of Delay Halts messages (**MsgType '121'**)

Table 8 Delay Halts Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTime	0	4	Binary Integer	This field specifies the time when the event was generated in the system. The number represents the number of milliseconds since midnight of the same day.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				Example:
				If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds
				This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing the symbol, padded with NULLs
SecurityStatus	15	1	Binary Integer	This field contains the status of the security. The valid values are: '3' - Opening Delay '4' - Trading Halt '5' - Resume '6' - No open/no resume
HaltCondition	16	1	ASCII Character	This field represents the halt condition for the security. The valid value are: '~' - Security not delayed/halted 'A' - As of Update 'D' - News dissemination 'I' - Order imbalance 'P' - News pending 'J' - Due to related security - news dissemination 'K' - Due to related security - news pending 'M' - Volatility Trading Pause 'Q' - Due to related security 'S' - Related security (not used) 'V' - In view of common 'X' - Equipment changeover 'Y' - Sub penny Trading 'Z' - No open/No resume '1' - MarketWide Circuit Breaker Level 1 - Breached '2' - MarketWide Circuit Breaker Level 2 -

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				Breached
				'3' - MarketWide Circuit Breaker Level 3 - Breached
				No longer expected (but possible):
				'E' - Order influx
				'T' - Resume (handled as '~' above)

4.10.1 Halt Condition Codes

Table 9 Halt Conditions and Usage

HALTCONDITION	DESCRIPTION	REGULATORY	NON-REGULATORY
D	News Dissemination	X	
E	Order Influx		X
I	Order Imbalance		X
M	Volatility Trading Pause	X	
P	News Pending	X	
X	Equipment Changeover		X
Y	Sub-Penny Trading		X

4.11   INDICATION

The table below describes the body fields of an Indication message (**MsgType '122'**)

Table 10 Indication Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTime	0	4	Binary Integer	This field specifies the time when the event was generated in the system. The number represents the number of milliseconds since midnight of the same day. Example: If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				the symbol, padded with NULLs
SecurityStatus	15	1	Binary Integer	This field contains the status of the security. The valid values are: '7' - Price Indication '8' - Trading Range Indication '9' - NYSE Mandatory Pre-Opening Indication
BidPrice	16	4	Binary Integer	This field contains an approximation of what the low end "Bid" price of a security's trading range may be. Note: The price is represented by the PriceScaleCode and the PriceNumerator. For example, a price of 12.1 has a "price numerator" of 121 and a pricescalecode of 1
AskPrice	20	4	Binary Integer	This field represents an approximation of what the high end "Ask" price of a security's trading range may be. Note: The price is represented by the PriceScaleCode and the PriceNumerator. For example, a price of 12.1 has a "price numerator" of 121 and a pricescalecode of 1
PriceScaleCode	24	1	Binary Integer	The pricescalecode code for the price fields in this message. Represents the number of digits after the decimal place in the price. Example: - For a price of 12.1, the pricescalecode is 1. - For price 13, the code is 0
Adjustment	25	1	Binary Integer	This field denotes whether the referenced transaction should be cancelled. The valid values are: '0' - None '1' - Cancel '2' - Correction

4.12 T-TIME

The table below describes the body fields of a Trade Dissemination Time message (**MsgType '123'**)

Table 11 T-Time Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTime	0	4	Binary Integer	This field specifies the time when the event was generated in the system. The number represents the number of milliseconds since midnight of the same day. Example: If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing the symbol, padded with NULLs
SecurityStatus	15	1	Binary Integer	This field contains the status of the security. The valid values are: '10' - Trade Dissemination Time
TradeDisseminationTime	16	4	Binary Integer	This field specifies the time the Trade Dissemination time. The number represents the number of milliseconds since midnight of the same day. Example: If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds This field will contain the value 47576170

4.13   CIRCUIT BREAKER

The table below describes the body fields of a Circuit Breaker message (**MsgType '124'**)

Table 12 Circuit Breaker Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
EventTime	0	4	Binary Integer	This field specifies the time when the event was generated in the system. The number represents the number of milliseconds since midnight of the same day. Example: If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				This field will contain the value 47576170
Status	4	1	Binary Integer	Valid values: '0' - Circuit Breakers are not currently in effect. Please disregard the previous message. '1' - Circuit Breakers are now in effect and Trading has been halted. Trading will resume in a 1/2 hour. '2' - Circuit Breakers are now in effect and Trading has been halted. Trading will resume in a 1 hour. '3' - Circuit Breakers are now in effect and Trading has been halted. Trading will resume in 2 hours. '4' - Circuit Breakers are now in effect and Trading has been halted. Trading will not resume today. MOC and LOC orders will be cancelled, and NYSE Crossing Sessions will not take place.
URL	5	128	ASCII String	The URL to the description of the message.

4.14   SHORT SALE RESTRICTION

The table below describes the body fields of a Short Sale Restriction Indication message (**MsgType '125'**)

Table 13 Short Sale Restriction Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
SourceTime	0	4	Binary Integer	This field specifies the time when the event was generated in the system. The number represents the number of milliseconds since midnight of the same day. Example: If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing the symbol, padded with NULLs
SecurityStatus	15	1	Binary Integer	This field contains the status of the Short Sale Restriction of the security.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				The valid values are:
				'11' – Short Sale Restriction Indication
ShortSaleRestrictionIndicator	16	1	ASCII Character	This field contains the status of the Short Sale Indication of the security.
				'A' – Short Sale Restriction Activated
				'C' – Short Sale Restriction Continued
				'D' - Short Sale Restriction Deactivated
				The following conditions will appear only in the event of a prior day correction/cancel:
				'~' – No Short Sale in Effect
				'E' – Short Sale restriction in Effect
TriggeringExchangeID	17	1	ASCII Character	This field indicates the exchange that triggered the short sale restriction
				Note: This field will only be populated when the Short Sale Indicator has a value "A"
ShortSaleTriggerTime	18	4	Binary Integer	This field indicates the time of the trade triggered the short sale restriction. The number represents the number of milliseconds since midnight of the same day.
				Example:
				If the time is 13:12 56 seconds, 170 milliseconds and 30 microseconds
				This field will contain the value 47576170
				Note: This field will only be populated when the Short Sale Indicator has a value "A"
TradePrice	22	4	Binary Integer	This field indicates the price of the trade that triggered the short sale restriction
				The price is represented by the PriceScaleCode and the PriceNumerator. For example, a price of 12.1 has a "price numerator" of 121 and a pricescalecode of 1
				Note: This field will only be populated

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				when the Short Sale Indicator has a value "A"
PriceScaleCode	26	1	Binary Integer	The pricescalecode code for the price fields in this message. Represents the number of digits after the decimal place in the price. Example: - For a price of 12.1, the pricescalecode is 1. - For price 13, the code is 0
TradeVolume	27	4	Binary Integer	This field indicates the volume of the trade that triggered the short sale restriction Note: This field will only be populated when the Short Sale Indicator has a value "A"

4.15   RPI (RETAIL PRICE IMPROVEMENT)

The table below describes the body fields of a RPI (Retail Price Improvement) message (**MsgType '126'**)

Table 14 RPI (Retail Price Improvement) Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
Source Time	0	4	Binary Integer	Indicates the time of the SecurityInfo message. The time is in milliseconds since midnight. For example: If the time is 13:12 56 secs and 170 ms This field will contain the value 47576170
Symbol	4	11	ASCII String	This field contains the full symbol in NYSE Symbology. A sequence of characters representing the symbol, padded with NULLs
RPI Indicator	15	1	Binary Integer	This field indicates the RPI condition. The valid values are: 0' = neither bid or offer (default) '1' = bid '2' = offer

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				'3' = bid and offer

APPENDIX A: COMMON PDP MESSAGE STRUCTURE

In broad terms, there are two types of messages transmitted as part of this protocol:

- **Control messages**   These do not contain data per se; rather, they allow conversing parties to exchange session-specific information (for example, 'reset sequence number').

- **Data messages**   These are product specific and, although they will adhere to the general specification, they are defined specifically in a later section.

A.1   GENERAL PROCESSING NOTES

The following processing notes apply to the messages described above.

- All fields will be sent for every packet.

- Only field values will appear in the published messages (e.g. no names, 'tags', sizes will appear in the message). The field names that appear in the descriptions below are for reference purposes only.

- All the fields are contiguous, i.e. there is no explicit (or implicit) 'padding' between fields regardless of the juxtaposed data types, sizes, and alignment issues.

- All field sizes are fixed and constant.

- The source time referenced will be using Eastern Standard Time (EST).

- Binary fields are provided in Big-Endian format.

- All binary fields will be unsigned (unless otherwise specified)

- ASCII string fields are left align, null padded.

A.2   COMMON MESSAGE HEADER FORMAT

All PDP messages will contain a Common Message Header. This model is akin to that of an envelope/letter paradigm. The message header comprises envelope information; the message body comprises the letter. All correspondence will use the same envelope format, regardless of content.

The intent of this design is to minimize development burden on behalf of Subscribers. That is, all Subscribers may implement line-level protocol processing once, and then need only develop parsing algorithms for messages of choice.

Table 15 Common Message Header Format

FIELD	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
MsgSize	0	2	Binary Integer	This field indicates the size of the message body in bytes, excluding these two bytes: Sequence Number Reset – '18 Bytes' Heartbeat Message – '14 Bytes' Heartbeat Response Message – '34 Bytes' Message Unavailable – '22 Bytes' Retransmission Request Message – '42 Bytes'

FIELD	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
				Retransmission Response Message – '42 Bytes'
				Security Info – '53 bytes'
				Market Imbalance – '21 bytes'
				Delay Halt – '17 bytes'
				Indication – '26 bytes'
				T-Time – '20 bytes'
				Circuit Breaker – '133 bytes'
				Short Sale Restriction – '31 bytes'
				Retail Price Improvement (RPI) – '16 bytes'
MsgType	2	2	Binary Integer	This field identifies the type of message
				'1' – Sequence Number Reset
				'2' – Heartbeat Message
				'5' – Message Unavailable
				'10' – Retransmission Response message
				'19' – Retransmission Subscription message
				'20' – Retransmission Request Message
				'24' – Heartbeat Response Message
				'36' – Security Info
				'120' – Market Imbalance
				'121' – Delay Halt
				'122' – Indication
				'123' – T-Time
				'124' – Circuit Breaker
				'125' – Short Sale Restriction
				'126' – RPI (Retail Price Improvement)
MsgSeqNum	4	4	Binary Integer	This field contains the message sequence number assigned by PDP for each product. It is used for gap detection. Also known as Line Sequence Number (LSN).
SendTime	8	4	Binary Integer	This field specifies the time message was created by PDP. The number represents the number of milliseconds since midnight of the same day.
ProductID	12	1	Binary	**'104'** is the product value used in the PDP header to

FIELD	OFFSET	SIZE (BYTES)	FORMAT	DESCRIPTION
			Integer	identify the NYSE Alerts feed
RetransFlag	13	1	Binary Integer	A flag that indicates whether this is an original, retransmitted, or 'replayed' message. Valid values include: '1' – Original message '2' – Retransmitted message '3' – Message Replay '4' – Retransmission of a 'replayed' message '5' – Refresh Retransmission '6' – End of Refresh Retransmission '129' – Test Original Message '130' – Retransmission of a test message '131' – Replay of a test message '132' – Retransmission Replay of a Test Message
NumBodyEntries	14	1	Binary Integer	The number of times the message body repeats in the message. For example, if the body consists of a field (named Volume) and the "NumBodyEntries" field is 2, the number of bytes in the message body will be 8
Filler	15	1	Binary Integer	This field is reserved for future use.

A.3   SEQUENCE NUMBER RESET

This message is sent to 'reset' the Sequence Number at start of day, in response to failures, etc. Note that this message will contain a valid sequence number.

Table 16 Sequence Number Reset Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the Sequence Number Reset Message					
MsgSize	0	2	Binary Integer	18	See Common Message Header Format
MsgType	2	2	Binary Integer	'1'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'1'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format
Defined below are the 'body' fields of the Sequence Number Reset Message					
NextSeqNumber	16	4	Binary Integer		This field contains the sequence number value that the recipient should expect in the immediately succeeding data packet. Note that this message will contain its own valid sequence number in the header portion of the message.

A.3.1   Sequence Number Processing Notes

Sequence numbers normally begin at one (1) and increase monotonically with each subsequent message. There are two scenarios where the sequence number is reset (besides the start of day). First, if the value should exceed the maximum value that the SeqNum field may contain, it will be reset to one (1). Second, if PDP_ALERTS has a failure and it recovers, it sends a sequence number reset message. The SeqNum field of that message will be set to one (1) and the NextSeqNumber field will be set to two (2). Third, a Full update message will be sent for all symbols on the channel(s) where the reset sequence number message was sent. Please refer to Processing of Sequence Number Reset Messages for a suggest way of processing.

A.4   HEARTBEAT SUBSCRIPTION MESSAGE

Subscribers can optionally subscribe with the retrans/refresh server to receive heartbeats, by issuing this message with a valid sourceID. Once subscribed, the retrans/refresh server will forward PDP Heartbeats.

Note: Clients that do not explicitly subscribe for heartbeats would start receiving heartbeats only after they have issued at least 1 refresh/retrans request to the retrans/refresh server.

Table 17 Heartbeat Subscription Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the Heartbeat Response Message					
MsgSize	0	2	Binary Integer	'34'	See Common Message Header Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
MsgType	2	2	Binary Integer	'19'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'1'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format
Defined below are the 'body' fields of the Heartbeat Response Message					
SourceID	16	20	ASCII String		This field represents the name of the source requesting retransmission. This field is null padded, left aligned

A.5   HEARTBEAT MESSAGES

Subscribers that choose to establish and remain connected to the TCP/IP Retrans/Refresh server will receive Heartbeat messages to let them know that the connection is still alive.

Table 18 Heartbeat Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the Heartbeat Message					
MsgSize	0	2	Binary Integer	14	See Common Message Header Format
MsgType	2	2	Binary Integer	'2'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'0'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format

A.5.1   Heartbeat Message Processing Notes

Heartbeat messages will be sent with the same sequence number as the most recent message that was sent.

Heartbeat messages will only contain the PDP Message Header with an empty body.

Subscribers should respond to these heartbeat requests with a heartbeat message.

Please refer to Processing of Heartbeat Messages for a suggest way of processing.

A.6   HEARTBEAT RESPONSE MESSAGE

This message will be sent by subscribers that choose to establish and remain connected to the TCP/IP retransmission/refresh server intraday. This message lets the NYSE know that the connection is still alive. Subscribers should respond to these heartbeat requests with a heartbeat response message

Table 19 Heartbeat Response Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the Heartbeat Response Message					
MsgSize	0	2	Binary Integer	'34'	See Common Message Header Format
MsgType	2	2	Binary Integer	'24'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'1'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
					Format
Defined below are the 'body' fields of the Heartbeat Response Message					
SourceID	16	20	ASCII String		This field represents the name of the source requesting retransmission. This field is null padded, left aligned

A.7 RETRANSMISSION REQUEST MESSAGE

This message is sent by Subscribers requesting missing messages. The Message Archive and Retransmission (MART) will retransmit the appropriate message(s).

Table 20 Retransmission Request Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the Generic Retransmission Request Message					
MsgSize	0	2	Binary Integer	'42'	See Common Message Header Format
MsgType	2	2	Binary Integer	'20'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'1'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format
Defined below are the 'body' fields of the Generic Retransmission Request Message					
BeginSeqNum	16	4	Binary Integer		The beginning sequence number of the requested range of messages to be retransmitted.
EndSeqNum	20	4	Binary Integer		The end sequence number of the requested range of messages to be retransmitted.

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
SourceID	24	20	ASCII String		This field represents the name of the source requesting retransmission. This field is null padded, left aligned

A.8   RETRANSMISSION RESPONSE MESSAGE

This message will be sent immediately via TCP/IP in response to the subscribers request for retransmission messages, i.e. Retransmission. This message does not contain any information just the acceptance or rejection of the request message.

Table 21 Retransmission Response Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the NYSE Retransmission Response Message					
MsgSize	0	2	Binary Integer	'42'	See Common Message Header Format
MsgType	2	2	Binary Integer	'10'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'1'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format
Defined below are the 'body' fields of the NYSE Retransmission Response Message					
SourceSeqNum	16	4	Binary Integer		This field contains the request message sequence number assigned by the client. It is used by the client to couple the request with the response message.
SourceID	20	20	ASCII String		This field represents the name of the source requesting retransmission. This field is null padded, left aligned

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Status	40	1	Character		This is a flag that indicates whether the retransmissions request was accepted or rejected. Valid values: 'A' – Accepted 'R' – Rejected
Reject Reason	41	1	Character		This is a flag that indicates the reason why the request was rejected. Valid values: '0' – Message was accepted '1' – Rejected due to permissions '2' – Rejected due to invalid sequence range '3' – Rejected due to maximum sequence range (>1000) '4' – Rejected due to maximum request in a day '5' – Rejected due to maximum number of refresh requests in a day
Filler	42	2	ASCII String		This is filler, reserved for future use.

A.9   RETRANSMISSION MESSAGE

Upon receipt of a valid retransmission request message, the requested message(s) will be sent. This message(s) has the same message format and content as the original messages sent by the PDP_Alerts, with the exception that the 'RetransFlag' in the header is set to the value of '2' or '5' depending on whether the retransmission is for a non-replay or a replay retransmission message, respectively.

Table 22 Retransmission Message Format

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the Retransmitted Message					
MsgSize	0	2	Binary Integer		See Common Message Header Format
MsgType	2	2	Binary Integer		It will be the MsgType of the original message sent by the PDP_ALERTS.
MsgSeqNum	4	4	Binary		See Common Message Header

FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
			Integer		Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'194'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'2' or '5'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	Same as original message	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format
All the 'body' fields of the Retransmitted Message are the same as the original message					

A.9.1   Retransmission Message Processing Notes

All Subscribers will receive retransmission messages through the retransmission channel.

Due to the multicast nature, subscribers will receive 'all' retransmission messages, including messages that were not requested by them.

Note that when a message for a particular symbol is retransmitted, a new message **for the same symbol** may be sent through the regular channel. This scenario is very likely to occur with busy symbols and may cause confusion as to which message contains the latest information on that symbol.

In order to resolve the conflict, the following qualification method should be applied:

- Check the MsgSeqNum field. A retransmitted message retains the same sequence number as the original message. Even refreshes are retransmitted with the original sequence numbers for the message they belonged to.

- The most current sequence number (SEQNUM) contains the latest information.

- If the SEQNUMS are the same: messages are the same, any of the two messages contains the same information.

Please refer to Processing of Line Level Retransmissions for a suggest way of processing.

A.10 MESSAGE UNAVAILABLE

This message will be sent to inform the subscribers of unavailability of a range of messages for which they may have requested retransmission via the Retransmission Multicast channels.

Table 23 Message Unavailable Format

| FIELD NAME	OFFSET	SIZE (BYTES)	FORMAT	VALUE	DESCRIPTION
Defined below are the 'header' fields of the NYSE Packet Unavailable Message					
MsgSize	0	2	Binary Integer	'22'	See Common Message Header Format
MsgType	2	2	Binary Integer	'5'	See Common Message Header Format
MsgSeqNum	4	4	Binary Integer		See Common Message Header Format
SendTime	8	4	Binary Integer		See Common Message Header Format
ProductID	12	1	Binary Integer	'104'	See Common Message Header Format
RetransFlag	13	1	Binary Integer	'1'	See Common Message Header Format
NumBodyEntries	14	1	Binary Integer	'1'	See Common Message Header Format
Filler	15	1	Binary Integer		See Common Message Header Format
Defined below are the 'body' fields of the NYSE Packet Unavailable Message					
BeginSeqNum	16	4	Binary Integer		The beginning sequence number of the requested range of messages to be retransmitted.
EndSeqNum	20	4	Binary Integer		The end sequence number of the requested range of messages to be retransmitted.

APPENDIX B: MESSAGE PROCESSING

The following chapter provides workflow diagrams to simplify how the NYSE Book messages should be processed.

B.1   PROCESSING OF MESSAGES

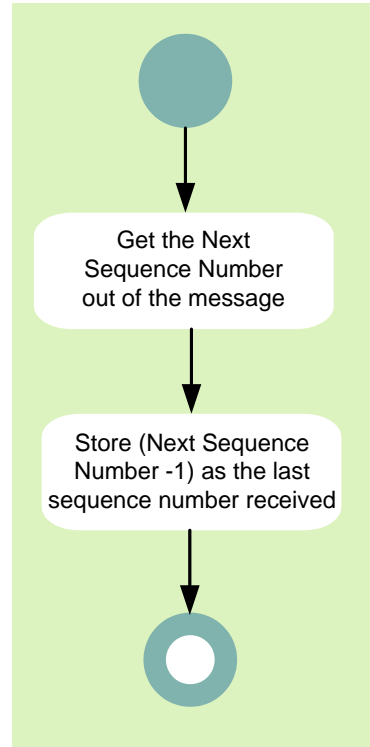The following is the recommended way of processing messages:

Figure 1 Message Processing
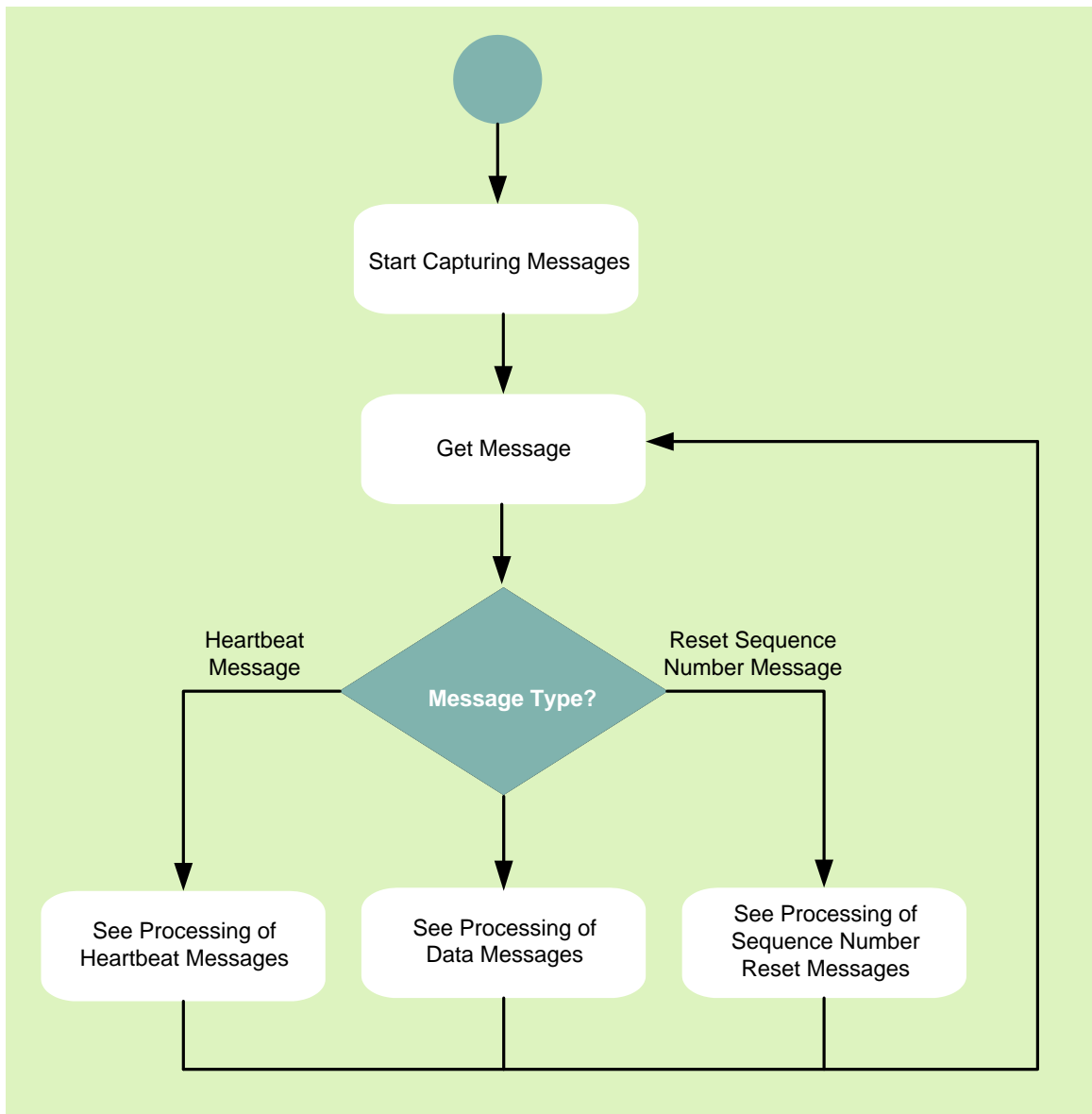
B.2   PROCESSING OF SEQUENCE NUMBER RESET MESSAGES

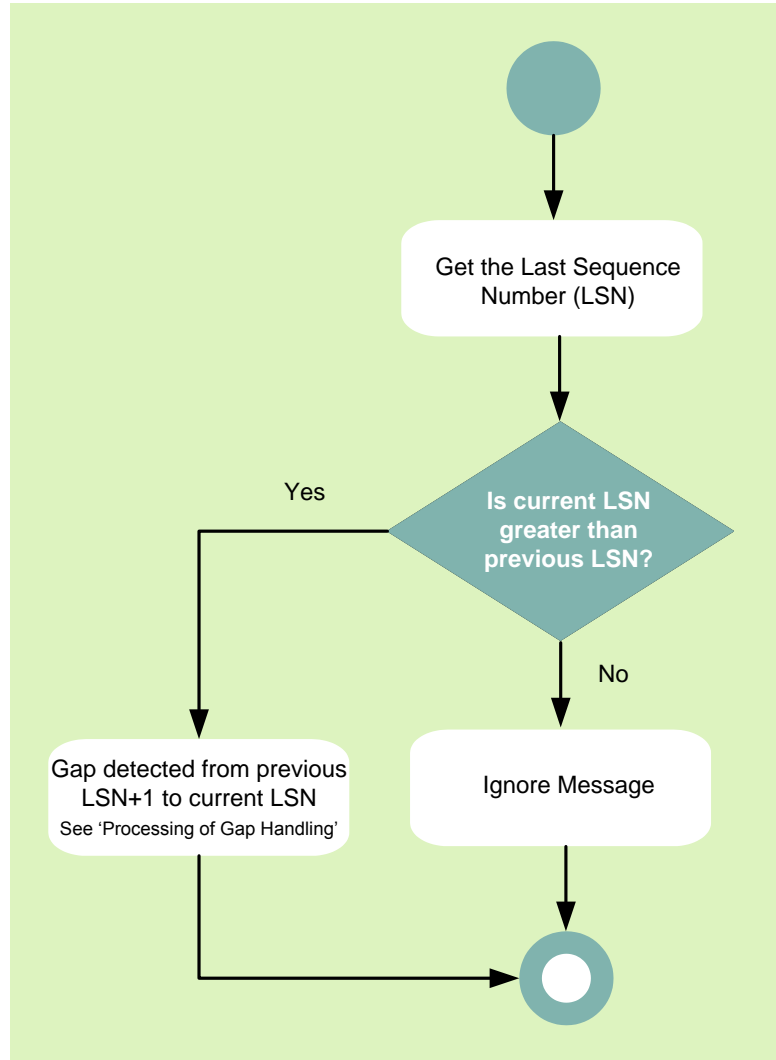The following is the recommended way of processing Sequence Number Reset messages:

Figure 2 Sequence Number Reset Message Processing

B.3   PROCESSING OF HEARTBEAT MESSAGES

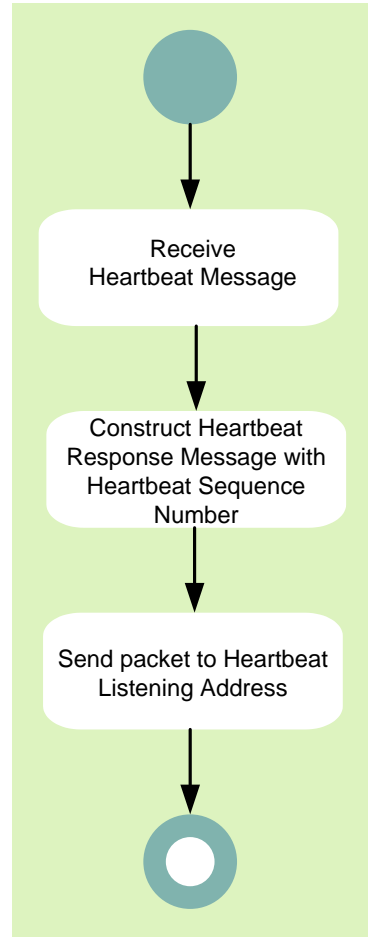The following is the recommended way of processing Heartbeat messages:

Figure 3 Heartbeat Message Processing

B.4   PROCESSING OF HEARTBEAT RESPONSE MESSAGES

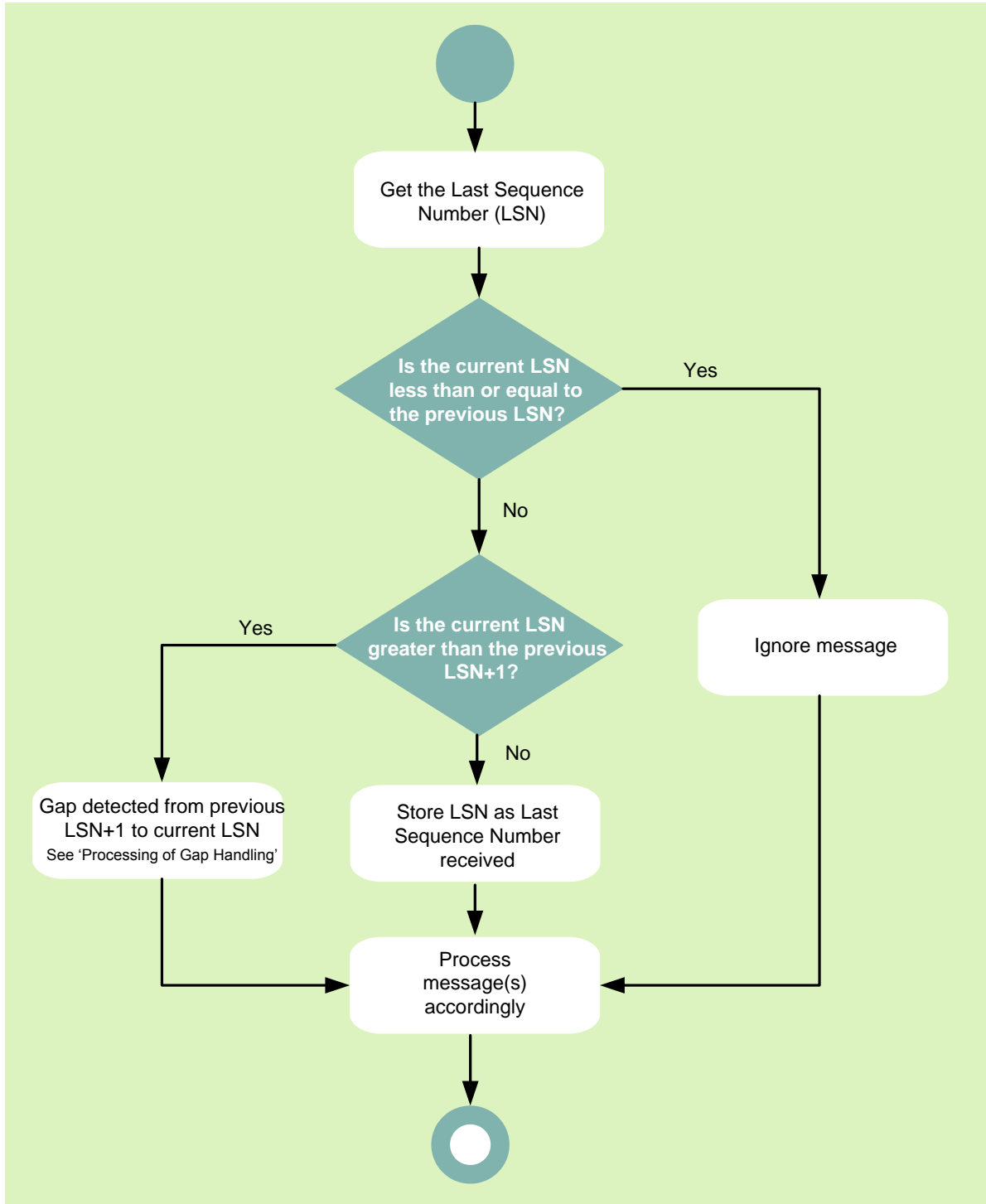The following is the recommended way of processing Heartbeat Response messages:

Figure 4 Heartbeat Response Message Processing

B.5   PROCESSING OF DATA MESSAGES

The following is the recommended way of processing Data messages:
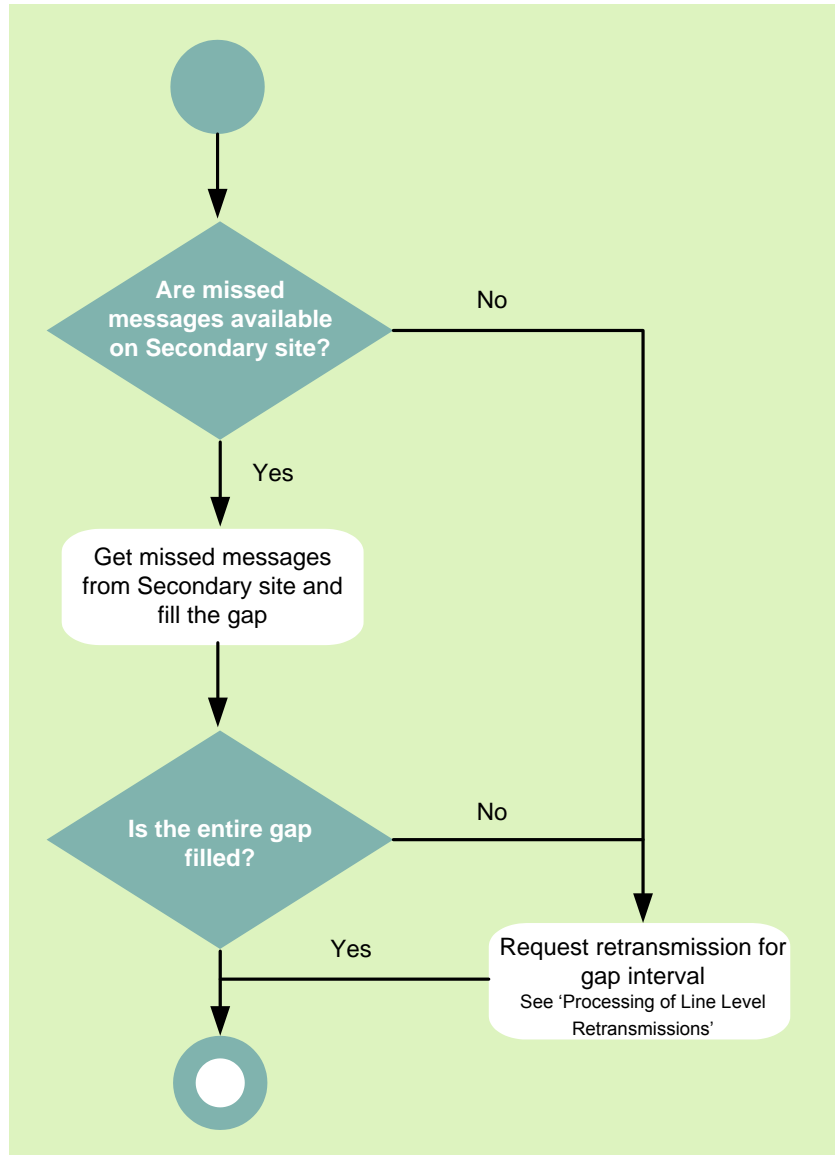
Figure 5 Data Message Processing

B.6   PROCESSING OF GAP HANDLING

The following is the recommended way of handling message gaps:

Figure 6 Message Gap Handling

B.7   PROCESSING OF LINE LEVEL RETRANSMISSIONS

The following is the recommended way of line level retransmissions:

Figure 7 Line Level Retransmission Processing