UTP

Participant Quote Line Specification

UTPquote v2015-2.1

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Revisions Table: version 2/25/2002

Section	Revision Subject	Description
2.2.5; various	Message Header	• Added One Byte Message Status Field to the string • Added Error Code 4 – Possible Duplicate Flag
3.2; 3.3	Locked and Crossed quotes	• Note on locked/cross quote usage
3.2; 3.3	Round Lot Sizes for Bid and Ask Prices	• Redefined round lot definition from 001 - 99999 to 00001 - 99999
4.3	Sequence Inquiry	• Reword for consistency of message sequence number expected. A Sequence Inquiry Message will generate a response with the last sequence number received by NASDAQ and not the next expected message to be generated
4.9	Test Message	• Hexadecimal "7E" should be replaced with Hexadecimal "7F" in the Field Description

Revisions Table: version 5/8/2002

Section	Revision Subject	Description
4.0	Message Header – Control Messages	• Include fields in Message Header that are "NUL" filled for specific Control Messages

Revisions Table: version 10/31/2003

Section	Revision Subject	Description
2.2.6.1	Message Sequence Number system requirements	• Guidelines for message sequence number usage
3.3	UTP Quotation Wipe-Out Message	• Message input requirements
3.6	Trading Action	• Guidelines for trading action messages

Revisions Table: version 6/8/2004

Section	Revision Subject	Description
2.2.8	New Administrative Message Type	• Message Category A, Type K – Participant Non-Regulatory Halt and Resume
2.2.8	New Administrative Message Type	• Message Category A, Type T – Participant Quotation Wipeout
3.1.1	Quotation Wipeout	• Use of new functionality within the quote wipeout process
3.3	Participant Quotation Wipeout message	• Description of field values, processing, and rejects
3.6.1	Trading Action Message	• Reason Code field populated with values
3.7	Market Center Non-Regulatory Trading Action	• Description of field values, processing, and rejects
Input Error Conditions	Reject 37 Reject 75 Reject 76 Reject 77	• Improper fields populated for action type • Invalid action code for wipeout command • Quoting Halted by Participant • Invalid Quote Wipeout Action • Invalid Reason Code

Revisions Table: version 01/07/2005

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Section	Revision Subject	Description
1.1	Operational Hours	• Revised the UTP Quote Line operational hours to begin at 4:00 a.m. ET
2.2.5	Message Header	• Added to MHORIG and MHDEST the two new market participant ID's (NU = New York Stock Exchange; WU = Chicago Board Options Exchange)

Revisions Table: version 08/05/2005

Section	Revision Subject	Description
3.3	Quote Wipeout Processing	• During specific quote wipeout periods all trades reported during these periods as regular-way transactions will be denoted as .Y via the SIP UTDF data feed.

Revisions Table: version 11/07/2005

Section	Revision Subject	Description
2.2.5	Message Header	• Removed the market participant ID for New York Stock Exchange (NU) from the MHORIG and MHDEST.
2.2.5	Message Header	• Added to MHORIG and MHDEST two new market participant ID's (IU = International Securities Exchange; QL = The Trade Reporting Facility)
3.2	UTP Exchange Quotation Message	• Redefined values within the AQCOND field as follows: ▪ A – Manual Offer, automatic Bid ▪ B – Manual Bid, automatic Offer ▪ H - Manual Bid and Offer
3.4	NASD Market Participant Quotation/BBO Message	• Redefined values within the AQCOND field as follows: ▪ A – Manual Offer, automatic Bid ▪ B – Manual Bid, automatic Offer ▪ H - Manual Bid and Offer

Revisions Table: version 8/1/2006

Section	Revision Subject	Description
1.1	Operational Hours	• Revised the UTP Quote Line operational hours to end at 8:00 p.m. ET
2.2.5	Message Header	• Added to MHORIG and MHDEST the new market ID's for each existing participant to facilitate their own TRF relationship.
2.2.8	Message Category & Type Definitions	• Modified values in relation to the Reg NMS and symbology initiative.
3.1.2	Reg NMS Changes	• Added section to describe changes for Reg NMS and the NASD ADF MPID attribution.
3.1.3	UTP Symbology Change	• Added section to describe NASDAQ Listing Market Symbology Initiative.
3.2	UTP Quote Message	• Modified section to include new enhanced message in support of the NASDAQ symbology initiative.
3.3	Quote WipeOut Message	• Modified section to include new enhanced message in support of the NASDAQ symbology initiative.
3.4.1	NASD Quote Message	• Modified section to include new enhanced messages in support of the Reg NMS and NASDAQ symbology initiatives.
3.6	Trading Action Message	• Modified section to include new enhanced message in support of the NASDAQ symbology initiative.
3.7	Non Regulatory Market Center Trading Action Message	• Modified section to include new enhanced message in support of the NASDAQ symbology initiative.

Revisions Table: version 03/05/2007

Section	Revision Subject	Description
2.2.5	Message Header	• Added to MHORIG and MHDEST the new market ID's (NU = New York Stock Market LLC; NL = New York Stock Exchange LLC TRF).

Revisions Table: version 2/6/2008

Section	Revision Subject	Description
2.2.8	Message Category & Type Definitions	• Modified to reflect current supported messages.
Various	Supported message formats	• Removed all message formats that are no longer supported.
2.2.5	Message Header	• Modified MHMSN in the header to reflect the increased bytes size of 8 Bytes.
Various	Modified documentation to reflect the approved increase in message sequence number from 7 bytes to 8 bytes.	• Hot Cut release to modify the following message types resulting from the message header change: ▪ 2.2.9 EMC – Quote Resume ▪ 3.8.1 Reject Message ▪ 4.4.1 Sequence Information

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Revisions Table: version 4/17/2008

Section	Revision Subject	Description
3.1.6	Emergency Market Condition Control Message	• Added description for modification to Circuit Breaker Event Processing
4.0	Added new Emergency Market Control Message	• Modified Section to add new Emergency Market – Quote Resume message (Category C – Type R) • Renumbered section

Revisions Table: version 9/10/2008

2.2.5	Message Header	• Added to MHORIG and MHDEST the new market participant ID (ZU = BATS Exchange Inc)
Various	Modified Document to reflect corporate name changes	• Throughout document. Modified documentation to reflect corporate name changes.
Input Error Condition	Reject 79	• Market Wide Halt - EMC ▪ A market wide regulatory halt is in effect for all SECID's. Quote update ability suspended.

Revisions Table: version 9/07/2009

Section	Revision Subject	Description
2.2.5	Message Header	• Added to MHORIG and MHDEST the new market ID's in support of the new exchange registrations for BATS and Direct Edge.

Revisions Table: version 6/30/2010

Section	Revision Subject	Description
3.7	Non Regulatory Market Center Trading Action	• With the recent SEC regulation changes associated with trading pauses and volatility halts the UTP SIP is modifying the Market Center Trading Action message name. Recent activity in the market place does necessitate the requirement to allow for market center specific trading actions that are regulatory in nature.

Revisions Table: version 7/15/2010

Section	Revision Subject	Description
Various	Introduced new messaging for SEC Reg SHO Short Sale Trade Restricted Indicator	• Added new message format for the listing market to use in identifying securities that are subject to the short sale restriction rules set forth by the SEC.

Revisions Table: version 6/12/2012

Section	Revision Subject	Description
Various	Major message format release • Message Header • UTP Exchange Quote • Finra Participant Quote • MWCB Messages • Listing Opening Reference Midpoint	• Introduced a new message header version which modifies the date/time to time only • Introduced a new UTP Exchange Quote to include Retail Interest Indicator and adjusted size field to 7 bytes • Modified Finra Participant Quote to adjust size fields to 7 bytes • Introduced new Market Wide Circuit Breaker messaging • Introduce a new Listing market opening reference midpoint message • Included new reason codes for Halt messages

Revisions Table: version 9/20/2012

Section	Revision Subject	Description
Various	Postponement of Message Header Changes Postponement of Quote Size Change	• New message header version changes have been postponed until after LULD implementation. • Quote Size changes will be postponed and packaged with the message header changes • New Date will be announced. • Updated the Allowable Values for Reason Code

Revisions Table: version 01/14/2013

Section	Revision Subject	Description
4.2	Trading Action Reason Codes	• Updated the Allowable Values for Reason Code • Added MWC0 – Market Wide Circuit Breaker – Carry over prior day

Revisions Table: version 06/24/2013

Section	Revision Subject	Description
Various	Document clean-up to document currently supported messaging	• Removed reference to the message Header changes
	Removed all reference to the Emergency Market Condition Control Messages	• Support of the Emergency Market Messages was discontinued with the Market Wide Circuit Breaker messages implementation in April 2013.

Revisions Table: version 09/15/2014

Section	Revision Subject	Description
Various	Document clean-up to support recommendation from 2014 SEC ARP review on error code documentation	• Various changes to error code references within defined messaging per SEC ARP recommendations. • Message Length (#10) • Market Center Not Authorized (#38) • text message does not match the pre-defined format (#72) • Invalid Market Wide Circuit Breaker Declined (#81) • Invalid_Lsupdate_time (#82)
4.5	Market Wide Circuit Breaker Decline Level Message	• Removed from Document as this message is not supported. • Revised section numbering as a result of this removal.
4.6	Market Wide Circuit Breaker Status Message	• Removed from Document as this message is not supported. • Revised section numbering as a result of this removal.
5.1-5.3	Emergency Market Messages	• Removed from Document as this message is not supported. • Revised section numbering as a result of this removal.
Appendices	A - Input Error Conditions	• Removed Error Conditions no longer supported. • Market Center Not Authorized (#38) • text message does not match the pre-defined format (#72) • Invalid Market Wide Circuit Breaker Declined (#81)

Revisions Table: version 10/27/2014

Section	Revision Subject	Description
2.2.5	Message Header	Modified Header to accommodate the Participant TimeStamp changes.
5	Control Messages	Modified Control Message to reflect modified message header format

Revisions Table: version 2/06/2015

Section	Revision Subject	Description
2.2.5	Message Header	Modified Header to accommodate the addition of a second Participant TimeStamp.
5	Control Messages	Modified Control Message to reflect modified message header format

Revisions Table: version 2/06/2015

Section	Revision Subject	Description
2.2.5	Message Header	Modified Header to include the committee definitions for the new Participant Timestamps.

Revisions Table: version 11/16/2015

Section	Revision Subject	Description
2.2.5	Message Header	Added to MHORIG and MHDEST for the new market participant ID (VU = Investors' Exchange LLC)

UTP Participant Quote Line Specification

1.0 Introduction

The UTP Quote Communications Interface utilizes the TCP/IP protocol with 56 KB, T1 and fractional T1 circuits. The requirements for the TCP/IP Interface are described in section 2.

1.1 General Description

The SEC has granted Unlisted Trading Privileges (UTP) on selected NASDAQ securities to those Exchanges seeking such privileges. Each Exchange Participant which elects to quote a UTP issue must forward quote information to the Securities Information Processor, (SIP), via a Computerized Participant Line. Each Exchange will utilize their own separate participant line(s) into the SIP, or the Exchanges may share a common participant line from a central point.

Each Exchange Participant will be responsible for the collection and validation of the quotes within their own system prior to transmitting this data to the SIP. The UTP Participant Quote Line will operate from 4:00 a.m. ET through 8:00 p.m. ET each business day.

The SIP, in turn, will disseminate consolidated Quote Information for all Eligible Issues via the SIP Quote Service, and the OTC Montage Service.

2.0 Introduction: SIP UTP Interface Method

This chapter defines transmission, line discipline, message store and error recovery procedures. These definitions are necessary for computer–to–computer communications between the SIP UTP system and the participant systems.

Any participant may input to UTP over one or more logical TCP/IP connections. Each logical connection is considered a complete independent entity. UTP will not attempt to correlate input coming in over these multiple inputs. Participants with multiple input connections should insure that all transactions for any given symbol (e.g. AAAA) are transmitted on the same line throughout the day. Should any transaction for the same symbol be transmitted simultaneously over separate connections, the order of the input **will not** be guaranteed.

Error recovery techniques, such as communications hardware error detection and retries, allow a choice of user options. This permits the application modules to concern themselves with “higher level” error recovery, i.e. resetting the logical connection, etc. As part of this recovery, each participant will be supplied with four IP addresses – two for the primary Data Center and two for the disaster recovery facility. The primary site will have two active addresses to be used by each participant. In the event the primary is unavailable, each participant will be informed to switch to the disaster recovery facility and IP addresses.

2.0.1 Restart Considerations

Restart considerations essentially involve getting the system back into sync from the point of failure. This is achieved through the use of sequence numbers in the message header.
All records contain a sequence number that will provide checkpoints between the systems. The sequence number of the last record sent and received is maintained throughout the trading day.
This will facilitate trapping duplicates and maintaining data integrity. However, sequence numbers will not increment indefinitely throughout the trading day. When the sequence number reaches 99999999, the next value will be 1.

2.0.2 General Design Considerations

UTP receives and transmits variable length blocks having a maximum length of 1004. The length includes a Block Length Header, text and control characters. The number of messages contained in a block is variable. The end of each message is delimited by a Unit Separator character (US), except for the last message in the block, which ends with ETX.

Important Note: Section 2.2.10 outlines the need for a PAD character in the event of odd numbered block length, please read the section carefully.

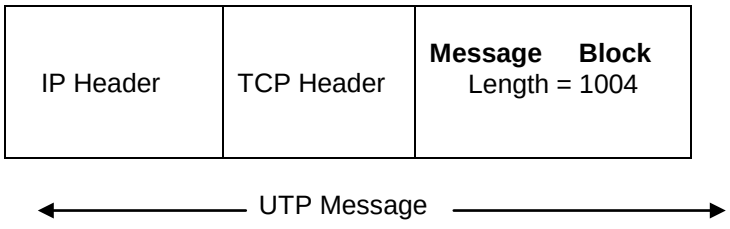
All transmissions are performed using the USASCII character set. See table 2-1 for the Modified USA Standard Code for Information Interchange.

Table 2-1

bit 7	------	------	------	---→	0	0	0	0	1	1	1	1
bit 6	------	------	------	---→	0	0	1	1	0	0	1	1
bit 5	------	------	------	---→	0	1	0	1	0	1	0	1
bit 4	bit 3	bit 2	bit 1		0	1	2	3	4	5	6	7
0	0	0	0	0	NUL	DLE	SP	0	@	P	`	P
0	0	0	1	1	SOH	DC1	!	1	A	Q	a	Q
0	0	1	0	2	STX	DC2	“	2	B	R	b	R
0	0	1	1	3	ETX	DC3	#	3	C	S	c	S
0	1	0	0	4	EOT	DC4	$	4	D	T	d	T
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	U
0	1	1	0	6	ACK	SYN	&	6	F	V	f	V
0	1	1	1	7	BEL	ETB	‘	7	G	W	g	W
1	0	0	0	8	BS	CAN	(	8	H	X	h	X
1	0	0	1	9	HT	EM	)	9	I	Y	I	Y
1	0	1	0	10	LF	SUB	*	:	J	Z	j	Z
1	0	1	1	11	VT	ESC	+	;	K	1/4	k	½
1	1	0	0	12	FF	FS	,	<	L	\	l	1/8
1	1	0	1	13	CR	GS	-	=	M	3/4	m	7/8
1	1	1	0	14	SO	RS	.	>	N	3/8	n	5/8
1	1	1	1	15	SI	US	/	?	O	_	o	DEL

Note: Leading Pad = FF ACK0 = DLE0 WACK = DLE;
Trailing Pad = FF ACK1 = DLE1 RVI = DLE<
ITB = US

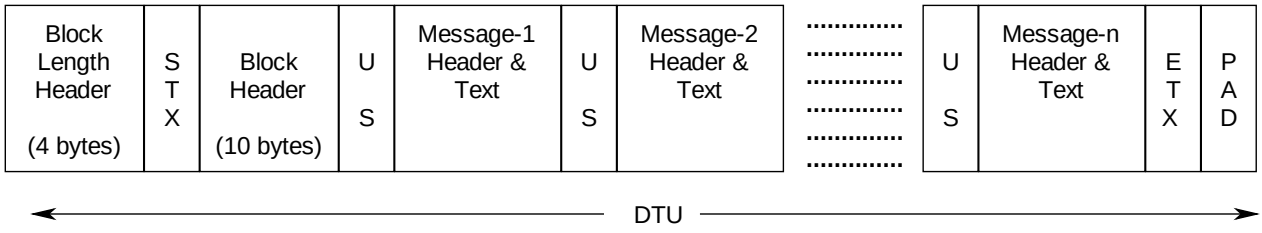
2.1 UTP Message Format



The Message Block is the data that will be built and sent by the Participant and received by the UTP/IP – SIP Line Handler.

2.2 The Message Block Format

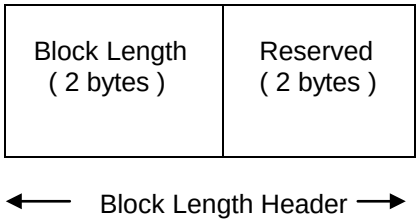
The Message Block is used for sending and receiving UTP Messages through the IP network. The Format of the Message Block is as follows:



2.2.1 Block Length Header

The Block Length Header is the total length of the block including the length of this header. This is a 4 byte binary (not ASCII) field. The byte ordering is left to right, meaning the left byte is most significant, the right byte, least significant.

Maximum Block Length is 1004 bytes. No message can span message boundaries.



2.2.2 STX Start of Text

2.2.3 Block Header

This is a 10-byte field. The first 2 bytes represent the Participant ID; the remaining 8 bytes are reserved.

Participant ID (2 bytes)	Reserved (8 bytes)

2.2.4 US Unit Separator

2.2.5 Message Header

Approved Changes:

In January 2015, the committee has requested that the SIP add an additional timestamp that would be provided by participants. This will create two new timestamps being provided by participants for inclusion on the outbound data services. The new timestamps definitions are being determined and will be provided as soon as they become available.

With the recent addition of the second timestamp requirement the Message Header release will be revised and the following proposed changes are now schedule to be implemented in July2015.

As requested by the Policy/Technical Committees, the SIPs will make modifications to the Message Header Protocol to support Participant Timestamp information in the inbound protocol specifications and the outbound data feed specifications (UQDF, UTDF & OMDF).

Additionally, as agreed to by the Participants and the SIPs, a new Transaction ID field will be supported in the Outbound Services. The Output Transaction ID information is intended for use by Participants/SIPs only and will be identified as 'Reserved for Internal Use' on the Output Specifications.

SIP Front End Processor (FEP) software will be backward compatible, allowing participants to transition from current data content to new data content. Existing message header formats and types will be used; data content will differ as follows:

- Message Destination (MHDEST) field:
  - From participant to SIP, the values of this field will be changed as follows:
    - "SU": destination is SIP, data content is in old (current) format
    - "S1": destination is SIP, data content is in new (proposed) format

    Participants providing the new (proposed) data content should specify "S1" as the destination; participants should continue to send "SU" until they are ready for the transition.
  - From SIP to participant, there are no new values for this field.

- Originating Participant (MHORIG) field:
  - From participant to SIP, there are no new values for this field.
  - From SIP to participant, the values of this field will be changed as follows:
    - "SU": originator is SIP, data content is in old (current) format
    - "S1": originator is SIP, data content is in new (proposed) format

    The SIP will continue to provide a value of "SU" until all participants have transitioned; after transition is complete, the SIP will provide a value of "S1".

- A Reserved Field will be added to accommodate for the reduction in size of the DATETM field

- Date/Time (DATETM) field will be redefined and renamed (PARTTM) to be used by participants to provide the Participant Timestamp in terms of the number of microseconds since midnight EST. The value will be a 6-byte string of ASCII-displayable characters relative to ASCII space (" ") representative of a base95 number, as follows:

Event	Wall Time ET	base95						Microseconds from midnight
SOD	03:58:00.000000	!	p	>	N	L	M	14280000000
Participant entry	04:00:00.000000	!	q	k	J	r	C	14400000000
Market Open	09:30:00.000000	$	G	t	2	a		34200000000
Random Time	10:15:05.123456	$	i	)	>	A	g	36905123456
Market Close	16:00:00.000000	'	J	0	I	L	M	57600000000
EOD	20:10:00.000000	)	D	@	&	?	>	72600000000
EOT	20:16:00.000000	)	H	g	z	R		72960000000

Please Note: For the Market Close Example the base95 code is: (‘J0lLM = “single quote, Uppercase J, zero, lowercase L, uppercase L, Uppercase M)

- MHDEST (message destination) Usage of this field is required when a participant specifies a “new content” message (i.e. MHDEST = “S1”); the field will be subjected to gross validation (i.e. does the field contain allowable characters) and rejected if it fails validation.

- MHREGREF (regional reference number) field will be used to compose a transaction identifier field in the resulting quote / trade message disseminated on the UTP data feeds. Usage of this field is required when a participant specifies a “new content” message (i.e. MHDEST = “S1”); the field will be subjected to gross validation (i.e. does the field contain allowable characters?) and rejected if it fails validation.

- A second participant timestamp field will be made available to be used by participants to provide the Participant Timestamp in terms of the number of microseconds since midnight EST. The value will be a 6-byte string of ASCII-displayable characters relative to ASCII space (“ ”) representative of a base95 number.

Transition Period:
The UTP SIP will support a transition period in order for participants to implement the new message format. Certain message types transmitted by the UTP SIP (e.g. reject, sequence number information) are generated in response to a transaction received from the participant; for the response to these message types, the UTP SIP will provide the same format as received from the participant (e.g. if new format received, return in new format). The UTP SIP also generates several types of messages in an unsolicited manner and transmits them to participants via participant input line; in these cases, the UTP SIP does not have a transaction upon which to base its message formatting decision.

Upon initial implementation of the software to support the timestamp initiative, the UTP SIP will:

- Generate all unsolicited messages in the old message format
- Format the response to a transaction based on the format received from the participant (old format input = old format response, new format input = new format response)

When a participant implements the change to submit transactions in the new format, that participant must be able to receive messages from the UTP SIP in either old format or new format.

After all participants have transitioned to the new message format, the UTP SIP will:

- Generate all unsolicited messages in the new message format
- Format the response to a transaction in new message format

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The following table illustrates all of the different message types that may be sent from the UTP SIP to participants via participant input lines, and what format of the message should be expected by participants both during and after the transition period.

						During Transition		Post-Transition	
Message from SIP to Participant	MSCA	MSTY	Participant-Supplied MHDEST	Response or Unsolicited Message from SIP	Recipient(s) of Message	Message Format from SIP	MHORIG from SIP	Message Format from SIP	MHORIG from SIP
Reject Message	A	R	SU	response	sender only	old	SU	new	S1
Reject Message	A	R	S1	response	sender only	***new***	***S1***	new	S1
Sequence Number Information	C	Q	SU	response	sender only	old	SU	new	S1
Sequence Number Information	C	Q	S1	response	sender only	***new***	***S1***	new	S1
Market Open (Participant)	A	X	SU	unsolicited	all	old	participant ID	new	participant ID
Market Open (Participant)	A	X	S1	unsolicited	all	old	participant ID	new	participant ID
Market Open (SIP)	A	X	n/a	unsolicited	all	old	SU	new	S1
Market Close (Participant)	A	Y	SU	unsolicited	all	old	participant ID	new	participant ID
Market Close (Participant)	A	Y	S1	unsolicited	all	old	participant ID	new	participant ID
Market Close (SIP)	A	Y	n/a	unsolicited	all	old	SU	new	S1
Administrative Message	A	A	n/a	unsolicited	all	old	SU	new	S1
Market Center Trading Action	A	J	n/a	unsolicited	all	old	SU	new	S1
Start of Day	C	E	n/a	unsolicited	all	old	SU	new	S1
End of Participant Reporting	C	G	n/a	unsolicited	all	old	SU	new	S1
End of Day	C	F	n/a	unsolicited	all	old	SU	new	S1
Line Integrity	C	H	n/a	unsolicited	all	old	SU	new	S1

Timestamp 1:
A participant-provided timestamp representing the number of microseconds since midnight EST. The value will be a 6-byte string of ASCII-displayable characters relative to ASCII space (" ") representative of a base95 number. The SIP will simply pass through the value provided by the participant where applicable; for transactions originating from participants not using the new input content and for SIP-generated messages, this field will contain all space (six ASCII ' ' characters).

- **If from an Exchange:** denotes the time where the quote bid price and/or the offer price for a security is designated with an Exchange's Matching Engine Publication timestamp. Exchanges use a clock sync methodology ensuring that timestamps are accurate within tolerances of 100 microseconds or less.
- **If from the FINRA Alternative Display Facility (ADF):** denotes the time of the quote bid price and/or the offer price for a security that a FINRA member reports to the FINRA Alternative Display Facility. FINRA shall convert times that its members report to it in seconds or milliseconds to microseconds and shall provide such times to the Processor in microseconds since midnight Eastern Time (ET).

Timestamp 2:
Will be used by the FINRA ADF and/or a FINRA TRF to provided timestamp representing the number of microseconds since midnight EST. The value will be a 6-byte string of ASCII-displayable characters relative to ASCII space (“ ”) representative of a base95 number. The SIP will simply pass through the value provided by the participant where applicable; for transactions originating from participants not using the new input content and for SIP-generated messages, this field will contain all space (six ASCII ‘ ’ characters).

- **If from an Exchange:** Timestamp 2 will be blank.
- **If from the FINRA Alternative Display Facility (ADF):**
  - **If the FINRA ADF provides a proprietary feed of its quotation information, then the FINRA ADF will publish the time of the quotation as also published on the facility’s proprietary feed.** FINRA shall convert times that it reports quotations on its proprietary feed in seconds or milliseconds to microseconds and shall provide such times to the Processor in microseconds since midnight Eastern Time (ET).
  - **If the FINRA ADF does not have a proprietary quotation feed, Timestamp 2 will be blank.**

Message Header This must precede each message text segment:

2.2.5.1 Old (Existing) Message Format: 29 bytes (SU message destination)

MHCAT	MHTYPE	MHORIG	MHDEST	MHMSN	DATETM	MHREGREF	MHSTAT
1	1	2	2	8	7	7	1

2.2.5.2 New (Proposed) Message Format: 35 bytes (S1 message destination)

MHCAT	MHTYPE	MHORIG	MHDEST	MHMSN	Reserved	PARTTM
1	1	2	2	8	1	6
MHREGREF	**MHSTAT**	**TMSTMP**				
7	1	6				

Field Definitions:

Field Name	Characters	Field Description
MHCAT	1	Message Category: **Refer to Section 2.2.8** for Category Definitions
MHTYPE	1	Message Type: **Refer to Section 2.2.8** for Category Definitions
MHORIG	2	Originating Participant: This field represents the Market (or Processor) responsible for generating the message on the UTP Participant Line. Under certain circumstances, one Market may act as an agent and deliver data on behalf of another Market. If this type of contractual arrangement is made, the Originator Id in the format must represent the Market responsible for the quote message and not the Market acting as agent. AU – NYSE MKT AL – NYSE MKT TRF facility BU – NASDAQ OMX BX BL – NASDAQ OMX BX TRF facility CU – National Stock Exchange Inc CL – National TRF facility IU – International Securities Exchange, LLC IL – International Securities Exchange TRF facility JU – EDGA Exchange, Inc JL – EDGA TRF Facility KU – EDGX Exchange, Inc KL – EDGX TRF Facility MU – Chicago Stock Exchange ML – Chicago TRF facility

UTP Participant Quote Line Specification

Field Name	Characters	Field Description
		ND – Financial Industry Regulatory Authority, Inc. NU – NYSE Euronext NL – NYSE Euronext TRF PU – NYSE Arca, Inc. PL – NYSE Arca TRF facility QU – NASDAQ Stock Market, LLC QL – The Trade Reporting Facility VU – Investors' Exchange LLC VL - Investors' Exchange LLC TRF WU – Chicago Board Options Exchange, Inc WL – Chicago Board Options Exchange TRF facility XU – NASDAQ OMX PHLX, Inc. XL – NASDAQ OMX PHLX TRF Facility YU – BATS Y-Exchange, Inc. YL – BATS Y-Exchange TRF Facility ZU – BATS Exchange Inc. ZL – BATS TRF facility SU – SIP Central Processor data content is in old (existing) format S1 - SIP Central Processor data content is in new (proposed) format
MHDEST	2	Message Destination: AU – NYSE MKT AL – NYSE MKT TRF facility BU – NASDAQ OMX BX BL – NASDAQ OMX BX TRF facility CU – National Stock Exchange Inc CL – National TRF facility IU – International Securities Exchange, LLC IL – International Securities Exchange TRF facility JU – EDGA Exchange, Inc JL – EDGA TRF Facility KU – EDGX Exchange, Inc KL – EDGX TRF Facility MU – Chicago Stock Exchange ML – Chicago TRF facility ND – Financial Industry Regulatory Authority, Inc. NU – NYSE Euronext NL – NYSE Euronext TRF PU – NYSE Arca, Inc. PL – NYSE Arca TRF facility QU – NASDAQ Stock Market, LLC QL – The Trade Reporting Facility VU – Investors' Exchange LLC VL - Investors' Exchange LLC TRF WU – Chicago Board Options Exchange, Inc WL – Chicago Board Options Exchange TRF facility XU – NASDAQ OMX PHLX, Inc. XL – NASDAQ OMX PHLX TRF Facility YU – BATS Y-Exchange, Inc. YL – BATS Y-Exchange TRF Facility ZU – BATS Exchange Inc. ZL – BATS TRF facility SU – SIP Central Processor data content is in old (existing) format S1 - SIP Central Processor data content is in new (proposed) format LU – All UTP Participants
MHMSN	8	Message Sequence Number: A number greater by one than the previous sequence number.
DATETM	7	Date/Time:

Field Name	Characters	Field Description
		The date and time the message was created in the Participants system. Date/Time field is YYMDHMS **NOTE:** This format will continued to be supported for participant's submitting with the old header and setting the MHDEST to "SU". **NOTE:** the following format will be supported when the MHDEST is submitted as "S1". A new 1 byte reserved field will be added preceding the PARTTM Date/Time (DATETM) field will be redefined and renamed (**PARTTM**) **TimeStamp1** A participant-provided timestamp representing the number of microseconds since midnight ET. The value will be a 6-byte string of ASCII-displayable characters relative to ASCII space (" ") representative of a base95 number. The SIP will simply pass through the value provided by the participant where applicable; for transactions originating from participants not using the new input content and for SIP-generated messages, this field will contain all space (six ASCII ' ' characters). (**Refer to Appendix C for definitions)** • **If from an Exchange:** denotes the time where the quote bid price and/or the offer price for a security is designated with an Exchange's Matching Engine Publication timestamp. Exchanges use a clock sync methodology ensuring that timestamps are accurate within tolerances of 100 microseconds or less. • **If from the FINRA Alternative Display Facility (ADF):** denotes the time of the quote bid price and/or the offer price for a security that a FINRA member reports to the FINRA Alternative Display Facility. FINRA shall convert times that its members report to it in seconds or milliseconds to microseconds and shall provide such times to the Processor in microseconds since midnight Eastern Time (ET).
OR:		
Reserved	1	
PARTTM	6	
MHREGREF	7	Regional Reference Number: For Participant's optional use; NUL filled when not used.
MHSTAT	1	Possible Duplication Flag: The Central Processor will check to determine if the message has already been processed. If so, the message will be ignored. Associated values are: 0 – No duplicate 1 – Possible duplicate
TMSTMP	6	**TimeStamp 2**: Will be used by the FINRA ADF and/or a FINRA TRF to provided timestamp representing the number of microseconds since midnight EST. The value will be a 6-byte string of ASCII-displayable characters relative to ASCII space (" ") representative of a base95 number. The SIP will simply pass through the value provided by the participant where applicable; for transactions originating from participants not using the new input content and for SIP-generated messages, this field will contain all space (six ASCII ' ' characters). (**Refer to Appendix C for definitions)** • **If from an Exchange: Timestamp 2 will be blank.** • **If from the FINRA Alternative Display Facility (ADF):** o **If the FINRA ADF provides a proprietary feed of its quotation information, then the FINRA ADF will publish the time of the quotation as also published on the facility's proprietary feed.**

Field Name	Characters	Field Description
		FINRA shall convert times that it reports quotations on its proprietary feed in seconds or milliseconds to microseconds and shall provide such times to the Processor in microseconds since midnight Eastern Time (ET). o **If the FINRA ADF does not have a proprietary quotation feed, Timestamp 2 will be blank.**

Note if the message sequence number is reset to 1 and data are sent with the possible dup flag "1", SIP will not reject the data.

2.2.6 Message Header Validation

Note: These Error Codes are a subset of a more comprehensive list. The entire list of Error Codes and Descriptions can be found in Section 4 of this document.

Error Code	Reject Description
1	Invalid Message Category (MHCAT) and Type (MHTYPE) a. If other than specified Category and Type codes in Section 2.2.8 b. If other than valid combination of Category and Type codes (Refer to Section 2.2.8)
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
4	Invalid Possible Duplicate Flag (MHSTAT)
7	Missing Message - The current Message Sequence Number is greater than expected. The SIP accepts the message
8	Duplicate Message – The current MSN is less than or equal to the last message processed. The expected MSN is not incremented. The SIP does not accept the message
11	System Not Open **a.** A trade report was transmitted to the SIP before the Trade Report SOD message was disseminated by the SIP, or **b.** After the Exchange Participant EOPR Trade Message was transmitted to the SIP or; **c.** After the EOPR Trade message was disseminated to the Exchange Participant
12	Sequence Number is not numeric
60	Invalid and Time
61	Regional Reference Number not numeric or NUL

2.2.7 Message Sequence Number System Requirements

The message sequence number incorporates specific logic that should be adhered to, based on the guidelines below for each of the message types described:

Quote Messages: Includes UTP Exchange Quote, and FINRA Market Participant Quote/BBO. These messages should include a sequence number of one greater than the previous non-null message sequence number in the Message Header.
Administrative Messages: Includes General Administrative, Trading Action, Market Open, and Market Closed. These messages should include a sequence number of one greater than the previous non-null message sequence number in the Message Header. The Reject Administrative Message should include a sequence number of one greater than the previous non-null message sequence number in all cases except for rejects 4, 7, 8 and 12. These rejects will contain a null value for the message sequence number.

Control Messages: Includes Emergency Market Halt, Emergency Market Resume, Sequence Number Information, Start of Day, End of Participant Reporting Quotes, End of Day, and Time/Line Integrity Test. These messages should contain null values for the message sequence number. The Sequence Number Inquiry Message can include either a null value or an actual sequence number of one greater than the previous non-null message sequence number.

2.2.8 Message Text

- This is defined as the actual message text for that category.
- Fixed format or free-form text may follow the Message Header, depending on the Message Category that is transmitted.
- The text portion of a free-form text message will contain a maximum of 300 characters.

2.2.9 Message Category and Type Definition

Category	Type	Origin	Definition
Administrative and Quotation Messages			
A	L	Participants	UTP Exchange Quote
A	4	Participants	UTP Exchange Quote (optional use to include Retail Interest)
A	A	All	Administrative Message
A	O	NASDAQ	Trading Action
A	J	All	Market Center Trading Action
A	1	TBD	Market Wide Circuit Breaker Decline Level message (new message type)
A	2	TBD	Market Wide Circuit Breaker Status message (new message type)
A	M	NASDAQ	Listing Market Opening Reference Midpoint (new message type)
A	R	SIP	Reject Message
A	X	Participants	Market Open
A	Y	Participants	Market Closed
A	U	Participants	UTP Participant Quote Wipe-Out
A	V	NASDAQ	Reg SHO Short Sale Restricted Indicator
Control Messages			
C	A	NASDAQ	Emergency Market Condition - Halt
C	R	NASDAQ	Emergency Market Condition - Quote Resume
C	B	NASDAQ	Emergency Market Condition - Trade Resume
C	C	Participants	Sequence Number Inquiry
C	Q	SIP	Sequence Number Information
C	E	SIP	Start of Day

C	G	All	End of Participant Reporting Quotes
C	F	SIP	End of Day
C	H	SIP	Time/Line Integrity
C	J	All	Test

All – Exchanges, SIP, FINRA
SIP - Central Processor
Participants – Exchanges, NASDAQ, FINRA

2.2.10 ETX End of Text

Note: The UTP system requires the length of the block to be an 'even' number. In the event that the length of the block is not an even number, a PAD character is required after the ETX. This will be a Hex 'FF' character.

3.0 Specific Message Text Formats

3.1 General Information

Two categories of messages may be transmitted on the UTP Participant Quote Line.
These categories include:

Category	Function
A	The A category messages are either fixed field (Quote) messages or free-form messages of variable length and format (e.g. Administrative Messages).
C	The C category messages, also known as Control messages, are fixed field messages transmitted to effect performance of a specified advisory or operational function. Except where noted otherwise (e.g., Time message) only one Control message will be transmitted in a block and no other messages should appear in that block.

The Central Processor (SIP) as well as the Participants will have the ability to send and receive the appropriate A and C category messages via the Participant line.

Every message text segment from the two categories must be preceded by the Message Header, as described in Section 2.2.5. In addition, an A or C category message may consist of a Message Header only or of a Message Header followed by a Message text segment. The following examples of each specific message type will assume that the message header is as defined, unless otherwise noted. Each category will be further delimited by its specific Type code (**Refer to Section 2.2.8**). The appropriate validations for the Category and Type will follow each individual section. The Quote Message text will be validated to ensure integrity of price and size information, if applicable. The SECID will also be validated to ensure it is UTP eligible.

If the input fails any of the message text validations, a reject message is returned to the Participant on the line from which the original message was sent. If the input passes these message validations, the Participant will not receive a positive acknowledgment that the message was accepted.

3.1.1 Quote Wipeout Procedures

In the event of system problems, Participants may invoke a quote wipeout feature, which will zero out the designated active quotes for their marketplace. Included in SIP Release 5.0 is the ability to wipe out quotes and to prevent additional quotes from being accepted by the UTP SIP during the wipeout timeframe. Lastly, Participants may elect to invoke an emergency market action condition as part of the quote wipeout process (maximum of two issues for this action) and can trigger a market center trading action halt and subsequent market center trading action resume with this type of wipeout.

3.1.2 FINRA ADF Top MPID Attribution

Under SEC REG NMS Rule 600(b)(57), the definition of protected bid and protected offer is limited to the best bid and offer (“BBO”) of a national securities exchange, Nasdaq, and the ADF. The NMS Release notes that one of the policy objectives of this definition is to treat exchange markets comparably with NASDAQ and the ADF. The Commission therefore specified that a protected bid or protected offer must be accessible by routing an order to a single protected quotation at a single trading center destination (i.e., a single exchange execution system, a single NASDAQ execution system, or a single ADF participant).

Accordingly, when two or more ADF participants are quoting at the best price for an NMS stock, the ADF must identify a single participant quotation for its best bid and size and a single participant quotation for its best offer and size. The identity of such ADF participants will be included in the Network quotation streams that are disseminated to the public.

3.1.3 UTP Symbology Changes effective January 31, 2007

Effective January 31, 2007, the NASDAQ Listing Market will have the capability to accept and distribute 1-, 2- and 3-character stock symbols for NASDAQ-listed issuers, in addition to the 4 or 5-character symbols currently used. NASDAQ plans to change its symbol suffix methodology to use a dot modifier schema for subordinate issue classes. For subordinate issue classes, the maximum symbol length will be 11 bytes, inclusive of suffixes.

In preparation for these system changes, the UTP SIP will modify its inbound participant line specifications to support a wider range of issue symbol formats. Specifically the inbound message formats will support both a long form and short form message or will replace, via a hot cut release, some existing messages.

3.1.4 Inbound Message Header Changes effective March 17, 2008

In order to be prepared for the growing traffic estimates from the UTP's, as well as being ready for a 2X peak volume day, the UTP SIP has received approval to modify the inbound message header to support an 8 byte inbound message sequence per port connection.

This enhancement will require significant inbound UTP participant message changes. This will not affect the outbound data dissemination.

The Inbound UTP connections currently use a 7-byte message sequence number for each UTP logical data channel (port) connection within the message header. For each data channel connection, the maximum message sequence number is 9,999,999. When the port connection hits the message sequence number limit the data channel connection will no longer be able to increase the message sequence number so that any data sent thereafter will be rejected by SIP even in the case that the message sequence number is reset to 1 (*).

* Exception: Note if the message sequence number is reset to 1 and data are sent with the possible dup flag "1", SIP will not reject the data.

3.1.5 Invalid Message Protocol effective March 17, 2008

When a message is received from a UTP participant the system checks the first 2 bytes of the block which indicates the block length. If the block is incorrect the application does not process the message and no notification is sent to the participant. Messages continue to be sent from the participant but are not processed; because of the invalid block length there is insufficient information to determine the next sequence number.

The following changes are being proposed to provide information to the participant when they submit an invalid block length:

1. If the block length is less than the minimum value (46 bytes) or greater than the maximum value (1004 bytes) the connection will be dropped.
2. If the block length is within the allowable range the SIP will check the sequence number for validity, an error 12 "Sequence Number Is Not Numeric" will be returned to the participant.

The SIP operations staff regularly monitors UTP connections and, if observed, will notify the participants if they experience unusual connection drops.

3.1.6 Emergency Market Condition Control Message Modifications

As a result of the recent market volatility, the UTP operating committee (UTPOC) and the UTP SIP (SIP) have been evaluating the system processing of Circuit Breaker events. The UTPOC and the SIP will modify the Emergency Market Condition processing to more closely match the current Regulatory Halt Processing. Currently the circuit breaker events only provide for a halt message and a trade resume message.

Currently, the circuit breaker events disseminated via the UTP Data Feeds only provide for a Halt message and a Trade Resume message. If the Circuit Breaker event requires trading to resume the same day, a new message will be provided (Quote Resume control), allowing for UTP participants to adjust their positions before the Circuit Breaker event is released for trading.

In June 2008, the SIP will introduce a new Control message (Category C – Type R) indicating the Emergency Market Condition - Quote Resume:

> **Emergency Market Condition - Quote Resume** (Category C - Type R)
> This message indicates that the emergency market condition has entered a quote only period.
>
> To ensure an orderly market, a quote-only window is provided for quoting participants to adjust their positions before trading resumes. During this positioning period, UTP participants may enter quotations into the marketplace for all issues. As UTP participants enter data, the SIP will calculate a National BBO. During the positioning window, the National BBO should be considered to be indicative. The Message Sequence Number field for the Emergency Market Quote Resume control message will contain a number one greater than the highest Message Sequence Number previously transmitted in the last message. Upon receipt of the Emergency Market Condition Quote Resume, market data vendors are asked to continue to show an emergency market condition indicator on quotation displays.

3.1.7 Reg SHO Short Sale Restricted Indicator

In May 2010, the SEC adopted amendments to Regulation SHO under the Securities Exchange Act of 1934. As outlined in Release Number 34-61595, the SEC is establishing a short sale-related circuit breaker that, if triggered, will impose a restriction on the prices at which securities may be sold short ("short sale price test" or "short sale price test restriction").

Under the amended rule, the SEC requires that UTP participants establish, maintain, and enforce written policies and procedures reasonably designed to prevent the execution or display of a short sale order of a covered security at a price that is less than or equal to the current national best bid if the price of that covered security decreases by 10% or more from the covered security's closing price as determined by the listing market for the covered security as of the end of regular trading hours on the prior day.

Once the price test restriction has been triggered, Rule 201 (also known as the alternative uptick rule) would apply to short sale orders in that security for the remainder of the day as well as the following day.

NASDAQ OMX will introduce a new Reg SHO Short Sale Price Test Restricted Indicator administrative message format on the UTP data feeds to indicate that an issue has breached the SEC Rule 201 short sale price test threshold. On the UTP data feeds, the Reg SHO Short Sale Price Test Restricted Indicator message will be identified as Message Category A, Message Type V.

In addition to the real-time messages, NASDAQ OMX will add a spin of Reg SHO Short Sale Price Test Restricted Indicator messages to its pre-opening processes on the UTP data feeds.

For the next UTP release to be scheduled for the 4th Quarter of 2012, the UTP SIP will introduce new inbound quotation and administrative messaging to accommodate the following three rule changes:

- **Retail Liquidity Program** – This proposed rule by the NYSE Euronext will institute a new Retail Liquidity Program for its NYSE and NYSE MKT trading venues.
- **Limit Up-Limit Down** – This rule sets forth a new process for handling market volatility issues at the single security level for all U.S. equity exchanges.
- **Market Wide Circuit Breakers –** This modified rule establishes a new benchmark and threshold triggers to be used to halt trading on all U.S. equity, options and futures exchanges in the event of a severe market downturn.

3.1.8 Retail Interest Indicator

Pending the approval of the Securities and Exchange Commission (SEC), NYSE Euronext plans to introduce a new Retail Liquidity Program for its NYSE and NYSE MKT trading venues. For details, refer to the NYSE Euronext rule filing located online at http://www.sec.gov/rules/sro/nyse/2011/34-65672.pdf.

In support of the proposed rule, the UTP SIP will be modifying the UTP Participant BBO Long Form Quotation message to add a Retail Interest Indicator field. The allowable values for the new Retail Interest Indictor field will be:

Code	Value
<space>	Retail Interest Not Applicable
A	Retail Interest on Bid Quote
B	Retail Interest on Ask Quote
C	Retail Interest on both Bid and Ask Quotes

Note: This message is being introduced in parallel with the Current UTP Exchange Quotation Message. It is intended to allow for those UTP participants planning on using the Retail Liquidity Program, introduced by NYSE and NYSE MKT, a means for inputting the Retail Interest Indicator within their BBO quote. This format will be implemented in production as part of the UTP outbound message format release scheduled for October 1, 2012.

3.1.9 SEC Limit Up / Limit Down Functionality

Note: Limit Up / Limit Down (LULD) initiative will be disseminated via the UTP outbound data feeds and UTP SIP is **NOT** going to return any data via the participants inbound connections. Participants will be required to process the UTP data feeds to receive this information.

Note: This enhancement was implemented as part of the Limit Up / Limit Down and Market Wide Circuit Breaker changes in February 4, 2013.

The Securities and Exchange Commission (SEC) has approved a pilot plan (http://www.sec.gov/rules/sro/nms/2012/34-67091.pdf), to address extraordinary market volatility in NMS Stocks by establishing a new Limit Up–Limit Down (LULD) mechanism. The new LULD procedures are designed to prevent trades in individual NMS Stocks from occurring outside of specified Upper and Lower Limit Price Bands.

Overview of LULD Functionality

- Trade prices will be the basis for the calculation and publication of Price Bands for NMS Stocks.
- Bid prices above the Upper Limit Price Bands and Offer prices below the Lower Limit Price Bands will be identified as Non-Executable and will not be included in the National Best Bid and/or National Best Offer calculations.
- National Best Bids that are below the Lower Limit Price Bands and National Best Offers that are above the Upper Limit Price Bands for NMS Stocks will be identified as Non-Executable.
- National Best Bids that are equal to the Upper Limit Price Bands and National Best Offers that are equal to the Lower Limit Price Bands for NMS Stocks will be identified as in Limit State.

Limit Up – Limit Down Price Band Messages

In support of the new LULD pilot program, the UTP SIP, shall calculate and disseminate to the public a Lower Price Band and an Upper Price Band for NASDAQ-listed securities during Regular Trading Hours.

The SIP shall calculate a Pro-Forma Reference Price on a continuous basis during Regular Trading Hours. If a Pro-Forma Reference Price has not moved by 1% or more from the Reference Price currently in effect, no new Price Bands shall be disseminated, and the current Reference Price shall remain the effective Reference Price.

When the Pro-Forma Reference Price has moved by 1% or more from the Reference Price currently in effect, the Pro-Forma Reference Price shall become the Reference Price, and the Processor shall disseminate new Price Bands based on the new Reference Price; provided however, that each new Reference Price shall remain in effect for at least 30 seconds.

For messaging details, please refer to section 4.2.7 of the UQDF specification document.

LULD Quotation Update Messages
In support of the LULD rules, the UTP SIP will be replacing the UTP Participant Best Bid and Offer (BBO) quotation messages with new messages that include new LULD Indicator fields at both the market participant's BBO and the national BBO (NBBO) level as well as a new SIP Generated Update field.

As defined in the LULD rules, the UTP SIP is required to send a quote update if one side of the market for an individual security is outside the applicable price band. The LULD Indicator would denote that the national best bid or best offer price is non-executable. When both sides of the market reach the applicable price bands, the UTP SIP is required to denote that the individual security has entered a Limit State. Trading for the security would exit a Limit State if, within 15 seconds of entering the Limit State, all Limit State Quotations were executed or canceled in their entirety. If the market did not exit a Limit State within 15 seconds, the primary listing exchange would declare a five-minute trading pause, which would be applicable to all markets trading the security.

For the new messaging, please see sections 4.1.1 and 4.1.2 of the UQDF specification document.

LULD Changes to the Trading Action Messages
As noted above, NASDAQ, as a primary listing market, has the authority to declare a five-minute trading pause for an individual security that does not exit a Limit State within 15 seconds. To support this scenario, the UTP SIP is modifying the Trading Halt-Cross SRO message format to support a new "P" (Pause) action value as well as a new "LULDP" reason code.

Limit Up – Limit Down Price Band Messages

In support of the new SEC regulations, the UTP SIP for each NMS stock, shall calculate and disseminate to the public a Lower Price Band and an Upper Price Band during Regular Trading Hours.

The SIP shall calculate a Pro-Forma Reference Price on a continuous basis during Regular Trading Hours. If a Pro-Forma Reference Price has not moved by 1% or more from the Reference Price currently in effect, no new Price Bands shall be disseminated, and the current Reference Price shall remain the effective Reference Price.

When the Pro-Forma Reference Price has moved by 1% or more from the Reference Price currently in effect, the Pro-Forma Reference Price shall become the Reference Price, and the Processor shall disseminate new Price Bands based on the new Reference Price; provided however, that each new Reference Price shall remain in effect for at least 30 seconds.

3.1.10 Market Wide Circuit Breakers
Note: This enhancement was implemented as part of the Limit Up / Limit Down and Market Wide Circuit Breaker changes in February 4, 2013.

The SEC has approved a joint SRO proposal to revise the existing market-wide circuit breakers, which halt trading in all NMS securities (as defined in Rule 600(b)(47) of Regulation NMS under the Act) in the event of extraordinary market volatility, in order to make them more meaningful in today's high-speed electronic markets.

As described in the SEC rule approval order, the market wide circuit breakers changes will: (i) replace the Dow Jones Industrial Average (DJIA) with the Standard & Poor's (S&P) 500 Index ("S&P 500") as the reference index; (ii) Recalculate the values of the threshold triggers daily rather than quarterly; (iii) reduce the 10%, 20%, and 30% market decline trigger percentages to 7%, 13%, and 20%; (iv) simply the length of the trading halts associated with each market decline level; and (v) streamline and extend the times when a market wide circuit breaker could be triggered.

The proposed Level 1, Level 2, and Level 3 circuit breakers would operate as follows:

Level 1 Halt - Before 3:25 p.m. – 15 minutes; at or after 3:25 p.m. – trading shall continue, unless there is a Level 3 halt.
Level 2 Halt - Before 3:25 p.m. – 15 minutes; at or after 3:25 p.m. – trading shall continue, unless there is a Level 3 halt.
Level 3 Halt - At any time – trading shall halt and not resume for the rest of the day.

In support of the new MWCB rules, the UTP SIP will be introducing two new administrative messages on UQDF, UTDF and OMDF.

Market Wide Circuit Breaker (MWCB) Decline Levels message
A Market Wide Circuit Breaker (MWCB) Level message will be disseminated as Category A - Type C to inform market participants of the daily MWCB decline points for the current trading day.

The MWCB Levels will set each morning based on the prior day's closing value of the S&P 500 index. Under normal circumstances, the MWCB levels will be disseminated prior to the regular market hours. In the unlikely event of an index calculation error, however, the UTP SIP reserves the right to update the MWCB levels intraday. UTP participants and UTP data feed recipients are advised to retain only the most recently disseminated levels for that trading day.

For messaging details, please refer to section 4.2.8 of the UQDF specification document.

Market Wide Circuit Breaker Status message
A Market Wide Circuit Breaker (MWCB) Status message will be disseminated as inform participants and the UTP data recipients when a MWCB has breached one of the established levels.

For messaging details, refer to section 4.2.9 of the UQDF specification document.

Following the Market Wide Circuit Breaker Status message, NASDAQ, as the primary market center, is expected to enter Trading Action – Cross SRO messages for all listed securities. To help differentiate MWCB actions from other halt actions, the UTP SIP will add new Reason code values as well.

3.1.11 Listing Market Opening Reference Midpoint

Note: This enhancement was implemented as part of the Limit Up / Limit Down and Market Wide Circuit Breaker changes in February 4, 2013.

An Opening Reference Midpoint Message will inform the SIP of the listing markets midpoint reference price required by the SIP as part of the LULD calculation requirements. The inbound message to the SIP will consist of an Originator ID participant of "QU" (NASDAQ) and a Destination value of "SU" for the SIP.

Current UTP SIP Assumptions:

- Listing market would send inbound, via the **trade lines**, to the UTP SIP all crossing trades including crosses that resulted in a zero price zero size cross.
- Listing market would send inbound, via the **trade lines**, to the UTP SIP the new Listing Market Reference Midpoint message for only those securities that had a zero price zero size cross.

3.1.12 Inbound Message Header Changes for Date/Time (Postponed)

Note:
The decision to retire the message header with the implementation of LULD/MWCB changes in February 2013 is being postponed, pending additional direction and requirements from the UTP operation committee. While there remains an open request to provide inbound a new indicator which will help the participants uniquely identify and track inbound messages, it is uncertain what this indicator should be or the requirements of what the SIP should do with this information.

It has been determined that the Message Header change will be postponed until after the LULD / MWCB release scheduled for February 4, 2013 and upon analysis of further requirements from the UTP Operating committee.

3.1.13 Quote Size for input is being modified (Postponed)

Note:
The quote size input changes are being postponed and will be reconsidered at a future date.

3.1.14 Timestamp and Transaction ID Background

In January 2015, the committee has requested that the SIP add an additional timestamp that would be provided by participants. This will create two new timestamps being provided by participants for inclusion on the outbound data services. The new timestamps definitions are being determined and will be provided as soon as they become available.

With the recent addition of the second timestamp requirement the Message Header release will be revised and the following proposed changes are now schedule to be implemented in July2015.

As requested by the Policy/Technical Committees, the SIPs will make modifications to the Message Header Protocol to support Participant Timestamp information in the inbound protocol specifications and the outbound data feed specifications (UQDF, UTDF & OMDF).

Additionally, as agreed to by the Participants and the SIPs, a new Transaction ID field will be supported in the Outbound Services. The Output Transaction ID information is intended for use by Participants/SIPs only and will be identified as 'Reserved for Internal Use' on the Output Specifications.

INBOUND UTP TIMESTAMP CHANGE			
EXISTING PARTICIPANT MESSAGE HEADER FORMAT		PROPOSED PARTICIPANT MESSAGE HEADER FORMAT (includes Participant Timestamp 2)	
Field Name	**Length**	**Field Name**	**Length**
Message Category	1	Message Category	1
Message Type	1	Message Type	1
Originating Participant ID	2	Originating Participant ID	2
Message Destination	2	Message Destination	2
Message Sequence Number	8	Message Sequence Number	8
Not Applicable	*N/A*	**reserved**	**1**
Date Time	*7*	**Timestamp 1**	**6**
Regional Reference Number	7	Regional Reference Number	7
Possible Dupe Flag	1	Possible Dupe Flag	1
Not Applicable	*N/A*	**Timestamp 2**	**6**
Total Length	**29**	**Total Length**	**35**

QUOTATION AND ADMINISTRATIVE MESSAGES:

3.2 UTP Exchange Quotation Messages

The UTP Exchange Quotation Message Text is a fixed field message. It is used to transmit Bid and Ask price and size information messages from the Exchanges to the SIP. The inbound message will contain an Originating Participant value for one of the UTP Participants, and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

Each Participant is required to enter fresh quote data for all NASDAQ issues at the beginning of each day. The SIP will not carry-over Participant Quote data from day-to-day.

3.2.1 UTP Exchange Quotation Messages

3.2.1.1 Current UTP Exchange Quotation Message

The current format of a Quote Message Text is 42 bytes:
MHCAT = A
MHTYPE = L

SECID	AQCOND	AQBPRI	AQBSZ	AQAPRI	AQASZ
11	1	10	5	10	5

3.2.1.2 Retail Price Indicator UTP Exchange Quotation Message

Note: This message will be offered in parallel with the Current UTP Exchange Quotation Message.

It is intended to allow for those UTP participants planning on using the Retail Liquidity Program, introduced by NYSE and NYSE MKT, a means for inputting the Retail Interest Indicator within their BBO quote. This format was implemented in production as part of the UTP outbound message format release scheduled for October 1, 2012.

Temporary Quote Message to support Retail Interest Indicator 43 bytes: (to be retired with LULD)
MHCAT = A
MHTYPE = 4

SECID	AQCOND	AQBPRI	AQBSZ	AQAPRI	AQASZ	AQRII
11	1	10	5	10	5	1

Quote Message Field Definitions:

Field Name	Characters	Field Description
SECID	11	NASDAQ Security Identifier: 1 to 11 alphanumeric including special characters, left justified, space filled.
AQCOND	1	Quote Condition: Alphanumeric; *A - Manual Ask, automated Bid *B - Manual Bid, automated Ask F - Fast Trading *H - Manual Bid and Ask I - Order Imbalance L - Closed Quote N - Non-firm Quote *O - Opening Quote automated *R - Regular, two-sided Open Quote automated U - Manual Bid and Ask (non-firm) *Y- automated bid, no ask; or automated ask, no bid (one-sided automated) X - Order Influx Z - No Open/No Resume * Indicates that quotation including this quote condition is NBBO eligible.
AQBPRI	10	Bid Price: 999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros.

		Decimal is implied.
AQBSZ	5	Bid Size: Stated in units of trade. Round lots (00001-99999) numeric, right justified, zero filled.
AQAPRI	10	Ask Price: 999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros. Decimal is implied.
AQASZ	5	Ask Size: Stated in units of trade. Round lots (00001-99999) numeric, right justified, zero filled.
AQRII	1	Retail Interest Indicator: Alphanumeric Retail Interest indication of interest on the Bid, Ask or both the Bid and Ask will be identified as follows: <space> - Retail Interest Not Applicable A – Retail Interest on Bid Quote B – Retail Interest on Offer Quote C – Retail Interest on both Bid and Offer Quotes

Note 1: Since the field format for quote updates is a fixed length field with an implied decimal point, be advised of the following: The SIP will not validate or reject quotes with significant digits in the third and fourth decimal place even though the industry standard calls for quotes to be in pennies.

Note 2: The following quote conditions, although valid CQS conditions are not valid in the UTP environment:
C - Closing Quotation
D - News Dissemination
P - News Pending
S - Trading Halt or opening delay due to related security
V - Trading Halt in view of common

3.2.2 Validation Processing

An Exchange Quote Message will be validated as follows:

Error Code	**Reject Description**
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open **a.** A quote update was transmitted to the SIP before the SOD message was disseminated or; **b**. After the Exchange Participant EOPR Quote message was transmitted to the SIP or; **c.** After the EOPR Quote message was disseminated to the Exchange Participant
26	Invalid SECID **a.** The SECID is not in the database or; **b.** The SECID is in a Delete state within the system
28	Invalid Price **a.** Bid or Ask Quote is equal to zero (Conditions R or H) **b.** Price fields not padded with zeros.

31	Invalid Quote Condition
36	SECID Halted A regulatory halt by the primary market is in effect for that SECID. Quote update ability suspended for a specified SECID
37	Invalid Format The format of the message is not in accordance with the Participant Input Specification **a.** Issues must have alphabetic values **b.** Invalid message format for symbol length
48	Invalid Bid Size The bid size is not in the range of 00001 to 99999
50	Invalid Ask Size The ask size is not in the range of 00001 to 99999
75	Quoting Halted by Participant
80	Invalid Retail indicator value

3.3 UTP Participant Quotation Wipeout Message

The Quote Wipe-out message will be used when a Participant requires the removal of a quote(s) due to technical reasons. Via the Quotation Wipe-out function, a Participant may eliminate a single quote, all quotes, or a range of quotes (in a contiguous alphabetic range) for which the Participant has an active quote.

As part of the quote wipeout procedure, Participants may also request that quotes for the affected issue(s) updated during the tenure of the wipeout be prohibited from reaching the SIP quote process until further notice from the Participant. Additionally, Market Centers wishing to create a market center trading action event for an issue may use this command to invoke the quote wipeout and subsequent dissemination of the market center trading action halt and resume messages.

The inbound message will contain an Originating Participant value for one of the UTP Participants, and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

3.3.1 Quote Wipe-Out Message

The current format of a Quote Wipe-Out Message Text is 24 bytes:
MHCAT = A
MHTYPE = U

WOCOMM	FSECID	LSECID	WOACTN
1	11	11	1

Quote Wipeout Message Field Definitions:

Field Name	Characters	Field Description
WOCOMM	1	Wipeout Command; This is the type of wipeout the Participant is exercising. Associated values are: F – Full quote wipeout; removes Participant's quotes in all NASDAQ-listed issues. **Note, the wipeout action cannot equal "X" or "Y" for this request.** S – Only wipeout quotes in the identified issues, with a maximum of two issues. R – Remove participant quotes for all issues found from FSECID to LSECID. **Note, the wipeout action cannot equal "X" or "Y" for this request.**
FSECID	11	First Security. 1 to 11 alphanumeric including special characters, left justified, space filled. This field must be populated for a specific issue or issue range wipeout commands.
LSECID	11	Last Security: 1 to 11 alphanumeric including special characters, left justified, space filled. This field must be populated for a specific issue if two issues are being wiped out or used if the Participant wishes to issue a range wipeout command.
WOACTN	1	Wipeout Action: This field is used to denote an emergency market action situation and should be used to determine if the SIP should accept quotes during the wipeout and if a Market Center Trading Action message for the Market Center should be processed. Associated values are: **H – EMA situation invoked**. The UTP SIP should perform the wipeout command and reject inbound quotes for the affected issue(s) from the Participant until further notice. All trade transactions reported as regular-way during this period will be marked as .Y in the sale condition field disseminated via UTDF. **R – EMA situation resolved**: The UTP SIP should allow inbound quotes from the UTP Participant for the affected issue(s) that were

		previously wiped out. **X – Market Center Specific halt situation invoked**: The UTP SIP should perform the wipeout command, reject new quotes for the affected issue(s) and disseminate a Market Center Trading Action message indicating a Market Center specific halt for the affected issue. All trade transactions reported as regular-way during this period will be marked as .Y in the sale condition field disseminated via UTDF. **Note: there is a maximum of two issues that can be processed simultaneously for this action.** **Y – Market Center Specific halt situation resolved**: The UTP SIP should disseminate a Market Center Trading Action message indicating a Market Center specific resume for the affected issue(s). **Note: there is a maximum of two issues that can be processed simultaneously for this action.** **<space>** - The UTP SIP should perform a wipeout command as a single event and continue to accept inbound quotes for the affected issue(s). This action should not be used during a market center specific halt event.

Note 1: For issue specific wipeout commands, the issue symbol (FSECID, LSECID) must exactly match the SIP issue master file.

Note 2: For a range wipe-out command, the issue symbol (FSECID, LSECID) denote the alphabetic range for the first and last issues affected by the command and do not need to exactly match the issue symbol(s) being affected. If the participant enters a partial issue symbol value the SIP recognizes that the Participant intends to include the greatest number of values.

For example if the Participant enters “A” in the FSECID field, the SIP assumes the start of the alphabetic range is “AAAAA”; if the participant enters in “ABC” in the FSECID field the SIP assumes the start of the alphabetic range is “ABCAA.” Likewise, the ranges stated in the LSECID follow the same logic. If the participant enters “B” in the LSECID field the SIP assumes the values through “BZZZZ”, if the Participant enters “BCD” in the LSECID field the SIP assumes the range is through “BCDZZ”.

Note 3: To ensure accurate quote wipeout processing, UTP SIP recommends Participants utilize one input line for quote updates for a specific issue(s).

Note 4: The allowable transition of wipeout actions is as follows:

- “H” then “R”
- “X then “Y”
- “H” then “X” then “Y”

Note 5: The following wipeout transition actions are **not** allowed;

- “H” then “Y”
- “X” then “H” or “R”

3.3.2 Validation Processing

A Quote Wipe-Out Message will be validated as follows:

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11 System Not Open	**a.** The message was transmitted to the SIP before the SOD message was disseminated or; **b**. After the Exchange Participant EOPR Quote message was transmitted to the SIP or; **c.** After the EOPR Quote message was disseminated to the Exchange Participant
26 Invalid SECID	**a.** The SECID is not in the database or; **b.** The SECID is in a Delete state within the system
37 Invalid Format	The format of the message is not in accordance with the Participant Input Specification. **a.** Improper fields updated per command type or; **b**. Invalid issue start or issue end of range for issue range wipe-out command or; **c.** Invalid range sequence; i.e. start of issue range = XXXXX; end of range = AAAAA; or **d.** Issues must have alphabetic values **e.** Improper fields populated for action type **f.** Invalid action code for wipeout command g. Invalid message format for symbol length
75	Quoting Halted by Participant
76	InvalidQuote Wipeout Action

3.4 FINRA Market Participant Quotation/BBO Message

The FINRA Market Participant Quotation Message is a fixed field message. It is used to transmit Bid and Ask price and size information messages, and associated BBO Appendages from the FINRA ADF. The inbound message will contain an Originator Id of "ND" for the FINRA ADF and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

Each ADF Participant is required to enter fresh quote data for all NASDAQ issues at the beginning of each day. The SIP will not carry-over individual MPID Participant Quote data from day-to-day.

FINRA must state the best bid and offer MPID for their marketplace in the message.

3.4.1 FINRA BBO Quote Message

This current format of an FINRA Quote Message Text is 49 bytes:
MHCAT = A
MHTYPE = G

SECID	AQCOND	MPID	MPIDDE	AQBPRI	AQBSZ	AQAPRI	AQASZ	NASDNB	NASDMP
11	1	4	1	10	5	10	5	1	1

The standard format of an FINRA quote message BBO Appendage is 31 bytes:

AQCOND	BBPRI	BBSZ	BAPRI	BASZ
1	10	5	10	5

The standard format of an FINRA ADF MPID Appendage is 8 bytes:

BMPID	AMPID
4	4

FINRA Quote Message Field Descriptions:

Field Name	Characters	Field Description
SECID	11	NASDAQ Security Identifier: 1 to 11 alphanumeric including special characters, left justified, space filled.
AQCOND	1	Quote Condition: Alphanumeric; *A - Manual Ask, automated Bid *B - Manual Bid, automated Ask F - Fast Trading *H - Manual Bid and Ask I - Order Imbalance L - Closed Quote N - Non-firm Quote *O - Opening Quote automated *R - Regular, two-sided Open Quote automated U - Manual Bid and Ask (non-firm) *Y- automated bid, no ask; or automated ask, no bid (one-sided automated) X - Order Influx Z - No Open/No Resume * Indicates that quotation including this quote condition is NBBO eligible.
MPID	4	MPID: Alphanumeric. The FINRA Market Participant responsible for generating the quote.
MPIDDE	1	MPIDDE: Alphanumeric. The office location of the FINRA Market Participant generating the quote.
AQBPRI	10	Bid Price:

		999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros. Decimal is implied.
AQBSZ	5	Bid Size: Stated in units of trade. Round lots (00001-99999) numeric, right justified, zero filled.
AQAPRI	10	Ask Price: 999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros. Decimal is implied.
AQASZ	5	Ask Size: Stated in units of trade. Round lots (00001-99999) numeric, right justified, zero filled.
NASDNB	1	FINRA BBO Appendage Indicator: Alphanumeric. This appendage indicates the type of Appendage to follow the MPID quote message. Associated Values are: A – No FINRA BBO Change; No appendage required B – No FINRA BBO exists – No calculation of the FINRA BBO C – FINRA BBO Appendage attached. A New BBO has been generated and the information is contained in the attached appendage.
NASDMP	1	FINRA MPID Appendage Indicator: Alphanumeric. This appendage indicates the type of market participant Appendage to follow. Associated Values are: A – No ADF MPID Change; No appendage required B – No ADF MPID exists – No ADF MPID appendage exists C – ADF MPID Appendage attached. A new FINRA MPID was generated and the new information is contained in the attached appendage.
BBPRI	10	Best Bid Price: This value is the best bid price for the FINRA. 999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros. Decimal is implied.
BBSZ	5	Best Bid Size: This value is the number of round lots available from the largest single FINRA Market Participant at the best bid. Stated in units of trade. Round lots (00001-99999) 3 numeric characters, right justified, zero filled.
BAPRI	10	Best Ask Price: This value is the best ask price for the FINRA. 999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros. Decimal is implied.
BASZ	5	Best Ask Size: This value is the number of round lots available from the largest single FINRA Market Participant at the best ask. Stated in units of trade. Round lots (00001-99999) 3 numeric characters, right justified, zero filled.
BMPID	4	Bid ADF MPID: The Bid ADF MPID is four bytes. This alphanumeric field indicates the single FINRA Market Participant that is responsible for generating the best bid and size portion of the FINRA ADF BBO.
AMPID	4	Ask ADF MPID: The Ask ADF MPID is four bytes. This alphanumeric field indicates the single FINRA Market Participant that is responsible for generating the best offer and size portion of the FINRA ADF BBO.

Note 1: Since the field format for quote updates is a fixed length field with an implied decimal point, be advised of the following: The SIP will not validate or reject quotes with significant digits in the third and fourth decimal place even though the industry standard calls for quotes to be in pennies.

Note 2: The following quote conditions, although valid CQS conditions are not valid in the UTP environment:

C - Closing Quotation
D - News Dissemination
P - News Pending
S - Trading Halt or opening delay due to related security
V - Trading Halt in view of common

3.4.2 Validation Processing

An FINRA Market Participant Quote Message will be validated as follows:

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open **a.** A quote update was transmitted to the SIP before the Quote SOD message was disseminated or; **b**. After the Exchange Participant EOPR Quote message was transmitted to the SIP or; **c.** After the EOPR Quote message was disseminated to the Exchange Participant.
26	Invalid SECID **a.** The SECID is not in the database or; **b.** The SECID is in a Delete state within the system
28	Invalid Price **a.** Bid or Ask Quote equal to zero. (Conditions R or H) **b.** Price fields not padded with zeros.
31	Invalid Quote Condition
36	SECID Halted A regulatory halt by the primary market is in effect for that SECID. Quote update ability suspended for a specified SECID
37	Invalid Format The format of the message is not in accordance with the Participant Input Specification
48	Invalid Bid Size The bid size is not in the range of 00001 to 99999
50	Invalid Ask Size The ask size is not in the range of 00001 to 99999
66	No MPID value submitted
68	BBO Appendage value invalid
75	Quoting Halted by Participant

4.0 Administrative Message

4.1 General Administrative Message

A General Administrative Message delivers information to Participants that normally does not get categorized into one of the other messages outlined in the specification. If the message is being sent from a Participant to the SIP, the inbound message will contain an Originator Id value for one of the UTP Participants and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

If the message is being delivered from the SIP to the Participants, the Originator Id value will be "SU" for the SIP and "LU" for the Participants.

4.1.1 Format

The format of a General Administrative Message is free-form text, with a maximum of 300 bytes:
MHCAT = A
MHTYPE = A

AMDSTN	AMSTAT	AMDATA
2	1	N

General Administrative Message Field Descriptions:

Field Name	Characters	Field Description
AMDSTN	2	Message Destination: Alphanumeric, as shown for MHDEST in Message Header.
AMSTAT	1	AMSTAT: NUL Filled.
AMDATA	N	Message Text: Free format with maximum text length of 300 characters.

4.1.2 Validation Processing

A General Administrative Message will be validated as follows:

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open - the EOD message was disseminated to the Exchange by the SIP

Note: Text exceeding the 300 byte maximum will be truncated by the SIP

4.2 Trading Action

A Trading Action Administrative Message will inform Participants of halts and other market events in the primary Market. The inbound message to the SIP will consist of an Originator Id participant of "QU" (NASDAQ) and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

Upon receipt of a Trading Action Message that signifies a Trading Halt or trading pause, all UTP Participants must discontinue delivering quote data to the SIP for that issue.

The length of a trading halt or trading pause can vary from issue to issue. If a trading halt spans multiple days, the primary Exchange will send a Trading Action Message at the start of the business day in order to signify the halt is continuing.

When an issue is ready to resume quoting, the primary market will issue a new Trading Action Message that will indicate when quoting from Participants will be permitted.

NASDAQ will generate a new Trading Action message whenever one of the attributes in the message changes the Action Date/Time field within the message will reflect the time of the most recent data change.

4.2.1 Trading Action Message

The current format of a Trading Action Message is 25 bytes:
MHCAT = A
MHTYPE = O

SECID	ACTN	DATETM	REASCD
11	1	7	6

Trading Action Message Field Descriptions:

Field Name	Characters	Field Description
SECID	11	NASDAQ Security Identifier: 1 to 11 alphanumeric including special characters, left justified, space filled.
ACTN	1	Action: Alphanumeric. Indicates the current trading status for the respective issue. Associated Values are: H – Trading Halt Q – Quote Resumption P – Volatility Trading Pause T – Trading Resumption
DATETM	7	Date/Time: Alphanumeric. This field reflects the date and time the action occurred. **Refer to Appendix C for definitions.**
REASCD	6	Reason Code: Alphanumeric. Alphanumeric. Indicates the reason for the trading action. Associated halt values are: T1 – Halt News Pending T2 – Halt News Dissemination T5 - Single Stock Trading Pause In Affect T6 – Regulatory Halt Extraordinary Market Activity T8 – Halt ETF T12 – Trading Halted; For Information Requested by NASDAQ H4 – Halt Non Compliance H9 – Halt Filings Not Current

Field Name	Characters	Field Description
		H10 – Halt SEC Trading Suspension H11 – Halt Regulatory Concern O1 – Operations Halt – Contact Trading Operations IPO1 – IPO Issue – Not Trading Yet M1 – Corporate Action M2 – Quotation Not Available LUDP - Volatility Trading Pause MWC1 - Market Wide Circuit Breaker Halt – Level 1 MWC2 - Market Wide Circuit Breaker Halt – Level 2 MWC3 - Market Wide Circuit Breaker Halt – Level 3 MWC0 - Market Wide Circuit Breaker Halt – Carry over prior day Associated resumption values are: T3 – News and Resumption Times T7 – Single Stock Trading Pause/Quotation-Only Period R4 – Qualifications Issues Reviewed/Resolved; Quotations/Trading to Resume R9 – Filing Requirements Satisfied/Resolved; Quotations/Trading to Resume C3 – Issuer News Not Forthcoming; Quotations/Trading to Resume C4 – Qualifications Halt Ended; Maintenance Requirements Met; Resume C9 – Qualifications Halt Concluded; Filings Met; Quotes/Trades to Resume C11 – Trade Halt Concluded By Other Regulatory Authority; Quotes/Trades Resume R1 – New Issue Available R2 – Issue Available IPOQ – IPO security released for quotation IPOE – IPO security – positioning window extension. MWCQ - Market Wide Circuit Breaker Quote Resumption Space – Reason Not Available

4.2.2 Validation Processing

A Trading Action Message will be validated as follows:

Error Code	**Reject Description**
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open
26	Symbol not valid for a NASDAQ issue
37	Invalid Format The format of the message is not in accordance with the Participant Input Specification

4.3 Market Center Trading Action

A Market Center Trading Action Administrative Message will inform Participants that another Market Center has ceased trading an issue for their Market Center only, resulting from a system issue or from a market center specific regulatory event.

The inbound message to the SIP will consist of an Originator Id of one of the UTP Participants and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

If the message is being delivered from the SIP to the Participants, the Originator Id value will be "SU" for the SIP and "LU" for the Participants.

The length of time for a market center trading halt can vary from issue to issue. If a trading halt spans multiple days, the Market Center will send the Market Center Trading Action Message at the start of the business day in order to signify the halt is continuing for that day. When an issue is ready to resume quoting and/or trading, the Market Center will issue a new Market Center Trading Action Message that will indicate when quoting and/or trading will be permitted.

4.3.1 Market Center Trading Action

The current format of a Market Center Trading Action Message is 20 bytes:
MHCAT = A
MHTYPE = J

SECID	ACTN	DATETM	Market Center
11	1	7	1

Trading Action Message Field Definitions:

Field Name	Characters	Field Description
SECID	11	NASDAQ Security Identifier: 1 to 11 alphanumeric including special characters, left justified, space filled.
ACTN	1	Action: Alphanumeric. Indicates the current trading status for the respective issue. Associated Values are: H – Trading Halt Q – Quote Resumption P – Volatility Trading Pause T – Trading Resumption
DATETM	7	Date/Time: Alphanumeric. This field reflects the date and time the action occurred. **Refer to Appendix C for definitions.**
Market Center	1	Market Center: Alphanumeric. Indicates the Market Center requesting the action.

Note: Market Centers are expected to mark its quotations on UTP Quotation Data Feed (UQDF) with the appropriate Quote Condition code related to their current BBO in the issue.

4.3.2 Validation Processing

A Market Center Trading Action Message will be validated as follows:

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open
26	Invalid SECID

37	Invalid Format The format of the message is not in accordance with the Participant Input Specification

4.4 Reg SHO Short Sale Price Test Restricted Indicator

A Reg SHO Short Sale Price Test Restricted Indicator message will inform Participants when an issue has breached the Short Sale Price Test threshold. The inbound message to the SIP will consist of an Originator Id from the listing participant ("QU" for NASDAQ OMX) and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

Upon receipt of a Reg SHO Short Sale Price Test Restricted Indicator Message, all UTP Participants must discontinue delivering of short sale trade data to the SIP for that issue unless it meets the SEC or SRO exemption requirements. It is the responsibility of each UTP participant to validate that the trade report meets the new Short Sale rules prior to submission to the SIP.

The length of a trading restriction will generally remain in effect for the remainder of the current trading day and for the next trading day. However, there can be situations where the trading restriction was enacted due to erroneous activity and the listing market may submit a Reg SHO Short Sale Price Test Restricted Indicator release. If a trade restriction spans multiple days, the listing market will send a new Reg SHO Short Sale Price Test Restricted Indicator Message at the start of the business day in order to signify the trading restriction is still in effect.

4.4.1 Reg SHO Short Sale Price Test Restricted Indicator Message

The format is 12 bytes:
MHCAT = A
MHTYPE = V

SECID	SSRACTN
11	1

Reg SHO Short Sale Price Test Restricted Indicator Message Field Descriptions:

Field Name	Characters	Field Description
SECID	11	NASDAQ Security Identifier: 1 to 11 alphanumeric including special characters, left justified, space filled.
SSRACTN	1	Reg SHO Short Sale Restricted Action: Alphanumeric. Denotes the Reg SHO Short Sale Price Test Restriction status for the issue at the time of the message dissemination. Allowable values are: "0" = No price test in place "1" = Reg SHO Short Sale Price Test Restriction in effect due to an intra-day price drop in security "2" = Reg SHO Short Sale Price Test Restriction remains in effect

4.4.2 Validation Processing

A Short Sale Price Test Restricted Indicator Message will be validated as follows:

Error Code	**Reject Description**
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open
26	Symbol not valid for a NASDAQ issue
37	Invalid Format The format of the message is not in accordance with the Participant Input Specification

Please Note: The Listing Market Opening Reference Midpoint Message is provided in the inbound Quote specifications for informational purposes only. The UTP SIP will only accept inbound receipt of this from the listing market via trade ports.

4.5 Listing Market Opening Reference Midpoint

Note: This enhancement was implemented as part of the Limit Up / Limit Down and Market Wide Circuit Breaker changes in February 4, 2013.

An Opening Reference Midpoint Message will inform the SIP of the listing markets midpoint reference price required by the SIP as part of the LULD calculation requirements. The inbound message to the SIP will consist of an Originator ID participant of "QU" (NASDAQ) and a Destination ID of either "SU" (old header format) or "S1" (new header format) for the SIP.

4.5.1 Listing Market Opening Reference Price Midpoint Message

The format of an Opening Reference Midpoint Price message is 21 bytes on top of the header message:
MHCAT = A
MHTYPE = M
Header

MHCAT	MHTYPE	MHORIG	MHDEST	MHMSN	DATETM	MHREGREF	MHSTAT
1	1	2	2	8	7	7	1

SECID	MPTPrice
11	10

Field Name	Characters	Field Description
SECID	11	NASDAQ Security Identifier: 1 to 11 alphanumeric including special characters, left justified, space filled.
MPTPrice	10	Opening reference midpoint price: 999999v9999. 6 whole dollar numeric and 4 decimal numeric. Pad with zeros. Decimal is implied.

4.5.2 Validation Processing

Error Code **Reject Description**

1 Invalid Message Category (MHCAT) and Type (MHTYPE)
a. If other than specified Category and Type codes in Section 2.2.8
b. If other than valid combination of Category and Type codes (**Refer to Section 2.2.8**)

2 Invalid User Origin (MHORIG)

3 Invalid Message Destination (MHDEST)

4 Invalid Possible Duplicate Flag (MHSTAT)

7 Missing Message - The current Message Sequence Number is greater than expected. The SIP accepts the message

8 Duplicate Message - The current MSN is less than or equal to the last message processed. The expected MSN is not incremented. The SIP does not accept the message

11 System Not Open
a. A trade report was transmitted to the SIP before the Trade Report SOD message was disseminated by the SIP, or
b. After the Exchange Participant EOPR Trade Message was transmitted to the SIP or;

c. After the EOPR Trade message was disseminated to the Exchange Participant

12 Sequence Number Not Numeric

26 Invalid SECID
a. The SECID is not in the database or;
b. The SECID is in a delete state within the database

28 Invalid Price
a. The Price is not numeric

37 Invalid Format
The format of the message is not in accordance with the Participant Input Specification

60 Invalid Date and Time

61 Regional Reference Number not numeric or NUL

4.6 Reject Message

The SIP will return those messages, which have not passed the message text validation, to the Exchange Participants via the Participant Line. Messages may not be returned in the order in which they are received by the Processor. The Originator Id will contain “SU” for the SIP and the Destination Id will identify the Participant experiencing the data problem.

4.6.1 Reject Message Format

MHCAT = A
MHTYPE = R

The current format of a Reject Message:

ARERR	ARMSG
2	N

The Current format of Error Code 7 is as follows:

ARERR	ARMSN1	ARREGREF	ARMSN2
2	8	7	31

Reject message Field Descriptions:

Field Name	Characters	Field Description
ARERR	2	Error Code: Alphanumeric. Contains error code for the first diagnosed error. **Refer to Appendix Section 4.1**, Input Error Conditions. Right justified, zero filled.
ARMSG	N	Message Text: All error codes excluding **Error Code 7**. All characters from start of the message header to the ending character of the message in error are returned in this field.

Error Code 7 Field Descriptions:

Field Name	Characters	Field Description
ARERR	2	Error Code 7
ARMSN1	8	Last Accepted Message Sequence Number.
ARREGREF	7	Last Accepted Regional Reference Number - may be NUL filled if Participant chooses not to use regional Reference Numbers.
ARMSN2	31	Contains Participant inbound Message Sequence Number and all other header information for the current message.

4.7 Market Open - Category A, Type X

The Market Open Message will be transmitted to indicate when participant quotes should be marked as opened. Prior to the receipt of the Market Open message, all quotations are considered closed. Upon receipt of the Market Open message, quotations that have been transmitted during the current day prior to the receipt of the Market Open will be considered opened. The message will contain an Originator Id value of one of the UTP Participants and a Destination ID of either “SU” (old header format) or “S1” (new header format) for the SIP.

The SIP will continue to accept a value of “SU” until all participants have transitioned; after transition is complete, the SIP will accept a value of “S1”.

Note1: If a Participant delivers a Market Open Message to the SIP, it is required that the Participant also delivers a Market Closed Message when that Participants market has closed for the day.

4.7.1 Format

The standard format of a Market Open Message consists of the Message Header only:
MHCAT = A
MHTYPE = X

Refer to section 2.2.5 for Field Definitions.

4.7.2 Validation Processing

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
4	Invalid Possible Duplicate Flag (MHSTAT)
8	Duplicate Message Sequence Number
11	System Not Open

4.8 Market Closed - Category A, Type Y

The Market Closed message will be transmitted by the Exchange Participant to indicate that the trading session is ready to close. The message will contain an Originator ID value of one of the UTP Participants and a Destination Id of either “SU” (old header format) or “S1” (new header format) for the SIP.

The SIP will continue to accept a value of “SU” until all participants have transitioned; after transition is complete, the SIP will accept a value of “S1”.

Note 1: If a Participant has delivered a Market Open Message to the SIP, it is required that the Participant also deliver the Market Closed Message when the Participants market has closed for the day.

Note 2: If the Participant attempts to deliver a Market Closed message, they must have previously delivered a Market Opened message.

4.8.1 Format

The standard format of a Market Close Message consists of the Message Header only:

MHCAT = A
MHTYPE = Y

Refer to section 2.2.5 for Field Definitions.

4.8.2 Validation Processing

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
4	Invalid Possible Duplicate Flag (MHSTAT)
8	Duplicate Message Sequence Number
11	System Not Open
62	Market Open Message not received

5.0 Control Messages:

Control Messages are utilized to inform the user(s) of various conditions and events during the trading day. Control Messages generated from the SIP will be sent to recipients on all lines (channel) employed by the recipient.

Certain Control Messages are delivered by the Participants to the SIP. Participants that plan to deliver traffic across multiple lines (channels) should be prepared to send Control Messages across all lines (channels) utilized for Quote Messages. For example, if a Participant splits message traffic via an alphabetic split of A-J on one line (channel) and K-Z on a second line (channel) then all Control Messages sent by the Participant to the SIP are expected to be delivered across both lines (channels).

Message Header Format

Refer to section 2.2.5 for Field Definitions.

5.1 Sequence Inquiry - Category C, Type C

The Sequence Inquiry message will be used by Exchange Participants for message sequence number synchronization purposes. The SIP, upon receipt of this message, will transmit back to the inquiring system a Sequence Number Information message (Category C, Type Q) containing the sequence number of the last message received by the SIP. The inbound message will contain an Originator Id of one of the UTP Participants and a Destination Id of either “SU” (old header format) or “S1” (new header format).

5.1.1 Format

The Message Header Category and Type codes are:

MHCAT = C
MHTYPE = C

The format of Sequence Inquiry is a 5 byte, Reserved field:

RESERVED
5

Field Name	Characters	Field Description
RESERVED	5	NUL Filled

5.2 Sequence Information - Category C, Type Q

This message will be sent to an Exchange Participant as a response to a Sequence Inquiry. The outbound message will contain an originator Id of “SU” for the SIP and a Destination of one of the UTP Participants.

5.2.1 Format

The Current format of a Sequence Information Message is 15 bytes:
MHCAT = C
MHTYPE = Q

CNMSN	RESERVED
8	7

Sequence Information Message Field Definitions:

Field Name	Characters	Field Description
CNMSN	8	Last Message Sequence Number received by the SIP.
RESERVED	7	Last Regional Reference Number received by the SIP. May be NUL filled if Participant chooses not to use Regional Reference Numbers.

5.3 Start of Day (SOD) - Category C, Type E

The Start of Day (SOD) Message will consist of the Message Header. Only one Control Message may be transmitted in a block to the Exchange Participants and no other message will appear in that block. This message will contain an Originator Id of “SU” for the SIP and a Destination Id of “LU” for all Participants.

As a result of the UTP approved Message Header enhancement, the following messages will retain their current Category and Type values and only the header format will be changed:

Message Header Format

Refer to section 2.2.5 for Field Definitions.

5.3.1 Format

MHCAT = C
MHTYPE = E

The format of a Start of Day Message consists of the Message Header only:

Refer to section 2.2.5 for Field Definitions.

The following fields in the Message Header will include the values stated in the table below:

Field Name	Characters	Field Description
MHMSN	8	Message Sequence Number - NUL filled
MHREGREF	7	Regional Reference Number - Always seven NUL characters
MHSTAT	1	Possible Duplication Flag - Always 0 indicating “No Poss Dup”

5.4 End of Participant Reporting (EOPR) Quotes - Category C, Type G

At the completion of its scheduled trading day, each exchange participant will transmit the EOPR Quotes message to the SIP. This message indicates that the originating Exchange Participant will not transmit any further quote update messages to the SIP. The inbound message will contain an Originator Id of one of the UTP Participants and a Destination Id of "SU" SIP.

As part of the shutdown process, the SIP will also distribute an End of Participant Quote Reporting Message on behalf of any Participant who remains open. This message will initially be disseminated at 18:35 p.m. ET and will contain an Originator Id of "SU" for the SIP and a Destination of "LU" for all Participants.

Note: Participants must be able to process an EOPR Message from the SIP even in the event the Participant has previously delivered an EOPR Message to the SIP.

5.4.1 Format

The End of Participant Reporting (EOPR) Quotes Message will consist of the Message Header only. Only one Control Message may be transmitted in a block to and from the Exchange Participants and no other message will appear in that block. The Message Header Category and Type codes are:

MHCAT = C
MHTYPE = G

The format of an end of Participant Reporting Quote Message consists of the Message Header only:

Refer to section 2.2.5 for Field Definitions.

The following fields in the Message Header will include the values stated in the table below:

Field Name	Characters	Field Description
MHMSN	8	Message Sequence Number - NUL filled
MHREGREF	7	Regional Reference Number - Always seven NUL characters
MHSTAT	1	Possible Duplication Flag - Always 0 indicating "No Poss Dup"

5.4.2 Validation Processing

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
4	Invalid Possible Duplicate Flag (MHSTAT)
8	Duplicate Message Sequence Number
11	System Not Open

5.5 End of Day - Category C, Type F

This message will be transmitted by the SIP to the Exchange Participants to indicate that it has no data or control messages for the receiving Exchange Participants and is shutting down for the day. The End of Day (EOD) Message will consist of the Message Header only. Only one Control Message may be transmitted in a block to and from the Exchange Participants and no other message will appear in that block. This message will contain an Originator Id of “SU” for the SIP and a Destination Id of “LU” for all Participants.

5.5.1 Format

MHCAT = C
MHTYPE = F

The format of an End of Day Message consists of the Message Header only:

Refer to section 2.2.5 for Field Definitions.

The following fields in the Message Header will include the values stated in the table below:

Field Name	Characters	Field Description
MHMSN	8	Message Sequence Number - NUL filled
MHREGREF	7	Regional Reference Number - Always seven NUL characters
MHSTAT	1	Possible Duplication Flag - Always 0 indicating “No Poss Dup”

5.6 Time/Line Integrity - Category C, Type H

This message will be transmitted by the SIP to each Exchange Participant at 1-minute intervals. Its primary function is to provide verification of line integrity during periods of inactivity. However, this message will also be transmitted during periods of activity. This message will consist of the Message Header only. The outbound message will contain an Originator Id of “SU” for the SIP and a Destination Id of “LU”.

5.6.1 Format

MHCAT = C
MHTYPE = H

The format of a Time/Line Integrity Message consists of the Message Header only:

Refer to section 2.2.5 for Field Definitions.

The following fields in the Message Header will include the values stated in the table below:

Field Name	Characters	Field Description
MHMSN	8	Message Sequence Number - NUL filled
MHREGREF	7	Regional Reference Number - Always seven NUL characters
MHSTAT	1	Possible Duplication Flag - Always 0 indicating “No Poss Dup”

5.7 Test - Category C, Type J

This message may be transmitted by either the SIP or an Exchange Participant at any time during the day. Its function is to exercise the line to verify transmission integrity. The Message consists of the Header and pre-defined text field. The inbound message will contain an Originator Id of one of the UTP Participants and a Destination Id of either “SU” (old header format) or “S1” (new header format) for the SIP.

5.7.1 Format

MHCAT = C
MHTYPE = J

The format of a Test Message consists of the Message Header only:

Refer to section 2.2.5 for Field Definitions.

The following fields in the Message Header will include the values stated in the table below:

Field Name	Characters	Field Description
MHMSN	8	Message Sequence Number - NUL filled
MHREGREF	7	Regional Reference Number - Always seven NUL characters
MHSTAT	1	Possible Duplication Flag - Always 0 indicating “No Poss Dup”

Text:

C5DATA
96

Test Message Field Definitions:

Field Name	Characters	Field Description
C5DATA	96	This field will consist of all the USACII characters starting with hexadecimal 20 up to and including hexadecimal 7F, in collating sequence.

5.7.2 Validation Processing

Error Code	Reject Description
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
8	Duplicate Message Sequence Number
11	System Not Open

6.0 Appendices

A – Input Error Conditions

Error Code	Reject Description
1	Invalid Message Category (MHCAT) and Type (MHTYPE)
	a. If other than specified Category and Type codes in section 2.2.8.
	b. If other than valid combination of Category and Type codes (**Refer to section 2.2.8**).
2	Invalid User Origin (MHORIG)
3	Invalid Message Destination (MHDEST)
4	Invalid Possible Duplicate Flag (MHSTAT)
7	Missing Message - The current Message Sequence Number is greater than expected. The message is accepted by the SIP.
8	Duplicate Message - The current MSN is less than or equal to the last message processed. **The expected MSN is not incremented.** The message is not accepted by the SIP.
11	System Not Open
	a. The EOD message was disseminated to the Participant by the SIP or;
	b. A quote update was transmitted to the SIP before the Quote SOD message was disseminated or;
	c. After the Participant EOPR Quote message was transmitted to the SIP or;
	d. After the SIP EOPR Quote message was disseminated to the Participant
12	Sequence Number is Not Numeric. The message is not accepted by the SIP.
26	Invalid SECID
	a. The SECID is not in the database or;
	b. The SECID is in a Delete state within the system
28	Invalid Price
31	Invalid Condition - The quote condition is other than a valid quote condition.
	Valid quote conditions are as follows:
	A - Manual Ask, automated Bid
	B - Manual Bid, automated Ask
	F - Fast Trading
	H - Manual Bid and Ask
	I - Order influx
	N - Non-firm quote
	O - Opening quote

	R - Regular, Open quote
	U - Manual Bid and Ask (non-firm)
	Y - automated bid, no offer; or automated offer, no bid (one-sided automated)
	X - Order Imbalance
	Z - No open/no resume
36	SECID Halted
	A regulatory halt by the primary market is in effect for that SECID. Quote update ability suspended for a specified SECID.
37	Invalid Format
	The format of the message is not in accordance with the Participant Input Specification.
	a. Improper fields updated per command or;
	b. Invalid issue start or issue end of range for issue range wipe-out command or;
	c. Invalid range sequence; i.e. start of issue range = XXXXX; end of range = AAAAA or;
	d. Issues must have alphabetic values.
	e. Improper fields populated for action type
	f. Invalid action code for wipeout command
	g. Invalid message format for symbol length
48	Invalid Bid Size
	The bid size is not in the range of 00001 to 99999.
50	Invalid Ask Size
	The ask size is not in the range of 00001 to 99999.
60	Invalid Date and Time
	The time/date in the message is not for a valid calendar date or time.
61	Regional Reference Number not numeric or NUL.
62	Market Open Message not received
	A Market Closed message is being delivered on a day when the SIP has not received a Market Open message for the Participant.
66	No MPID value submitted with message
	a. The FINRA ADF quote message does not include an MPID value in the message.
	b. The MPID in the expanded UTP Quote message does not contain a value.
68	BBO Appendage Invalid
	The BBO Appendage in the FINRA ADF quote message does not contain a valid BBO Appendage value.
75	Quoting Halted by Participant

76	Invalid Quote Wipeout Action
77	Invalid Reason Code
79	Market Wide Halt - EMC
	A market wide regulatory halt is in effect for all SECID's. Quote update ability suspended.
80	Invalid Retail Interest Indicator

B – Glossary

Connection: Transmission path (including all equipment) between a sender and receiver.

IP Address: The IP Address together with the Well Known Port, is used to establish a connection to the SIP in order to send and receive UTP TCP/IP Messages. NASDAQ will assign this.

Nulls: The value of the lowest occurrence in the ASCII character set (Binary zero)

TCP/IP: Transmission Control Process/Internet Protocol. A method which allows communications to take place between heterogeneous systems in a multi-network environment (i.e. Internet).

Well Known Port: Identifier (5 bytes) combined with an IP Address to form a socket (connection) name. NASDAQ will assign this.

C – ASCII Conversion matrix

ASCII
From HwB
ASCII=American Standard Code for Information Interchange

ASCII Char	Dec	Hex	Description	base64 Time Digit (SU-MHDEST) Date/Time YYMDHMS	base95 Time Digit (S1 -MHDEST) microseconds from midnight
	32	20	Space		0
!	33	21	Exclamation		1
"	34	22	Double quotes		2
#	35	23	Number		3
$	36	24	Dollar		4
%	37	25	Percent		5
&	38	26	Ampersand		6
'	39	27	Single Quote		7
(	40	28	Open Parenthesis		8
)	41	29	Close Parenthesis		9
*	42	2A	Asterisk		10
+	43	2B	Plus		11
,	44	2C	Comma		12
-	45	2D	Hyphen		13
.	46	2E	Period		14
/	47	2F	Slash or Divide		15
0	48	30	Zero	0	16
1	49	31	One	1	17
2	50	32	Two	2	18
3	51	33	Three	3	19
4	52	34	Four	4	20
5	53	35	Five	5	21
6	54	36	Six	6	22
7	55	37	Seven	7	23
8	56	38	Eight	8	24
9	57	39	Nine	9	25
:	58	3A	Colon	10	26
;	59	3B	Semicolon	11	27
<	60	3C	Less than	12	28
=	61	3D	Equals	13	29
>	62	3E	Greater than	14	30
?	63	3F	Question mark	15	31
@	64	40	At symbol	16	32
A	65	41	Uppercase A	17	33
B	66	42	Uppercase B	18	34
C	67	43	Uppercase C	19	35
D	68	44	Uppercase D	20	36
E	69	45	Uppercase E	21	37
F	70	46	Uppercase F	22	38
G	71	47	Uppercase G	23	39
H	72	48	Uppercase H	24	40
I	73	49	Uppercase I	25	41
J	74	4A	Uppercase J	26	42
K	75	4B	Uppercase K	27	43
L	76	4C	Uppercase L	28	44
M	77	4D	Uppercase M	29	45
N	78	4E	Uppercase N	30	46
O	79	4F	Uppercase O	31	47
P	80	50	Uppercase P	32	48
Q	81	51	Uppercase Q	33	49
R	82	52	Uppercase R	34	50
S	83	53	Uppercase S	35	51
T	84	54	Uppercase T	36	52
U	85	55	Uppercase U	37	53
V	86	56	Uppercase V	38	54
W	87	57	Uppercase W	39	55
X	88	58	Uppercase X	40	56
Y	89	59	Uppercase Y	41	57
Z	90	5A	Uppercase Z	42	58
[	91	5B	Opening bracket	43	59
\	92	5C	Backslash	44	60
]	93	5D	Closing bracket	45	61
^	94	5E	Caret	46	62
_	95	5F	Underscore	47	63
`	96	60	Grave accent	48	64
a	97	61	Lowercase a	49	65
b	98	62	Lowercase b	50	66
c	99	63	Lowercase c	51	67
d	100	64	Lowercase d	52	68
e	101	65	Lowercase e	53	69
f	102	66	Lowercase f	54	70
g	103	67	Lowercase g	55	71
h	104	68	Lowercase h	56	72
i	105	69	Lowercase i	57	73
j	106	6A	Lowercase j	58	74
k	107	6B	Lowercase k	59	75
l	108	6C	Lowercase l	60	76
m	109	6D	Lowercase m	61	77
n	110	6E	Lowercase n	62	78
o	111	6F	Lowercase o	63	79
p	112	70	Lowercase p		80
q	113	71	Lowercase q		81
r	114	72	Lowercase r		82
s	115	73	Lowercase s		83
t	116	74	Lowercase t		84
u	117	75	Lowercase u		85
v	118	76	Lowercase v		86
w	119	77	Lowercase w		87
x	120	78	Lowercase x		88
y	121	79	Lowercase y		89
z	122	7A	Lowercase z		90
{	123	7B	Opening Brace		91
|	124	7C	Vertical Bar		92
}	125	7D	Closing Brace		93
~	126	7E	Equivalency Sign-Tilde		94

Event	Wall Time ET	base95						Microseconds from midnight
SOD	03:58:00.000000	!	p	>	N	L	M	14280000000
Participant entry	04:00:00.000000	!	q	k	J	r	C	14400000000
Market Open	09:30:00.000000	$	G	t	2	a		34200000000
Random Time	10:15:05.123456	$	i	)	>	A	g	36905123456
Market Close	16:00:00.000000	'	J	0	I	L	M	57600000000
EOD	20:10:00.000000	)	D	@	&	?	>	72600000000
EOT	20:16:00.000000	)	H	g	z	R		72960000000