

# NASDAQ Index Dissemination Service<sup>SM</sup> (NIDS<sup>SM</sup>)

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# 1.0 Introduction

# 1.1 Background Information

To track the movement of its marketplace, NASDAQ<sup>®</sup> has created a number of broad-based and sector indices. Over the years, NASDAQ index products have proved to be popular with investors and traders. Today, there are a large number of derivative products and mutual funds designed to emulate the NASDAQ-100 Index<sup>®</sup>, NASDAQ Composite Index<sup>®</sup>, and other NASDAQ index products.

NASDAQ also offers a number of exchange traded fund (ETF) products for traders and investors. ETF's offer the advantage of trading an index portfolio with the ease of stock trading. Investors can purchase ETF shares on margin, short sell shares, or hold for the long term. Investors also achieve market exposure consistent with the Index on which they are based, through one security. ETF's are also designed to be cost efficient because they are based on an Index, rather than being actively managed.

To facilitate the transmission of index and ETF data, NASDAQ implemented the NASDAQ Index Dissemination Service<sup>SM</sup> (NIDS<sup>SM</sup>) data feed product in 2003. Today, the NIDS data feed features the following data elements:

- For NASDAQ Index Products:
  - Intra-day net asset values Index Opening Value based on the underlying NASDAQ Official Opening Price (NOOP) of each component security for select NASDAQ indices
  - o Daily security component and weightings data
- For NASDAQ-listed Exchange Traded Funds (ETFs):
  - Intra-day portfolio values (IPVs)
  - Daily valuation information such as the Net Asset Value per Share, the Estimated Cash per Share (also known as Net Accrued Dividend per Share), the Estimated Cash per Creation Unit, the total Cash per Creation Unit, and the Total Shares Outstanding of the fund

For the current list of NASDAQ indexes and ETF valuation symbols, please refer to <u>NIDS Symbol List</u> on the NASDAQ Trader website.

# 1.2 Upcoming Data Feed Changes

No current data feed format changes scheduled. Within this version of the document we are making revisions to terminology only and revising any reference to Opening Value to be referred to as Settlement Value.

# 1.3 Connectivity Options

As of November 2004, NASDAQ offers direct access to its data feeds through extranet providers: Please visit the following site for a list of current providers: <u>http://www.nasdagtrader.com/trader/mds/nasdagfeeds/datadev.stm</u>

These extranet providers are connected directly to the NASDAQ data centers, located in Trumbull, Connecticut and Rockville, Maryland. NASDAQ has configured its data centers to support full disaster recovery capabilities in the event of an emergency.

# 1.4 Data Entitlement

NASDAQ offers separate monthly distributor fees for access to NASDAQ real-time index data only. For the current real-time index fee structure, please refer to the NASDAQ Pricing section of the NASDAQ Trader Website at <a href="http://www.nasdaqtrader.com/trader/mds/nasdaqother/pricing.stm">www.nasdaqtrader.com/trader/mds/nasdaqother/pricing.stm</a>. Note, the basic NASDAQ index data and ETF reference price data is <u>not</u> currently part of the Level 1 Service entitlement.

The NASDAQ index weighting information has historically been provided to the vendor community via a secure section of the NASDAQ Trader Web site as a fee based service. Since the NIDS directory messages are used to relay the same basic information as the web-based files, NASDAQ is also assessing the index weightings distributor fee to NIDS direct data feed subscribers.

Distributors receiving the NIDS data feed will be required to submit documentation to NASDAQ indicating how the NASDAQ index weighting information is utilized. In the near future, NASDAQ Market Data Distribution will communicate with each distributor to obtain such documentation.

For additional information on NASDAQ data entitlement levels and fees, please refer to the <u>NASDAQ Data Products Pricing page</u> of the NASDAQ Trader web site.

**Note:** Each system utilizing a NASDAQ data feed must be approved by NASDAQ Market Data Products prior to implementation. Any use of the NASDAQ data in a system that is not approved by NASDAQ will be considered unauthorized. **NASDAQ reserves the right to terminate a firm's data feed access if it is found to have unauthorized systems.** For information on how to obtain approval for any system utilizing a NASDAQ data feed, please see www.nasdaqtrader.com/trader/mds/nasdaqagreements/agreements.stm

# 1.5 Document Scope

This data feed interface specifications document defines the communications interface and message format requirements for the direct connect subscribers to the NASDAQ Index Dissemination Service (NIDS) product. All time references in this data feed interface specification are stated in Eastern Standard/Daylight Time.

This document was revised on **October 9**, **2008**. Please refer to Appendix G of this document for version control information. NASDAQ reserves the right to add, delete, or modify any of the message formats outlined in this document as needed. All direct data feed subscribers will be required to code their systems to handle data feed format changes as dictated by NASDAQ. In advance of each NIDS product change, NASDAQ will post a Vendor Alert on the NASDAQ Trader web site detailing the data feed format change and release schedule. Direct Data feed subscribers may request to receive automatic e-mail notification of NASDAQ Trader postings by sending a message to <u>MKTDATASVC@NASDAQ.com</u>.

# 2.0 Transmission Characteristics

# 2.1 NIDS Bandwidth Allocations

As noted below, NASDAQ broadcasts two (a primary and a back-up) multicast groups for its data feeds. NASDAQ disseminates NIDS data via one logical channel for each multicast group on the extranets. The current bandwidth allocation for the IP multicast channel is as follows:

Data Feed Channel	Bandwidth Allocation (per multicast group)
NIDS	112 kbps

Please note that NASDAQ reserves the right to modify the bandwidth allocation as system capacity dictates. Extranet customers are required to maintain sufficient network capacity to handle the NASDAQ data feed products ordered.

# 2.2 Transmission Protocol

# 2.2.1 Protocol Overview

Regardless of network option, NASDAQ data feed transmissions will be transmitted in a non-interactive simplex mode using Internet Protocol (IP) multicast. A broadcast transmission with no answer back will be employed. A version of Cisco's Protocol Independent Multicast (PIM) routing protocol will be used to route multicast packets through the network. All transmissions will be in standard ASCII code with 7 data bits (8<sup>th</sup> bit is zero).

NASDAQ data feeds are designed to adhere to Request for Comment (RFC) 1112 standard from The NIC Group for IP multicast protocol. This RFC states:

IP multicasting is the transmission of an IP datagram to a "host group", a set of zero or more hosts identified by a single IP destination address. A multicast datagram is delivered to all members of its destination host group with the same "best-efforts" reliability as regular unicast IP datagrams, i.e., the datagram is not guaranteed to arrive intact at all members of the destination group or in the same order relative to other datagrams.

To minimize data loss, NASDAQ provides primary and back-up groups for its data feed services. NASDAQ strongly recommends that all direct data feed subscribers program their systems to process both the primary and back-up groups.

The data messages are identical for two groups with the exception of the following UDP message header field values: Source IP Address, Destination IP Address, UDP Source Port Number, and UDP Destination Port Number.

The purpose of two host groups is to provide an extra layer of data redundancy within the extranet and end-user networks. By reading and utilizing both multicast groups into their production environment, IP multicast customers can help to protect themselves against network anomalies which could cause interruptions in data flow.

To minimize data loss, NASDAQ strongly recommends that data feed customers process both the primary and back-up groups within their networks.

#### 2.2.2 IP Multicast Addresses

Each NASDAQ IP multicast stream will be assigned a unique Class D host group address for transmission via the extranets. The Class D addresses have been registered by NASDAQ with The NIC Group. For the NIDS data feed, the IP multicast addresses and port assignments are as follows:

	Primary Groups			Back-Up	Groups	
Data	Class D IP Port <sub>16</sub> Po		Port <sub>10</sub>	Class D I P	Port <sub>16</sub>	Port <sub>10</sub>
Channel	Address			Address		
NIDS	224.3.0.5	D83E	55358	224.3.0.15	D83F	55359

# 2.3 Transmission Block

Messages sent to data feed recipients are blocked to provide more efficient line utilization. Each block contains a maximum of 1000 data characters. Messages may not span blocks. Each message in a block ends in a Unit Separator (US) except the last message, which ends in an End of Text (ETX). With the exception of certain messages (e.g. Control messages), each message sent over NIDS contains a fixed format header and a text section that has a format and length that varies for each message type.

#### DATA BLOCK FORMAT

UDP/IP	S	Message 1	U	Message 2	U	Message n	Е
Headers	0	header and	S	header and	S	header	Т
	Н	text		text		and text	Х
	1000 Byte Block (Max) from SOH to ETX						

# 2.4 UDP/IP Headers

Each IP datagram includes the IP and UDP headers as well as the block text data. The datagram fields can be read left to right starting at the top and working your way down through the datagram.

	0		. 1	6	32
	VERSION	HEADER	TYPE OF	ΤΟΤΑ	AL LENGTH (in bytes)
	4 bits	LENGTH	SERVICE		16 bits
		4 bits	8 bits		
	IC	ENTIFICAT	ION	FLAGS	FRAGMENT OFFSET
IP		16 bits		3 bits	13 bits
	TIME TO L	IVE	PROTOCOL	IP I	HEADER CHECKSUM
	8 bits		8 bits		16 bits
			SOURCE IF	ADDRESS	
			32	bits	
			DESTINATION	I IP ADDRES	5
			32	bits	
	UDP SO	URCE PORT	NUMBER	UDP DES	TINATION PORT NUMBER
UDP		16 bits			16 bits
	UDP LENGTH				UDP CHECKSUM
		16 bits			16 bits
		UDP			
			(BLOCK DATA	< 1000 BYTE	S)

# 2.5 Field Descriptions

# 2.5.1 IP Header Fields

The following field descriptions pertain to the IP header:

- **VERSION** 4 bit field used to define the current version of the IP protocol for transmission. The value will be set to 4.
- **HEADER LENGTH** 4 bit field to define the number of 32 bit words in the IP header portion of the datagram. For multicast packets being generated by NASDAQ, the value will be set to 5.
- **TYPE OF SERVICE** 8 bit field with the first 3 bits generally ignored by most network equipment. The next 5 bits are set to zero. Based on this description this field will always have the value of zero (0) for all multicast packets.
- **TOTAL LENGTH** 16 bit field contains the length in bytes of the entire IP datagram (including UDP header). Since the maximum length of the block text is 1000 bytes, the maximum value for this field is 1028.
- IDENTIFICATION FIELD 16 bit field contains a value that is incremented by one for each packet sent by the system. Not supported for UDP/IP packets.
- FLAGS AND FRAGMENT OFFSET Combined 16 bit field is only used when an IP datagram is fragmented. Not supported for UDP/IP packets.
- TIME TO LIVE (TTL) 8 bit field contains a value that determines the number of routers that a datagram can pass through. Each router that forwards the datagram will decrement this value by one; when it reaches zero, the router throws it away. It is initially set to 32 by the multicast source systems.
- PROTOCOL 8 bit field contains a value representing the next level encapsulated protocol. Since multicast uses UDP, the value is set to 0x17, which is 23 decimals.
- **HEADER CHECKSUM** 16 bit field contains a checksum made up of the IP header fields only. The calculation is based on the one's complement sum of the header broken into 16 bit words.
- IP SOURCE ADDRESS 32 bit field contains the Registered Class C address of the multicast datagram source system. Address may vary depending on origin (system and location) of NASDAQ data. NASDAQ strongly warns customers against coding their systems for a particular IP source address. NASDAQ will <u>not</u> notify data feed customers in advance when it changes the origin of data.
- IP DESTINATION ADDRESS 32 bit field contains the Registered Class D address for each IP Multicast Group. Please see table above for a list of current multicast groups.

# 2.5.2 UDP Header Fields

The following field descriptions pertain to the UDP header:

- **UDP SOURCE PORT NUMBER** 16 bit field identifies the Port<sub>16</sub> address for each IP multicast group. Please see table above for a list of the current source port numbers.
- **UDP DESTINATION PORT NUMBER** 16 bit field identifies the Port<sub>10</sub> address for each IP multicast group. Please see table above for a list of the current destination port numbers.

- **UDP LENGTH** 16 bit field contains the length in bytes of the UDP headers plus the Data Block. The maximum value is 1008.
- **UDP CHECKSUM** 16 bit field contains a checksum made up of the UDP header plus the Data Block. In addition, it includes the UDP pseudo header, which is made up of selected fields from the IP headers such as Source Address, IP Destination Address, Protocol, and UDP Length. The calculation is based on the one's complement sum of the datagram broken into 16 bit words.

# 2.5.3 UDP Data Fields

The following field descriptions pertain to the Data Block transmission:

- **SOH AND ETX** The start of a block of data will be indicated by the Start of Header (SOH) control character. The end of the block will be signified by an End of Text (ETX) control character.
- **US** The Unit Separator (US) character is utilized in message blocks with multiple messages to signify the end of the preceding message but not the end of the block.
- **BLOCK TEXT** The block text may consist of one or more messages. A message may not span block boundaries. A message shall consist of a Message Header and a Message Text. Each message in a block shall be delimited by a US character except the last message, which will be delimited by an ETX character.
- **DATA FORMAT** Alphanumeric fields will be left justified and space (hex 20) filled unless otherwise noted. Numeric fields will be right justified and zero (hex 30) filled unless otherwise noted.

# 2.6 Retransmission Capability

The NASDAQ front-end processor will log messages transmitted to recipients. The message formats are defined in subsequent sections of this document. This log will be accessible as a record of messages sent, and will provide a full retransmission capability. Message types not logged and therefore unavailable for retransmission include:

Туре	Value
Т	Line Integrity

Please note that the pre-formatted messages contained between the Start and End of the Test Cycle messages will <u>not</u> be available for retransmission.

NIDS retransmission requests may be made by placing a phone call to NASDAQ Computer Operations at 203.385.4562 or by sending an electronic mail message to <u>RETRANT@NASDAQ.com</u>. Retransmission requests will only be honored during the period from the Start of Day (Category C – Type I) message through the End of Retransmission Request (Category C – Type K) message. The recipient can specify by message sequence number which message range the recipient would like retransmitted.

To ensure proper identification of each vendor, a line specific password must be supplied to the operator taking the request. To request a retransmission, the firm must provide the following information to NASDAQ Computer Operations:

- Data Feed Subscriber's Firm Name
- NASDAQ-Assigned Retransmission Password
- Missing Message Sequence Number(s)
- Contact Name and Telephone Number

Retransmissions will be assigned a low priority in the outgoing message queue in order to prevent any delay or interference with current message delivery. As with original transmissions, retransmissions are broadcast to all direct connect subscribers on both networks. It is the responsibility of the data feed recipient to ignore retransmitted messages not intended for their firm. Retransmission messages can be identified by the following attributes:

- Message Blocking: Retransmission messages will never be mixed with current messages in the same message block, but current message blocks and retransmission blocks can be interspersed.
- Message Sequence Number: The message header will contain the same message sequence number as the original message. Please note that if the Message Sequence Number is reset, no intra-day messages sent prior to the reset control message can be retransmitted.
- **Retransmission Requester:** The message header will contain the unique two-character retransmission requester assigned to the intended recipient. Each firm is given a unique two-character retransmission requester that they should code for in its system. Refer to section 3.2.4 for more information on the retransmission requester.
- **Date/Time:** The message header will contain the same date and time stamp as the original message.

To obtain the retransmission requester and passwords for your firm, please contact NASDAQ Market Data Distribution 301.978.5307 or via electronic mail at <u>MKTDATASVC@NASDAQ.com</u>.

# 3.0 NIDS Message Header

Each NIDS message will begin with a 22-byte header. The Message Header defines the format of the data message that follows.

# 3.1 Message Header Format

The Message Header is 22-bytes in length and contains the following data fields:

Message Category	Message Type	Session Identifier	Retransmission Requester	Message Sequence
				Number
1	1	1	2	8

Market Center Originator ID	Date/Time	Reserved
1	7	1

The field definitions for the NIDS message header are outlined in the remainder of this section. Please note that alphabetic and alphanumeric fields are left justified, space filled and numeric fields are right justified, zero filled, unless otherwise specified.

# 3.2 Field Definitions (Header Only)

# 3.2.1 Message Category

The Message Category is comprised of one alphabetic byte. This field, along with the Message Type, identifies the message format to follow. The allowable values are as follows:

Code	Description
A	Administrative Messages
С	System Control Messages
I	Index/ETF Messages

# 3.2.2 Message Type

The Message Type is comprised of one alphanumeric byte. This field, along with the Message Category, identifies the message format to follow. The allowable values by category are as follows:

#### Current NASDAQ Indices and ETFs (Defined in section 4.1):

Message Category Code	Message Type Code	Message Format Description
I	А	Index Details
I	В	Index Held
I	F	ETF Daily Valuation

Administrative Messages (Defined in Section 4.2).						
Message Category Code	Message Type Code	Message Format Description				
A	A	General Administrative Message				
		(Free-Form Text)				
A	J	Index Directory Message				
A	Р	Issue Symbol Participation Message				

#### Administrative Messages (Defined in section 4.2):

#### Control Messages (Defined in section 7 of this document):

Message	Message Type	Message Format Description
Category Code	Code	
С	С	Market Session Close
С	I	Start-of-Day Message
С	J	End-of-Day Message
С	K	End of Retransmission Requests
С	L	Message Sequence Number Reset
С	0	Market Session Open
С	Т	Line Integrity
С	Х	End of Trade Reporting
С	Z	End of Transmission

For information on NIDS format documentation changes, please refer to Appendix G.

# 3.2.3 Session Identifier

The Session Identifier is comprised of one alphabetic byte. This field indicates the market session of the message to follow. The allowable values are as follows:

Code	Description
A	All Market Sessions or
	Session Independent
U	U.S. Market Session

### 3.2.4 Retransmission Requester

The Retransmission Requester is a 2 byte, Alphanumeric, space-filled identifier that signifies the intended recipient of the message. Retransmissions will be sent to all recipients, and it is the responsibility of each recipient to discard retransmitted messages not requested by him. The exception is a retransmission with an "R" Retransmission Requester, which denotes a retransmission addressed to all recipients.

All NIDS recipients must code their systems to process the following values:

Code	Description
O (space)	An original transmission to all recipients
R (space)	A retransmission to all recipients
T (space)	A test cycle transmission to all recipients.
Specific Vendor ID	To be assigned on vendor-by-vendor basis.

In addition to these three codes, NASDAQ has also assigned a special two-character retransmission requester to each direct subscriber of the NIDS data feed. Customers should code their system to process the two-character code assigned to their firm as well as the three global values outlined above. To obtain your retransmission requester, please contact <u>NASDAQ Market Data Distribution</u> at 301.978.5307. For more information on the NIDS retransmission capability, please refer to section 2.6 of this document.

#### 3.2.5 Message Sequence Number

The Message Sequence Number is comprised of eight, numeric bytes. At the beginning of each operational cycle, this number will be set to 00000000 (for the Start of Day) of each data channel. Throughout the day, the message sequence number for each original transmission will be incremented by one with the exception of the test cycle and following control messages:

- The Start of Day (Category C Type I) message is sent three times to ensure receipt. All three messages in this series will contain a message sequence number of zero.
- The Line Integrity (Category C Type T) message is sent at one-minute intervals. The message sequence number for these control messages will not be incremented. The message sequence number will contain the same value as the prior original transmission message.
- The Sequence Number Reset (Category C Type L) message will contain the number to which the Message Sequence Number counter is to be reset. This number is either zero or a number greater than the highest number previously transmitted.
- The End of Day (Category C Type J) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Retransmission Requests (Category C Type K) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Transmissions (Category C Type Z) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Trade Reporting (Category C Type X) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.

For more information on these control messages, please refer to section 7 of this document. To obtain the NIDS test cycle messages, please refer to Appendix F of this document.

# 3.2.6 Market Center Originator ID

The Market Center Originator Identifier (ID) is comprised of one, alphabetic byte. This field indicates the market center or NASDAQ system that originated the message that follows. The allowable values are as follows:

Code	Description			
E	NIDS Feed Handler			
Q	NASDAQ System Generated			

#### 3.2.7 Date/Time

The Date/Time is comprised of seven alphanumeric bytes. This field uses a special format to denote the calendar date and military time that the record was originally generated by the NASDAQ system. This value is broken down as follows:

Date Year	Date Month	Date Day	Time Hour	Time Minute	Time
					Second
2	1	1	1	1	1

Within these subsections, the values will be formatted in the following manner:

- **Date Year:** The year the NIDS message was generated. This two-byte field will be stated in numeric format, with possible values 00 to 99.
- **Date Month:** The month the NIDS message was generated. This one byte field is stated in ASCII text format. The numeric month value will be converted into a single ASCII character based on the Date/Time translation table.
- **Date Day:** The day of the month the NIDS message was generated. This one byte field is stated in ASCII text format. The day value will be converted into a single ASCII character based on the Date/Time translation table.
- **Time Hour:** The hour of the day the NIDS message was generated in military time. This one byte field is stated in ASCII text format. The hour value will be converted into a single ASCII character based on the Date/Time translation table.
- **Time Minute:** The minute of the hour the NIDS message was generated. This one byte field is stated in ASCII text format. The minute value will be converted into a single ASCII character based on the Date/Time translation table.
- **Time Second:** The second of the minute the NIDS message was generated. This one byte field is stated in ASCII text format. The second value will be converted into a single ASCII character based on the Date/Time translation table.

<u>Note</u>: The Date/Time translation table is available in Appendix E of this document.

#### 3.2.8 Reserved

This one-byte field will be reserved for future use. Initially, this field will be space filled.

# 4.0 Data Formats

In this section, NASDAQ illustrates the field layout for each NIDS message format. The data definition for each field is outlined in section 6 of this document.

# 4.1 Index/ETF Messages

In December of 2007, NASDAQ plans to modify index and ETF valuation message formats to support more flexible index identifier formats. For documentation purposes, NASDAQ outlines both the current and future index message formats below. Please note that NASDAQ is looking to implement the new index and ETF valuation messages as a hot cut release.

# 4.1.1 Index Details

The following message format will be used to disseminate intra-day values for NASDAQ index products as well as intra-day portfolio values for NASDAQ-listed exchange traded funds (ETFs) to the public. For message processing guidelines, please refer to Section 8.0 of this specification.

# 4.1.1.1 Index Details

Category I – Type A

#### Message Label:

meetinge Laber	
Index/ETF Type	Number of Index Attachments
1	1

#### Index Attachment(s):

Index	Index	Net	Index Net	Index	Index	Index	Index
Identifier	Value	Change	Change	High	Low	Settlement	Settlement
		Direction	Value	Value	Value	Value	Flag
11	8	1	8	8	8	8	1

# 4.1.2 Index Held

The Index Held message format will be used to notify the market data industry that a NASDAQ index or ETF IPV is being held from public distribution.

# 4.1.2.1 Index Held

Category I - Type B

Index/ETF Type	Index Identifier	
1	11	

# 4.1.3 ETF Daily Valuation

The following message format will be used to relay daily valuation information, such as Estimated Cash Amount Per Creation Unit, Total Cash Amount Per Creation Unit, Net Accrued Dividend, Net Asset Value from Trustee, and Total Shares Outstanding, for NASDAQ-listed ETFs. The National Securities Clearing Corporation (NSCC) supplies the daily valuation data for the prior trading day.

The ETF Daily Valuation message format consists of two parts:

- **Message Label:** This section reflects the issue symbol assigned by NASDAQ for quotation and trading. It also denotes how many ETF values are being relayed in the current message.
- **ETF Valuation Attachment(s):** This section identifies the data type, data identifier, and current value for the given daily valuation element.

NASDAQ sends out the ETF Daily Valuation messages as part of the NIDS preopening process at approximately 7:00 a.m., ET. For message processing guidelines, please refer to Section 9.0 of this specification.

# 4.1.3.1 ETF Daily Valuation

Category I - Type F

#### Message Label:

Index/ETF	ETF Trading	Number of
Туре	Symbol	Daily Value
-		Attachments
1	11	1

#### ETF Valuation Attachment(s):

ETF	ETF Value	Sign	Value for
Valuation	Identifier	+/-	ETF Data
Data Type			Element
1	11	1	18

# 4.2 Administrative Messages

NASDAQ supports a limited number of administrative messages on the NIDS data feed.

# 4.2.1 General Administrative (Free-Form Text) Message

Category A - Type A

NASDAQ supports a variable length, free-form text message format to be used on an as-needed basis. Since the General Administrative Message is a flexible format message, it is up to the individual data feed subscriber to decide how to process these messages. Firms may wish to code their systems to generate a systems alert for data operations as manual processing of the General Administrative message may be required.



# 4.2.2 NASDAQ Index Directory Message

Category A - Type J

This Index Directory message is used to relay index identifier, index name, divisor, and market value for each NASDAQ index.

#### Message Label:

Index Composition	Index Identifier	Index Name	Divisor	Number of Active Issues in Index	Reserved	Index Market Value
1	11	50	18	4	3	18

# 4.2.3 Issue Symbol Participation Message

Category A - Type P

This Issue Symbol Participation data format is used to relay membership and weighting data for all component securities, irrespective of the listing market, in a NASDAQ index product.

#### Message Label:

Market Of	Issue	Issue Name	Number of Index
Origin	Symbol		Attachments
20	11	30	2

#### Index Attachment(s):

Index	Calculation	Index Weighting for	
Identifier	Method	Issue	
11	1	18	

# 4.3 Control Messages

Control messages consist of a message header only. For processing information, please refer to section 7 of this document.

**Field Occurrences** 

# 5.0 Field Occurrence Matrix

This table provides the Message Category and Message Type for each message field. Please note that the following abbreviations will be used to identify message attachments.

• AT = Attachment to the Issue Symbol Participation Message.

Field Name	Message Category	Message Type
С		
Calculation Method	A	Р
E		
ETF Trading Symbol	I	F
ETF Valuation Type	I	F
ETF Value Identifier	I	F
I		
Index Identifier	A	J
	А	Р
	I	В
	Ι	А
Index/ETF Type	I	F
	I	Н
	I	Α
Index High Value	1	Α
Index Low Value	Ι	А
Index Market Value	A	J
Index Settlement Value	Ι	А
Index Settlement Flag	I	А
Index Value	Ι	А
Index Name	А	J
Index Net Change Value	I	А
Index Weighting for Issue	А	Р
Issue Name	A	Р
Issue Symbol	A	Р
M		
Market of Origin	А	Р
N		
Net Change Direction	Ι	А
Number of Active Issues in Index	А	J
Number of Daily Value Attachments	Ι	F
Number of Index Attachments	I	А
Number of Index Weighting Attachments	A	Р
S		
Sign	Ι	F
R		
Reserved	A	J
Т		
Text	А	A
V		
Value for ETF Data Type	I	F

# 6.0 Field Definitions

<u>Note</u>: All alphabetic and alphanumeric fields are left justified and space filled unless otherwise stated. All numeric fields are right justified and zero filled unless otherwise stated.

<u>C</u>

#### Calculation Method

Category A – Type P (attachment)

1 byte, Alphanumeric. Indicates the type of calculation method used for index. Allowable values are as follows:

Code	Value
Т	Index Calculation based on TSO (True market value weighted)
D	Index Calculation based on DRM (Modified market value weighted)
E	Index Calculation based on equal weighting
F	Index Calculation based on float weighting

#### <u>D</u>

# Divisor

Category A – Type J

18 Bytes. Numeric. The Divisor is a number that is adjusted periodically (due to component changes and corporate actions) to ensure continuity of an index. This value is used in the index calculations. The calculation is as follows:

Index Value = (Aggregate Market Value / Divisor)

# <u>E</u>

#### ETF Trading Symbol

Category I – Type F

11 bytes, Alphanumeric (including special characters). This field reflects the issue symbol assigned by NASDAQ to the ETF security for quotation and trading purposes. For a current list of NASDAQ issue symbols, please refer to the Symbol Directory section of the NASDAQ Trader web site at <a href="http://www.nasdaqtrader.com/trader/symboldirectory/symbol.stm">http://www.nasdaqtrader.com/trader/symboldirectory/symbol.stm</a>.

#### **ETF Valuation Type**

Category I – Type F (attachment)

1 byte, Alphanumeric. This field indicates the type of ETF valuation data contained in the current message attachment. The allowable ETF Valuation Types are as follows:

Code	Value		
М	Estimated Cash Amount Per Creation Unit		
Т	Total Cash Amount Per Creation Unit		
D	Estimated Cash per Share (Net Accrued Dividend)		
Ν	Net Asset Value from Trustee		
S	Total Shares Outstanding		

**Note:** For information on the decimal point placement in the ETF Valuation message, please refer to **"Value of the ETF Data Type"** field in the message attachment.

#### ETF Value Identifier

Category I – Type F (attachment)

11 bytes, Alphanumeric (including special characters). The ETF Value Identifier is a six-character symbol assigned by NASDAQ to reflect the given ETF and valuation type value being represented in the attachment. For more information on ETF Symbology, and a list of the valuation identifiers, please refer to ETF Valuation Identifier document located at:

http://www.nasdaqtrader.com/content/productsservices/dataproducts/realtimeindexes/indexsymb ols.pdf

L

#### Index Composition Indicator

Category A Type J

1 byte, Alphanumeric. This field represents the type of securities that can be found within the identified index. The following values are currently supported:

Code	Value	
1	US Listed Securities	

#### Index Identifier

Category A – Type J, Category A – Type P, Category I – Type A; Category I – Type B

11 bytes, Alphanumeric (including special characters). The Index Identifier denotes the NASDAQ Index associated with the value in the message.

#### Index/ETF Type

Category I – Type F; Category I – Type H; Category I – Type A

1 byte, Alphanumeric. This field indicates what type of instrument is being reported in the message. The allowable values are as follows:

Code	Value		
I	NASDAQ Index		
E	Exchange Traded Fund (ETF)		

#### Index High Value

Category I – Type A

8 bytes, Numeric (including decimal point). This field reflects the highest value for a NASDAQ index during the business day. Please note that this field will be zero filled for ETF IPVs and subordinated index products.

#### Index Low Value

Category I – Type A

8 bytes, Numeric (including decimal point). This field reflects the lowest value for a NASDAQ index during the business day. Please note that this field will be zero filled for ETF IPVs and subordinated index products.

#### Index Market Value

Category A – Type J

18 bytes, Numeric. This field reflects the Index Market Value at start of day for the Index. This value is based on the adjusted previous market close.

#### Index Name

Category A – Type J

50 bytes, Alphanumeric. This field reflects the full index name as defined in NASDAQ internal systems.

#### Index Net Change Value

Category I – Type A

8 bytes, Numeric (including decimal point). This field reflects the difference between the current Index Value and the prior day's closing Index Value for a given NASDAQ index. Please note that this field will be zero filled for ETF IPVs and subordinated index products.

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#### Index Settlement Value

Category I – Type A

8 bytes, Numeric (including decimal point). This field reflects the calculated official value for a given NASDAQ index used to settle cash derivatives based on NASDAQ indexes when they expire. For select NASDAQ OMX indexes the value will use the underlying NASDAQ Official Opening Price (NOOP) for each component security within the index. (Please refer to section 8.6 for processing guidelines)

**Note:** This value will be zero filled until an Index settlement Value has been calculated. Since this value is based on the timing of when all component securities are officially opened by the listing market it is possible and likely that it will be different than the first calculated tick value.

#### Index Settlement Flag

Category I – Type A

1 byte, numeric. This field indicates when the index settlement value is first disseminated and if it has been recalculated. Each time the Index settlement Value has been disseminated, due to a recalculation, the flag will increment by 1. The allowable values are as follows:

Code	Value
0	Index settlement Value not available
1	Index settlement Value
2-9	Recalculated Index settlement Value

**Note:** Should the value be recalculated and disseminated more than 9 times the flag will remain set at "9".

#### Index Value

Category I – Type A

8 bytes, Numeric (including decimal point). This field reflects the calculated value for a given NASDAQ index or exchange traded fund (ETF). For NASDAQ Indices: The Index Value represents the current net asset value for a NASDAQ proprietary index or indicator. For ETFs: The Index Value field represents an intra-day portfolio value (IPV) for the ETF.

#### Index Weighting for Issue

Category A – Type P (attachment)

18 bytes, Numeric (including decimal point). This field represents the number of shares for an issue within a given index and is based on the specific index's Calculation Method. This value is used to calculate the issue's market value. The market value for each issue is summed to get the Aggregate Market Value used in the index calculation below:

Index Value = (Aggregate Market Value / Divisor)

Issue Name

Category A – Type P

30 bytes, Alphanumeric. Company or issue name as it appears on NASDAQ system displays. Due to field size limit, issue name may be abbreviated.

#### Issue Symbol

Category A – Type P

11 bytes, Alphanumeric (including special characters). This field identifies the issue symbol as assigned by the Market of Origin and matches the Symbology used for outbound dissemination on the market of origin native dissemination protocols.

<u>Note:</u> To download the NASDAQ symbol directory, please visit the NASDAQ Trader web site at http://www.nasdaqtrader.com/trader/symboldirectory/symbol.stm.

NASDAQ publishes a list of security additions, deletions, or changes for NASDAQlisted issues. For information on the NASDAQ Daily List product offering, please refer to NASDAQ Vendor Alert #2004-8 at http://www.nasdaqtrader.com/TraderNews.aspx?id=nva2004-8

M

#### Market of Origin

Category A - Type P

20 bytes, Alphanumeric. This field indicates the market place for which the issue within the message resides on. The following values will be supported as allowable values:

Code	Value		
А	Amex		
N	NYSE LLC		
Р	NYSE Arca Group		
Q	NASDAQ Listed Market		
U (upper case)	OTC Bulletin Board		
u (lower case)	Over-The-Counter Trade in Non-NASDAQ Issue - NNOTC		
XCSE	Copenhagen		
XSTO	Stockholm		
XHEL	Helsinki		
XICE	Iceland		
<space></space>	None provided		

N

#### Net Change Direction

Category I – Type A

1 byte, Alphanumeric (including special characters). This field indicates the direction of net change field. The associated values are as follows:

Code	Value
+	Positive or zero net change or (Net Gain)
-	Negative net change or (Net Loss)
Space	No net change calculated

#### Number of Active Issues in an Index

Category A – Type J

4 bytes, Numeric. Indicates the total number of active issues included in the index calculation at the beginning of trading day.

#### Number of Daily Value Attachments

Category I – Type F

1 byte, Numeric. This field indicates the number of ETF Daily Value Attachments will follow the message label in the current ETF Daily valuation message. The allowable values are 1 to 5.

#### Number of Index/ETF Attachments

Category I – Type A

1 byte, Numeric. This field indicates the number of Index or ETF IPV attachments to follow the message label in the current Index Details message. The allowable values are 1 to 5.

#### Number of Index Weighting Attachments

Category A - Type P

2 bytes, Numeric. This field indicates the number of index attachments associated with the issue. The allowable values from 00 to 25.

#### R

# Reserved

Category A – Type J

3 bytes, alphanumeric. This field is reserved for future use. Until defined, the field will be space-filled.

#### <u>S</u>

#### Sign

Category I – Type F

1 byte, Alphanumeric. This field reflects if the NSCC value for the ETF Value Identifier is a positive number or a negative number. The allowable values are as follows:

Code	Value		
+	Positive or zero ETF value		
-	Negative ETF value		

Τ

**Text** Category A – Type A

Variable length up to 300 bytes. Alphanumeric. Free-form text is used to notify data feed subscribers of corporate actions or special trading situations.

# V

#### Value for ETF Data Type

Category I – Type F (attachment)

18 bytes, Numeric (including decimal point). This field reflects the absolute value provided for the given ETF data element as provided by the inbound data source. Please note that the "Sign" field dictates if the actual ETF value is a positive or negative number.

The decimal point placement for the value will vary by the ETF Valuation Type. The price composition will be as follows:

ETF Valuation Type	Value for ETF Data Type	Notes
Μ	00009999999999999999999999	The Estimated T-1 Cash Amount Per Creation Unit is reported as 12 whole dollar and 2 decimal digits. (4 leading zeros will be added to complete field length requirement). This value can be zero or negative.
Т	0000099999999999999999	The Total Cash Amount Per Creation Unit is reported as 11 whole dollar and 2 decimal digits. (5 leading zeros will be added to complete field length requirement). This value can be zero or negative.
D	0000099999999999999999	The Estimated Cash per Share (Net Accrued Dividend) is reported as 11 whole dollar and 2 decimal digits. (5 leading zeros will be added to complete field length requirement). This value can be zero or negative.
N	000009999999999999.99	The Net Asset Value Per Creation Unit is reported as 11 whole dollar and 2 decimal digits. (5 leading zeros will be added to complete field length requirement). This will always have a positive value.
S	9999999999999999999999999	The Total Shares Outstanding is reported as 18 whole digits. (This value will have no decimal point). This will always have a positive value.

# 7.0 Control Messages

# 7.1 Overview

A Control message is a fixed format message that performs a specific system function. All Control Messages consist of a standard Message Header only. As outlined in section 3, the Message Header is comprised of the following fields:

Message	Message Type	Session	Retransmission	Message
Category		Identifier	Requester	Sequence
1	1	1	2	8

Market Center	Date/Time	Reserved
Originator ID		
1	7	1

Control messages are used to notify NIDS subscribers of certain system events. NASDAQ supports the following control messages on the NIDS data feed:

Category	Туре	Usage	
С	I	Start of Day	
С	J	End of Day	
С	0	Market Session Open	
С	С	Market Session Close	
С	К	End of Retransmission Requests	
С	Z	End of Transmissions	
С	М	Start of Test Cycle	
С	N	End of Test Cycle	
С	Т	Line Integrity	
С	L	Sequence Number Reset	
С	Х	End of NASDAQ Trade Reporting	

The following Control messages will be session-specific: Market Session Open and Market Session Close. All other control messages will be session independent. For a schedule of transmissions, please refer to Appendix C.

# 7.2 Control Message Description

# 7.2.1 Start Of Day

#### Category C - Type I

The Start of Day control message signifies the beginning of each operational cycle for NIDS processing. Each day, the Start of Day control message will be sent to inform NIDS subscribers that all subsequent data transmitted will be real-time updates and should be treated accordingly. The message will be sent three times, at one-minute intervals, with the same Message Sequence Number (00000000) on each message.

# 7.2.2 End Of Day

#### Category C - Type J

The End of Day control message signals the end of active message dissemination for the NIDS operational cycle. The system shall generate and disseminate the End of Day control message upon receipt of the appropriate inbound control messages from all inbound sources. The End of Day message will be sent three times, at oneminute intervals. The first End of Day control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers of the subsequent two control messages, however, will not be incremented.

# 7.2.3 Market Session Open

Category C - Type O

The Market Session Open Control Message signifies the opening of NASDAQ market systems for the session indicated in the Message Header. The Message Sequence Number Field for the Session Open will contain a number one greater than the highest Message Sequence Number previously transmitted.

# 7.2.4 Market Session Close

Category C - Type C

The Session Close Control Message signals the closing of NASDAQ market systems for the session indicated in the Message Header. Upon receipt of this message, vendors should close the appropriate records in their files. The Message Sequence Number Field for the Market Session Close will contain a number one greater than the highest Message Sequence Number previously transmitted.

# 7.2.5 End Of Retransmission Requests

#### Category C - Type K

This message signals that no further retransmission requests will be honored. The End of Retransmission Requests message will be sent three times, at one-minute intervals. The first End of Retransmission Requests control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers of the subsequent two control messages, however, will not be incremented. The Message Sequence Number will not be incremented when the message is sent three times in the normal message transmission sequence. Although NASDAQ operations may no longer accept retransmission requests after this control message is disseminated, it will disseminate retransmissions in queue.

#### 7.2.6 End Of Transmissions

#### Category C - Type Z

The End of Transmissions Message signals that there will be no further transmissions of data sent through the NIDS line. This message will be transmitted at the end of the day, and will be the last message of the day. The End of Transmissions message will be sent three times, at one-minute intervals. The End of Transmissions control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers in the subsequent two control messages, however, will not be incremented.

#### 7.2.7 Line Integrity

#### Category C - Type T

The Line Integrity Control Message will be transmitted at approximately one-minute intervals to verify the operational integrity of the NIDS message transmission, and will be intermixed with other messages. The Message Sequence Number will not be incremented for the Line Integrity Message. The Message Sequence Number will be equal to the message sequence number of the last message sent. Line Integrity Messages will not be retransmitted.

#### 7.2.8 Sequence Number Reset

#### Category C - Type L

The Sequence Number Reset Message forces the resetting of the Sequence Number. The Sequence Number will either be reset to zero or to a number greater than the last number previously transmitted. Please note that, if the Sequence Number Reset message is sent, the NIDS feed handler will <u>not</u> be able to process retransmission requests for messages sent prior to the Sequence Number Reset control message.

# 7.2.9 End of Trade Reporting

Category C – Type X

The End of Trade Reporting Control Message signals that NASDAQ ACT system is closed for market participant transactions. The End of Trade Reporting message will be sent three times, at one-minute intervals. The End of Trade Reporting control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers in the subsequent two control messages, however, will not be incremented.

# 8.0 Message Processing Guidelines – NASDAQ Indices

NASDAQ reserves the right to add or delete indices and market indicators as needed. NASDAQ will notify NIDS customers of index changes by posting a NASDAQ Vendor Alert on the NASDAQ Trader website.

# 8.1 Overview

As outlined in Section 4.1 of this document, NASDAQ supports the following index message types on NIDS:

- Index Details (Category I Types A)
- Index Held (Category I Types B)

The Index Details message is used to broadcast the current value for NASDAQ's proprietary indexes as well as the intra-day portfolio value (IPV) for exchange traded funds (ETFs), NASDAQ will differentiate between these two classes of symbols via the Index Type field. For NASDAQ Indices, the Index Type value will be "I". For information on ETFs processing, please refer to Section 9 of this document.

In the second quarter of 2008, NASDAQ plans to introduce new NASDAQ indexes that include foreign component securities. In order to reach the global marketplace, NASDAQ intends to provide intraday updates for these indexes based on the real-time trading activity of the component securities. Effective Monday, April 14, 2008, NASDAQ will modify the dissemination timing for the Index Details messages to begin as early as 3:00 a.m., ET. and end at approximately 8:00 p.m. ET. via the Index Details message format on NIDS.

Since it is possible to have varying hours of dissemination times for each index NASDAQ will provide advance notice of any new indexes via the NASDAQ Vendor notices and include within this notice the hours and frequency of dissemination for each index.

# 8.2 Current List of NASDAQ Indices

For a list of the current NASDAQ Indices and their descriptions please refer to the following NASDAQ web site:

http://www.nasdaqtrader.com/content/productsservices/dataproducts/realtimeindex es/indexsymbols.pdf

# 8.3 Extended Trading Hour Indicators

In addition to the NASDAQ indices, NASDAQ currently calculates and disseminates the following two extended trading hours indicators on the NIDS data feed: The NASDAQ-100 Pre-Market Indicator (PMI) and the NASDAQ-100 After Hours Indicator (AHI). These indicators are disseminated with the Index Type of "I" via the Index Details message format. While the PMI and AHI are based on the NASDAQ-100 Index, the calculation and dissemination rules for these indicators differ from NASDAQ indices as outlined below:

Index Name	Symbol	Description
NASDAQ-100 Pre-	QMI	Nasdaq created the PMI as a way for investors and
Market Indicator		traders to gauge trading activity in the top 100
(PMI)		Nasdaq issues during the pre-market session. The
		PMI, which is based on the same weighting algorithm
		as the Nasdaq-100 index, uses filtered ".T" and ".U"
		trade reports from the NASDAQ market center only,
		in its calculation. The PMI will be disseminated at
		one-minute intervals from 08:15 to 09:30.
NASDAQ-100 After	QIV	Similar to the PMI, the AHI is designed to gauge
Hours Indicator		market activity in the top 100 NASDAQ issues during
(AHI)		the post-market trading hours session. The AHI is
		disseminated at one-minute intervals from 16:15 to
		18:32.

**Please Note:** To accommodate the longer trading hours initiative NASDAQ will be extending the calculation period for the these indicators in 2007. NASDAQ will begin to disseminate the QMI at 7:15 a.m., ET, and will extend the dissemination period for QIV to 8:00 p.m., ET, on NIDS.

NASDAQ Index Details message format includes high, low, and net change information. If NIDS subscribers choose to calculate their own high, low, and net change information values for the PMI and the AHI, NASDAQ recommends firms use the following technique for calculating net change:

• Net Change for PMI: In place of the previous day close for the NASDAQ-100 Pre-Market Indicator, NASDAQ recommends that vendor's base their net change calculation on the previous day adjusted close value for the NASDAQ-100 Index, as presented in the equation below.

Net Change for QMI = [Current Value for QMI] – [Prior Day's Close for NDX]

• Net Change for AHI: In place of the previous day close for the NASDAQ-100 After Hours Indicator, NASDAQ recommends that vendors use the current day NASDAQ-100 Index closing value, as presented in the equation below. It is important to note that the closing value for the NASDAQ-100 Index is not final until 5:15 p.m., Eastern Time (ET), and as a result the closing value may change between 4:15 and 5:15 p.m., ET.

*Net Change for QIV = [Current Value for QIV] – [Current Day's Close for NDX]* 

# 8.4 Index Held Message

If NASDAQ needs to hold an index or ETF from public dissemination, it will disseminate an Index Held message. This message will be sent only at the time the dissemination halt is instituted. NASDAQ will broadcast a new Index Detail message for the symbol to indicate that the disseminate halt is lifted.

In the event that NASDAQ is holding all indices, NASDAQ may disseminate the following universal code in the Index Details Held format for message efficiency:

Index Identifier Code	Index Category Held		
.ALL	All NASDAQ Indices or ETF Products		

# 8.5 Index Settlement Value

In May of 2005, NASDAQ began to calculate and disseminate a NASDAQ Index Settlement Value as part of the Index Detail message.

The NASDAQ Index Settlement Value is used to settle cash derivatives based on NASDAQ indexes when they expire. For NASDAQ listed securities, this value will be based on the underlying NASDAQ Official Opening Price (NOOP) of each component security. In the event that NASDAQ does not calculate a NOOP for the current trading day on a component security, the NASDAQ market center previous closing value will be used. For component securities listed on markets other than NASDAQ, the consolidated last sale value will be used.

Upon initial implementation NASDAQ will calculate the Index Settlement Value for the following indexes:

- NASDAQ-100
- NASDAQ Composite
- NASDAQ Biotech

For all other indexes the Index Settlement Value and Index Settlement Flag will be populated with zero within the Index Detail Message.

**Please Note:** Since this value is based on the timing of when all component securities are officially opened by the listing market it is possible and likely that it will be different than the first calculated tick value. As stated above it is the **settlement value** which is used to settle cash derivatives and **NOT** the first tick value.

# 8.5.1 Calculation of Index Settlement Value

Once all underlying component securities for an index have an associated value, as defined above, the Index's Official Settlement Value will be calculated and populated within the Index Detail message and the Index Settlement Flag will be incremented to "1", indicating that this is the Index Settlement Value. Once disseminated, this value will continue to be populated within the Index Detail message throughout the trading day. The Index Open Flag should be used to determine if the value has been adjusted.

Vendors who maintain Index Opening fields within their displays are asked to populate this field with the NASDAQ provided Index Settlement Value.

NASDAQ plans on completing its calculation and dissemination process for all Index Settlement Values approximately an hour after Market Open. However, in the event that a security is in a Halt status at the beginning of the day, or for some other reason, the security does not trade, calculation and dissemination for the Index Settlement Value will be delayed until such time as the security resumes trading, or until the end time for the calculation has been reached. This end time <u>may</u> be set to a time as late as Market Close (4:00 PM eastern time). If the end time is reached before the component security resumes trading, the previous closing value will be used in the Index Settlement Value calculation for any index in which the component security participates.

# 8.5.2 Correction of Index Settlement Value

In the event that an Index Settlement Value is re-disseminated, due to cancel or corrections to the NOOP value of one of the underlying component securities, the Index Settlement Value will be populated within the Index Detail message and the Index Settlement Flag value will be incremented by "1". In the unlikely event that the value is recalculated more that 9 times in a day the Index Settlement Flag will remain set at "9".

# 8.5.3 Display Guidelines

With the Index Details message, NASDAQ provides the opening, high, and low values as well as the current index value. NASDAQ strongly recommends that firms use the provided values for their index displays (rather than calculating their own values). For the opening index value field, NASDAQ recommends that firms show the field unpopulated (space or zero) until the Index Settlement Value has been disseminated via the Index Detail Message.

For those vendors that maintain a time and sale display, NASDAQ recommends that you include the Index Settlement Value record for NASDAQ indices. To do this, a firm should generate an Opening Value record for its time and sales display each time that the Index Open Flag field value increments by one. The Index Settlement Value should be identified within the display by a sale condition modifier of "Q" or "O".

Processing Guidelines – ETF Valuation Data

# 9.0 Message Processing Guidelines for ETF Valuation Data

# 9.1 Overview

NASDAQ serves as a listing market for exchange-traded funds (ETFs). ETFs are investment products that hold a pool of securities and are designed to generally correspond with a specific Index. Investors can buy and sell ETFs just like stock, through their broker, throughout the trading day.

From a quotation and trade perspective, ETFs are treated in the same manner as any other NASDAQ-listed security.<sup>1</sup> For ETFs only, NASDAQ also disseminates the following valuation data via the NIDS data feed:

Data Element	Definition
Intra-day Portfolio Value	The IPV is the current dollar amount per share of what the ETF
(IPVs)	is worth. The IPV is defined as the sum of the total current
	market value, using only NASDAQ Market trades, of the ETF
	components and the cash amount divided by the creation unit.
	The IPV is disseminated via the Index Details message format
	at 15 seconds intervals throughout the trading day.
Estimated Cash Amount	The Estimated Cash per Creation Unit is the Dividend Income
Per Creation Unit	minus the Accrued Expenses per share in the Trust multiplied
	by one creation unit. At the beginning of each trading day,
	NASDAQ disseminates this statistic via the ETF Daily Valuation
	message format.
Total Cash Amount Per	The Total Cash per Creation Unit is the Estimated Cash plus
Creation Unit	the Balancing Amount per Creation Unit. At the beginning of
	each trading day, NASDAQ disseminates this statistic via the
	ETF Daily Valuation message format.
Estimated Cash per Share	Net Accrued Dividend is the Dividend Income minus the
(Net Accrued Dividend)	Accrued Expenses in the Trust. It is also referred to as the
	Estimated Cash per Share or the Net Accrued Income. At
	the beginning of each trading day, NASDAQ disseminates this
	statistic via the ETF Daily Valuation message format.
Net Asset Value (NAV)	The NAV is the market value of a share. This statistic is
from Trustee	calculated by taking the Market Value of the underlying
	securities plus Dividends Received less Accrued Expenses
	divided by the shares outstanding of the Trust. At the
	beginning of each trading day, NASDAQ disseminates the NAV
	based on the prior day's trading via the ETF Daily Valuation
	message format.
Iotal Shares Outstanding	The TSO are the total number of shares of the underlying
(150)	securities that are available in the Irust. At the beginning of
	each trading day, NASDAQ disseminates the current TSO via
	the ETF Daily Valuation message format.

<sup>&</sup>lt;sup>1</sup> Trade data for NASDAQ-listed issues is disseminated via the UTP Trade Data Feed (UTDF). Quotation data is disseminated via the following UTP and NASDAQ data products: UTP Quotation Data Feed (UQDF), NASDAQ Quotation Dissemination Service (NQDS), OTC Montage Data Feed (OMDF), NASDAQ TotalView, and NASDAQ OrderView.

#### Processing Guidelines – ETF Valuation Data

As noted in section 6 of this document, the following ETF Daily Valuation items may be negative or zero:

- Estimated Cash Amount Per Creation Unit
- Total Cash Amount Per Creation Unit
- Net Accrued Dividend

If all three values are zero, however, it is an indication that the trustee was unable to provide the daily values by the dissemination for ETF Daily Valuation spin.

# 9.2 ETF Symbology

NASDAQ will assign a separate identifier for each of the ETF valuation statistics on NIDS for database and display purposes. The ETF Value Identifier will be **assigned by NASDAQ OMX** to reflect the given ETF and valuation type value being represented in the message attachment.

Upon implementation of the new index and ETF data formats, NASDAQ plans to move to a more flexible symbology structure for its index and ETF valuation data elements. NASDAQ is looking to modify its ETF valuation identifier logic for two reasons:

- 1) To be ensure that the ETF valuation identifier logic is consistent with the new <u>NASDAQ stock symbol system</u>
- 2) To be more aligned with the symbology logic of other index and ETF data providers

For new ETFs introduced in 2008, NASDAQ plans to assign ETF valuation identifiers in the same manner as other data providers. Unless otherwise requested by the issuer, NASDAQ will create ETF valuation symbols by adding the standard dot suffixes to the root ETF trading symbol.

Data Element	ETF Symbol
	Suffix
Intra-day Portfolio Value (IPVs)	.IV
Estimated Cash Amount Per Creation Unit	.EU
Total Cash Amount Per Creation Unit	.TC
Estimated Cash per Share (Net Accrued Dividend)	.DV
Net Asset Value (NAV) from Trustee	.NV
Total Shares Outstanding (TSO)	.SO

While NASDAQ wishes to move to a standard symbology, it does not want to impede the trading of existing ETFs on its marketplace. NASDAQ will, therefore, retain the existing valuation symbols for all existing ETFs at the time of the migration. In addition, NASDAQ reserves the right to vary from the suffix standard if the issuer so requests.

Because of possible variations, NASDAQ strongly recommends that firms use the NIDS Symbol List for the most up-to-date list of index and ETF valuation identifiers. As it does today, NASDAQ will also post a Vendor Alert with the full list of NIDS valuation identifiers when a ETF issue is initially listed on its marketplace.

Processing Guidelines – ETF Valuation Data

# 9.3 Data Feed Message Formats

As outlined in Section 4 of this document, NASDAQ disseminates ETF valuation information via the following ETF-message types on NIDS:

- Index Details (Category I Type A)
- Index Held (Category I Type B)
- ETF Daily Valuation (Category I Type F)

The Index Details message is used to broadcast the IPV for ETFs as well as the current value for NASDAQ's proprietary indexes, NASDAQ will differentiate between these two classes of symbols via the Index Type field. For ETFs, the Index Type value will be "E". Please note that NASDAQ does <u>not</u> currently populate the Daily High, Daily Low, or Net Change fields within the Index Details message for ETF IPVs.

NASDAQ does not plan to disseminate ETF valuation information when the NASDAQlisted ETF security is subject to a trading halt. Upon initial implementation of the ETF trading halt<sup>2</sup>, NASDAQ intends to disseminate an Index Details Held message via NIDS for the associated IPV symbol. Once trading is reinstated for the NASDAQlisted issue, NASDAQ will resume the calculation and dissemination of the ETF values.

At the beginning of each business day (at approximately 07:30), NASDAQ will disseminate an ETF Daily Valuation message format for each active NASDAQ-listed ETF security. The data contained in this message will be based on the previous day's trading information.

Under certain circumstances, NASDAQ may need to modify one of the statistics contained in the ETF Daily Valuation message intra-day. Upon initial implementation, NASDAQ will disseminate a full spin of the ETF Daily Valuation messages if there is a modification to a statistic for any ETF. If a subscriber receives multiple ETF Daily Valuation messages on the same day, it should reflect only the latest value received in its database and display.

<sup>&</sup>lt;sup>2</sup> NASDAQ will disseminate a Trading Action message (available on the UQDF, UTDF, NQDS, OMDF, and TotalView products) to notify the public of a trading status change for the NASDAQ-listed security.

Processing Guidelines – Administrative Messages

# 10.0 Message Processing Guidelines – Administrative

### 10.1 Overview

NASDAQ will use administrative messages to communicate the index directory and issue symbol participation information to NIDS subscribers. In addition, NASDAQ will support a free-form text message for those items that do not lend themselves easily to a fixed format message format. The field layouts for these messages are outlined in Section 4 of this document.

# 10.2 General Administrative Messages

#### (Category A – Type A)

The General Administrative Message (Category A – Type A) is a free form text message used to notify NIDS subscribers of market events or special trading situations. The length of the Administrative Message is variable but cannot exceed a maximum of 300 characters. NASDAQ may generate the General Administrative Message format on an as-needed basis.

Since the General Administrative Message is a flexible format message, it is up to the individual data feed subscriber to decide how to process these messages. Firms may wish to code their systems to generate a systems alert for data operations as manual processing of the General Administrative message may be required.

# 10.3 NASDAQ Index Directory Messages

#### (Category A – Type J)

NASDAQ is streamlining and standardizing the Index Directory and Issue Participation data formats to make it easier for firms to process. The new directory formats are also designed to support a greater range of NASDAQ indexes in the future. In addition, the NIDS messages are fully compliant with the second phase of the NASDAQ stock symbol system changes.

To simplify processing, NASDAQ has revised the Index Directory message format to support a single Divisor field. The new Divisor field will replace the existing Adjusted Base Period Market Value (ABPMV) and Base Value fields with the Index Directory message.

To be more descriptive, NASDAQ added an Index Composition field to the directory message. While NASDAQ is expanding the Index Symbol field length to 11 bytes for data consistency reasons, NASDAQ has no immediate plans to modify its index symbology.

If the Divisor is recalculated due to any underlying value change online for any issues listed under the Index, or for any online Participation changes to the index, the index directory message will be retransmitted for only the indices affected.

Processing Guidelines – Administrative Messages

# 10.4 Issue Symbol Participation Message

(Category A – Types P)

As a complement to the Index Directory message, NASDAQ disseminates the Issue Symbol Participation message for all component securities in a NASDAQ index product.

This message provides the issue symbol; issue name and current NASDAQ index weightings (TSO or DRM) for the component security. In addition, the message also provides a market of origin field.

A morning spin for **all** component issues will be disseminated prior to market open (approximately 7:00 a.m, ET). The Issue Symbol Participation message may also be sent intra-day in the event of a change to a security's weighting (TSO or DRM) within an index or when the security has been added to or removed from an index. Intraday, NASDAQ will retransmit only the message for affected security. Format Release and Testing

# 11.0 Format Release and Testing Information

# 11.1 Release Notification

To keep pace with the changing business environment, NASDAQ may modify its data feed format specifications for direct data feed customers. In advance of each release, NASDAQ will notify direct connect customers of the format change via a Vendor Alert on the NASDAQ Trader web site. In the notice, NASDAQ will outline the scope of the changes as well as the testing and release schedule. Direct connect customers are required to modify and test their code based on NASDAQ notices. If you wish to receive automatic e-mail notification whenever a Vendor Alert is posted to the NASDAQ Trader web site, please send an e-mail request to NASDAQ Market Data Distribution at MKTDATASVC@NASDAQ.com.

# 11.2 Types of Testing

In advance of each release, NASDAQ will offer test data for its direct data feed customers to be used for quality assurance (QA) purposes. Depending on the scope of the changes, the testing period will range from one day to one month. For its data feed customers, NASDAQ offers the following types of testing opportunities:

- **Evening test transmissions:** For its evening testing opportunities, NASDAQ creates sample messages in the new formats to be broadcast on select weeknights from 21:00 to 22:30. To generate the sample data, NASDAQ creates a test script to exercise the full range of values for the affected message formats.
- Weekend production tests: In advance of major releases, NASDAQ will conduct user acceptance tests (UATs) on select Saturdays for its market participants. As market participants enter information into its production systems, NASDAQ will broadcast this test data in the new data formats to direct data feed subscribers. <u>Prior to each UAT, NASDAQ should post a Vendor Alert</u> and/or a Head Trader Alert with registration information.\_
- Weekend stress tests: For bandwidth upgrades and capacity-related releases, NASDAQ will attempt to simulate projected data rates as part of the production test on Saturdays. At the conclusion of the manual entry period, NASDAQ will start software drivers to stress test its system. Please note that the market close event and any post-closing reports will be disseminated only after the stress test is complete. When a UAT includes a stress test, NASDAQ will denote it in the Vendor Alert.

For a list of upcoming testing and release dates for NASDAQ data feed subscribers, please refer to the "Release Schedule" section of the NASDAQ Trader web site. **NASDAQ strongly recommends that** <u>all</u> direct subscribers use these testing opportunities to check their hardware and software applications. During the testing phase, NASDAQ Market Data Distribution may ask market data vendors or market participants to provide status updates and/or submit testing verification forms as part of the QA process. Format Release and Testing

# 11.3 Identification of test data

During normal operational hours, NASDAQ will identify test data in one of the following two ways:

- **Test Retransmission Requester:** In section 3.2.4 of this document, NASDAQ provides for a test retransmission requester for its data feed message header. NASDAQ populates this field for the test cycle messages sent prior to the start of the day only.
- **Test Symbols:** NASDAQ may also send out intra-day test data using special issue symbols and market participant identifiers on its data feeds. Test securities are identified within the NASDAQ Symbol Directory on the NASDAQ Trader web site.

During non-market hours, NASDAQ will broadcast **<u>unmarked</u>** test data on its direct data feeds. Customers should take necessary precautions to protect their systems against database corruption during evenings, weekends, and market holidays. Please refer to the Appendix C of this document for the current data feed transmission schedule.

# Appendix A – ETF and Index Symbol List

For the current list of NASDAQ index and NASDAQ-listed exchange traded fund (ETF) valuation symbols, please refer to the NIDS Symbol List available online at <a href="http://www.nasdaqtrader.com/content/productsservices/dataproducts/realtimeindex">http://www.nasdaqtrader.com/content/productsservices/dataproducts/realtimeindex</a> es/indexsymbols.pdf.

# Appendix B – Glossary of Terms

Adjusted Base Period Market Value (ABPMV)	The ABPMV is a number that is adjusted periodically (due to component changes and corporate actions) to ensure continuity of an index.
Base Index Value	Index Value at Inception (as adjusted).
Current Index Value	Current Index Value is determined by the following: (Aggregate Market Value / ABPMV)* Base Value.
Current Market Value (CMV)	The sum of the Market Value for all the securities in a particular index sub-category at a given point in time.
Depository Receipt Multiplier (DRM)	Depository Receipt Multiplier – The multiplier representing the modified number of shares that each component issue of an index is comprised. This serves the same function as total shares outstanding in a true market capitalization weighted index.
Divisor	The Divisor is a number that is adjusted periodically (due to component changes and corporate actions) to ensure continuity of an index
Estimated Cash Amount Per Creation Unit	The Estimated Cash per Creation Unit is the Dividend Income minus the Accrued Expenses per share in the Trust multiplied by one creation unit. At the beginning of each trading day, NASDAQ disseminates this statistic via the ETF Daily Valuation message format.
Exchange Traded Funds (ETF)	ETFs are investment products that hold a pool of securities and are designed to generally correspond to the performance of a specific Index.
Hot Cut Release	A product release in which NASDAQ replaces an existing NIDS format with a new message format on a given date. Once the new format is implemented, NASDAQ ceases support for the old data format. The majority of NASDAQ product changes are "hot cut" releases.
Intra-day Portfolio Value (IPVs)	The IPV is the current dollar amount per share of what the ETF is worth. The IPV is defined as the sum of the total current market value of the ETF components, using only NASDAQ market trades, and the cash amount divided by the creation unit. The IPV is disseminated via the Index Details message format at 15 seconds intervals throughout the trading day.

Appendicies Current data feed product that features real-time market Level 1 Service: maker and BBO guotes for OTC Bulletin Board (OTCBB) issues. Previously, this data feed also supported intra-day values for select NASDAQ indexes and end-of-day price data from the Mutual Fund Quotation Service. In 2004, NASDAQ will migrate all Level 1 data elements to alternative data feeds. Market Data Network Managed, private data network operated by MCI on behalf (MDN) of NASDAQ from 2002 to 2004. In 2004, MCI and NASDAQ negotiated a contract for the new MCI Financial Extranet (MFx) that uses and expands on the basic MDN platform to provide better service to customers. NASDAQ Indices In its current format, the NIDS data feed features intra-day **Dissemination Service** portfolio values for exchange traded funds, end of day valuations for exchange traded funds and intra-day pricing (NIDS) for all NASDAQ indexes. **NASDAQ Subordinate Index** A number of markets trade futures and options based on Values licensed NASDAQ indices and ETF's. To facilitate trading on derivative markets, NASDAQ may calculate and disseminate subordinate index values on the NIDS data feeds. Typically, these subordinate index values are identical to or a set percentage of a major NASDAQ index (such as the NASDAQ-100 Index, NASDAQ Composite Index, or NASDAQ Biotechnology Index). The self-regulatory organization of the securities industry Financial Industry **Regulatory Authority** responsible for the regulation of the over-the-counter (FINRA) markets. FINRA operates under the authority granted it by the 1938 Maloney Act Amendment to the Securities Exchange Act of 1934. Net Accrued Dividend Net Accrued Dividend is the Dividend Income minus the Accrued Expenses in the Trust. It is also referred to as the Estimated Cash per Share or the Net Accrued Income. At the beginning of each trading day, NASDAQ disseminates this statistic via the ETF Daily Valuation message format. **Net Asset Value (NAV) from** The NAV is the market value of a share. This statistic is Trustee calculated by taking the Market Value of the underlying securities plus Dividends Received less Accrued Expenses divided by the shares outstanding of the Trust. At the beginning of each trading day, NASDAQ disseminates the NAV based on the prior day's trading via the ETF Daily Valuation message format.

Parallel Period	Appendicies A product release in which NASDAQ is phasing in a new NIDS message format to replace an existing message. In this implementation strategy, NASDAQ provides firms a period of time during which to migrate to the new message format before the old data format is discontinued. NASDAQ typically offers a parallel period only for major data releases involving multiple data feed products and/or network platforms.
SIP	Abbreviation for Security Information Processor. The firm that collects quotation and trade information from all exchanges and markets in listed issues and disseminates resultant data feed(s) to the public.
Total Cash Amount Per Creation Unit	The Total Cash per Creation Unit is the Estimated Cash plus the Balancing Amount per Creation Unit. At the beginning of each trading day, NASDAQ disseminates this statistic via the ETF Daily Valuation message format.
Total Shares Outstanding (TSO)	The TSO are the total number of shares of the underlying securities that are available in the Trust. At the beginning of each trading day, NASDAQ disseminates the current TSO via the ETF Daily Valuation message format.
UTP	Abbreviation for Unlisted Trading Privileges. Section 12(f) of the Securities and Exchange Act of 1934 permits exchanges to extend "unlisted trading privileges" on other exchange or markets.
UTP Plan	An industry committee that oversees the SIP and allocates revenues for SEC-mandated data for NASDAQ listed issues. The committee is comprised of representatives from the primary market and eligible UTP participants.
UTP Quote Data Feed (UQDF)	Introduced in July 2002, this SIP data feed product carries the UTP participant BBO and National BBO quotations for NASDAQ listed issues. This data feed replaced Level 1 as the primary source for consolidated quotation data for NASDAQ National Market and SmallCap issues.
UTP Trade Data Feed (UTDF)	Introduced in July 2002, this SIP data feed product carries the trade transaction data from all market participants (including Market Makers, ECNs, and UTP participants) for NASDAQ listed issues. This data feed replaced NTDS as the primary source of consolidated trade data for NASDAQ National Market and SmallCap issues.
Volume Weighted Average Price (VWAP)	A trading benchmark, VWAP is calculated by adding up the dollars traded for every transaction (price times shares traded) and then dividing by the total shares traded.

# Appendix C1 – NIDS Transmission Schedule (current)

<u>Note</u>: All times referenced regarding NIDS are approximate and are stated in US Eastern Time. This transmission schedule is based on a normal trading day. NASDAQ reserves the right to alter this schedule as necessary with minimal advance notice.

ObservedCategoryTypeIDOriginator ID05:00Start of Day Control MessageCIAE05:01Start of Day Control MessageCIAE05:02Start of Day Control MessageCIAE05:03Start of Day Control MessageCIAE(Control messages sent at one-minute intervals during operational day)CTAE(Control messages sent at one-minute intervals during operational day)CTAE(Control messages will be generated on an as-needed basis.)AAAE(Control message will be generated on an as-needed basis)CLAE07:00Index Directory MessageAJAQ07:10ETF Daily Valuation MessagesIFAQ08:30Calculation and Dissemination of Nasdaq-100 Pre-MarketIAAQ09:30Market Session Open MessageCOUQ16:00Market Session Closed MessageCCUQ16:5-Calculation and dissemination of Nasdaq-100 After-HoursIAAQ16:00Market Session Closed MessageCXUQ20:05End Trade Reporting Control MessageCXUQ20:06End Trade Reporting Control MessageCXUQ20:06End Trade Reporting Control MessageCX	Time	Transmission	Message	Message	Session	Market Center/
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07:00       Index Directory Message       A       J       A       Q         07:05       Issue Symbol Participation Messages       A       P       A       Q         07:06       ETF Daily Valuation Messages       I       F       A       Q         08:15 -       Calculation and Dissemination of Nasdaq-100 Pre-Market       I       A       A       Q         09:30       Market Session Open Message       C       O       U       Q         09:30:15 -       Calculation and dissemination of NASDAQ Index, NASDAQ       I       A       A       Q         17:16       Index Opening Values and ETF Intra-Day Portfolio values       (15-second intervals)       I       A       A       Q         16:00       Market Session Closed Message       C       C       U       Q         16:15 -       Calculation and Dissemination of Nasdaq-100 After-Hours       I       A       A       Q         20:05       End Trade Reporting Control Message       C       X       U       Q         20:06       End Trade Reporting Control Message       C       X       U       Q         20:07       End of Day Control Message       C       J       A       E         20:10       End o		(Control message will be generated on an as-needed basis)				
07:05       Issue Symbol Participation Messages       A       P       A       Q         07:10       ETF Daily Valuation Messages       I       F       A       Q         08:15 -       Calculation and Dissemination of Nasdaq-100 Pre-Market       I       A       A       Q         09:30       Market Session Open Message       C       O       U       Q         09:30       Market Session Open Message       C       O       U       Q         09:30       Market Session Open Message       C       O       U       Q         09:30       Market Session Open Message       C       O       U       Q         17:16       Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)       I       A       A       Q         16:00       Market Session Closed Message       C       C       U       Q         20:00       Indicator (One minute intervals)       I       A       A       Q         20:05       End Trade Reporting Control Message       C       X       U       Q         20:06       End Trade Reporting Control Message       C       X       U       Q         20:10       End of Day Control Message       C       J	07:00	Index Directory Message	A	J	A	Q
07:10       ETF Daily Valuation Messages       I       F       A       Q         08:15 -       Calculation and Dissemination of Nasdaq-100 Pre-Market Indicator (One minute intervals)       I       A       A       Q         09:30       Market Session Open Message       C       O       U       Q         09:30.15 -       Calculation and dissemination of NASDAQ Index, NASDAQ Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)       I       A       A       Q         17:16       Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)       I       A       A       Q         16:00       Market Session Closed Message       C       C       U       Q         16:15 -       Calculation and Dissemination of Nasdaq-100 After-Hours (16-second intervals)       I       A       A       Q         20:00       Indicator (One minute intervals)       I       A       A       Q         20:05       End Trade Reporting Control Message       C       X       U       Q         20:06       End Trade Reporting Control Message       C       X       U       Q         20:07       End of Day Control Message       C       J       A       E         20:10       End of Day Control Message	07:05	Issue Symbol Participation Messages	A	P	A	Q
08:15 -       Calculation and Dissemination of Nasdaq-100 Pre-Market       I       A       A       Q         09:30       Indicator (One minute intervals)       I       A       A       Q         09:30:15 -       Calculation and dissemination of NASDAQ Index, NASDAQ       I       A       A       Q         09:30:15 -       Calculation and dissemination of NASDAQ Index, NASDAQ       I       A       A       Q         17:16       Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)       I       A       A       Q         16:00       Market Session Closed Message (15-second intervals)       C       C       U       Q         16:15 -       Calculation and Dissemination of Nasdaq-100 After-Hours (16-second Indicator (One minute intervals)       I       A       A       Q         20:00       Indicator (One minute intervals)       I       A       A       Q         20:05       End Trade Reporting Control Message       C       X       U       Q         20:06       End Trade Reporting Control Message       C       J       A       E         20:10       End of Day Control Message       C       J       A       E         20:11       End of Retransmission Control Message       C <td< td=""><td>07:10</td><td>ETF Daily Valuation Messages</td><td></td><td>F</td><td>A</td><td>Q</td></td<>	07:10	ETF Daily Valuation Messages		F	A	Q
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09:30Market Session Open MessageCOUQ09:30:15 - 17:16Calculation and dissemination of NASDAQ Index, NASDAQIAAQ17:16Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)IAAQ16:00Market Session Closed MessageCCUQ16:15 - 20:00Calculation and Dissemination of Nasdaq-100 After-Hours Indicator (One minute intervals)IAAQ20:05End Trade Reporting Control MessageCXUQ20:06End Trade Reporting Control MessageCXUQ20:07End of Day Control MessageCXUQ20:10End of Day Control MessageCJAE20:11End of Day Control MessageCJAE20:12End of Day Control MessageCJAE20:13End of Retransmission Control MessageCJAE20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCZAE20:17End of Transmission Control MessageCZAE20:17End of Transmission Control MessageCZAE20:17End of Transmission Control MessageCZAE20:18 </td <td>09:30</td> <td>Indicator (One minute intervals)</td> <td></td> <td></td> <td></td> <td>-</td>	09:30	Indicator (One minute intervals)				-
09:30:15 -       Calculation and dissemination of NASDAQ Index, NASDAQ       I       A       A       Q         17:16       Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)       I       A       A       Q         16:00       Market Session Closed Message       C       C       U       Q         16:15 -       Calculation and Dissemination of Nasdaq-100 After-Hours Indicator (One minute intervals)       I       A       A       Q         20:00       Indicator (One minute intervals)       I       A       Q       Q         20:05       End Trade Reporting Control Message       C       X       U       Q         20:06       End Trade Reporting Control Message       C       X       U       Q         20:07       End Trade Reporting Control Message       C       X       U       Q         20:10       End of Day Control Message       C       J       A       E         20:11       End of Day Control Message       C       J       A       E         20:12       End of Retransmission Control Message       C       K       A       E         20:13       End of Retransmission Control Message       C       K       A       E         20:15	09:30	Market Session Open Message	С	0	U	Q
17:16Index Opening Values and ETF Intra-Day Portfolio values (15-second intervals)Image: Constraint of the constraint	09:30:15 -	Calculation and dissemination of NASDAQ Index, NASDAQ	I	A	A	Q
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20:07End Trade Reporting Control MessageCXUQ20:10End of Day Control MessageCJAE20:11End of Day Control MessageCJAE20:12End of Day Control MessageCJAE20:13End of Retransmission Control MessageCKAE20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCZAE20:17End of Transmission Control MessageCZAE20:17End of Transmission Control MessageCZAE20:18End of Transmission Control MessageCZAE	20:06	End Trade Reporting Control Message	C	X	U	Q
20:10End of Day Control MessageCJAE20:11End of Day Control MessageCJAE20:12End of Day Control MessageCJAE20:13End of Retransmission Control MessageCKAE20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCZAE(Time is approximate; delayed when retransmissions still active)CZAE20:17End of Transmission Control MessageCZAE20:18End of Transmission Control MessageCZAE	20:07	End Trade Reporting Control Message	C	X	U	Q
20:11End of Day Control MessageCJAE20:12End of Day Control MessageCJAE20:13End of Retransmission Control MessageCKAE20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCKAE(Time is approximate; delayed when retransmissions still active)CZAE20:17End of Transmission Control MessageCZAE20:18End of Transmission Control MessageCZAE	20:10	End of Day Control Message	C	J	A	E
20:12End of Day Control MessageCJAE20:13End of Retransmission Control MessageCKAE20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCZAE(Time is approximate; delayed when retransmissions still active)CZAE20:17End of Transmission Control MessageCZAE20:18End of Transmission Control MessageCZAE	20:11	End of Day Control Message	С	J	A	E
20:13End of Retransmission Control MessageCKAE20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCZAE(Time is approximate; delayed when retransmissions still active)CZAE20:17End of Transmission Control MessageCZAE20:18End of Transmission Control MessageCZAE	20:12	End of Day Control Message	С	J	A	E
20:14End of Retransmission Control MessageCKAE20:15End of Retransmission Control MessageCKAE20:16End of Transmissions MessageCZAE(Time is approximate; delayed when retransmissions still active)CZAE20:17End of Transmission Control MessageCZAE20:18End of Transmission Control MessageCZAE	20:13	End of Retransmission Control Message	С	K	A	E
20:15       End of Retransmission Control Message       C       K       A       E         20:16       End of Transmissions Message (Time is approximate; delayed when retransmissions still active)       C       Z       A       E         20:17       End of Transmission Control Message       C       Z       A       E         20:18       End of Transmission Control Message       C       Z       A       E	20:14	End of Retransmission Control Message	С	K	A	E
20:16       End of Transmissions Message       C       Z       A       E         (Time is approximate; delayed when retransmissions still active)       20:17       End of Transmission Control Message       C       Z       A       E         20:17       End of Transmission Control Message       C       Z       A       E         20:18       End of Transmission Control Message       C       Z       A       E	20:15	End of Retransmission Control Message	С	K	A	E
(Time is approximate; delayed when retransmissions still active)       Image: Constraint of the state of the	20:16	End of Transmissions Message	С	Z	A	E
20:17     End of Transmission Control Message     C     Z     A     E       20:18     End of Transmission Control Message     C     Z     A     E		(Time is approximate; delayed when retransmissions still active)				
20:18 End of Transmission Control Message C Z A E	20:17	End of Transmission Control Message	С	Z	Α	E
	20:18	End of Transmission Control Message	<u> </u>	7	A	F

# Appendix C2 – NIDS Transmission Schedule (*future*)

<u>Note</u>: All times referenced regarding NIDS are approximate and are stated in US Eastern Time. This transmission schedule is based on a normal trading day. NASDAQ reserves the right to alter this schedule as necessary with minimal advance notice.

Time	Transmission	Message	Message	Session	Market Center/
		Category	Туре	ID	Originator ID
02:55	Start of Day Control Message	С	I	A	E
02:56	Start of Day Control Message	С	I	A	E
02:57	Start of Day Control Message	С	I	A	E
	Line Integrity	С	Т	Α	E
	(Control messages sent at one-minute intervals during				
	operational day)				
	General Administrative Messages	A	A	Α	E
	(Free form text messages will be generated on an as-needed				
	basis.)				
	Message Sequence Number Reset	С	L	A	E
	(Control message will be generated on an as-needed basis)				
03:00 -	Dissemination of Index Detail Messages*	I	A	A	Q
20:10	(Calculation and dissemination of NASDAQ Index and ETF				
	Intra-Day Portfolio values)	-	_		
07:00	Index Directory Message	A	J	A	Q
07:15	Issue Symbol Participation Messages	A	Р	A	Q
07:30	ETF Daily Valuation Messages	I	F	A	Q
09:30	Market Session Open Message	С	0	U	Q
16:00	Market Session Closed Message	С	С	U	Q
16:15 –	Calculation and Dissemination of Nasdaq-100 After-Hours	I	A	Α	Q
20:00	Indicator (One minute intervals)				
20:05	End Trade Reporting Control Message	С	Х	U	Q
20:06	End Trade Reporting Control Message	С	Х	U	Q
20:07	End Trade Reporting Control Message	С	Х	U	Q
20:10	End of Day Control Message	С	J	A	E
20:11	End of Day Control Message	С	J	A	E
20:12	End of Day Control Message	С	J	Α	E
20:13	End of Retransmission Control Message	С	K	A	E
20:14	End of Retransmission Control Message	С	K	Α	E
20:15	End of Retransmission Control Message	С	K	A	E
20:16	End of Transmissions Message	С	Z	Α	E
	(Time is approximate; delayed when retransmissions still				
	active)				
20:17	End of Transmission Control Message	С	Z	A	E
20:18	End of Transmission Control Message	С	Z	A	E

\* Please note that NASDAQ will publish the dissemination times and intervals for new indexes via the NASDAQ Vendor alert process.

# Appendix D – Date/Time Translation Table

The following translation table is used to represent the Date and Time Stamp fields located in the Message Header of each NIDS message.

TIME	ASCII	HEXADECIMAL	DECIMAL
0	0	30	48
1	1	31	49
2	2	32	50
3	3	33	51
4	4	34	52
5	5	35	53
6	6	36	54
7	7	37	55
8	8	38	56
9	9	39	57
10	:	3A	58
11	;	3B	59
12	<	3C	60
13	=	3D	61
14	>	3E	62
15	?	3F	63
16	@	40	64
17	А	41	65
18	В	42	66
19	С	43	67
20	D	44	68
21	E	45	69
22	F	46	70
23	G	47	71
24	Н	48	72
25		49	73
26	J	4A	74
27	К	4B	75
28	L	4C	76
29	М	4D	77
30	N	4E	78
31	0	4F	79
32	Р	50	80
33	Q	51	81
34	R	52	82
35	S	53	83
36	Т	54	84
37	U	55	85
38	V	56	86
39	W	57	87
40	Х	58	88
41	Y	59	89
42	Z	5A	90

# The NASDAQ Stock Market

TIME	ASCII	HEXADECIMAL	DECIMAL
43	[	5B	91
44	Υ	5C	92
45	]	5D	93
46	^	5E	94
47	_	5F	95
48		60	96
49	а	61	97
50	b	62	98
51	С	63	99
52	d	64	100
53	е	65	101
54	f	66	102
55	g	67	103
56	h	68	104
57	i	69	105
58	j	6A	106
59	k	6B	107

Appendicies

# Appendix E – Deleted

NASDAQ no longer supports Test Cycle messages on NIDS. Therefore, Appendix E has been deleted.

# Appendix F – Version Control Information

Version	Date	Description of Documentation Change(s)
2002.2a	2/14/2003	<ul> <li>Termination of NTDS Vendor Specification</li> </ul>
2003-1	2/14/2003	<ul> <li>Introduction of the NASDAQ Index Dissemination Service<sup>sm</sup> (NIDS<sup>sm</sup>):</li> </ul>
2003-2	4/17/2003	<ul> <li>Update Section 1 to reflect two-week parallel period for NIDS implementation.</li> </ul>
		<ul> <li>Update Section 3.1.1 to reflect new IP multicast addresses for NIDS.</li> </ul>
		<ul> <li>Change name for WorldCom to MCI throughout document to reflect their corporate restructure.</li> </ul>
		<ul> <li>Removed lowercase characters from NIDS Test Cycle Message #1 in Appendix F.</li> </ul>
2003-2a	5/21/2003	<ul> <li>Revised sections 4.5 and 8.2.11 to properly reflect the processing of the End of Trade Reporting Control Message (Category C – Type X). The End of Trade Reporting Control Message will be disseminated three times, however, the message sequence number will not increase for the second or third message.</li> <li>Modified the allowable values for "Value for ETF Data Type" in section 7.</li> </ul>
		<ul> <li>For data consistency through out the document, removed reference to Estimated T-1 Cash Amount Per Index Receipt and redefined this as Net Accrued Dividend.</li> <li>Modified Section 10.3 Data Feed Message Formats processing of the Daily Valuation Message</li> </ul>
2003-3	9/17/2003	<ul> <li>Modified Section 1 of the document to reflect the October 2003 release of the new NASDAQ Composite Index Tracking Fund (ONEQ).</li> <li>Added the new symbology to Appendix A for ONEQ.</li> </ul>
		<ul> <li>Made modifications to the document to reflect that as of December 2003 NASDAQ will begin to populate the high, low and net change values for the Pre Market Indicator (PMI) and the After Hours Indicator (AHI) within the Index Detail Message (Category I – Type I).</li> </ul>
		<ul> <li>Modified section 9.3 to clarify that the AHI and PMI values will use filtered ".T" trade reports from the NASDAQ Market Center only, in its calculation.</li> </ul>
		<ul> <li>Delete Appendix D that referenced legacy NTDS service that was discontinued.</li> </ul>
2003-4	9/25/2003	<ul> <li>Modified section 1 of the document to introduce the NASDAQ Official Opening Price.</li> </ul>
		<ul> <li>Updated Section 2.2 to reflect the new NIDS bandwidth allocation as of January 2004 (to support the NASDAQ Open release).</li> </ul>
		<ul> <li>Modified section 4 of the document to accommodate the new message category and type code for the NASDAQ Official Opening Price.</li> </ul>

Appendicies		
Version	Date	Description of Documentation Change(s)
		<ul> <li>Added section 5.2 to show the message format for the NASDAQ Official Opening Price.</li> <li>Modified section 6 and 7 to assemble to he new fields for</li> </ul>
		Modified Section 6 and 7 to accommodate the new fields for the NASDAQ Official Opening Price message.
		<ul> <li>Added section 11 on the processing of the NASDAQ Official Opening Price message.</li> </ul>
		<ul> <li>Updated Appendices to reflect definitions, a new test cycle message, and timing for NASDAQ Official Opening Price message.</li> </ul>
2003-5	12/22/2003	<ul> <li>Updated Sections 1.2 and 11.1 to reflect both the NASDAQ Open and NASDAQ Close initiatives planned for 2004.</li> </ul>
		<ul> <li>Updated Section 1.3 to reflect the new data feeds required to create the Level 1 entitlement.</li> </ul>
		<ul> <li>Updated Sections 4.2 and Section 5.2 to reflect the following new NIDS messages to be released in March/April 2004:</li> </ul>
		<ul> <li>NASDAQ Official Opening Price Cancellation (Category T – Type H)</li> </ul>
		<ul> <li>NASDAQ Official Opening Price Correction (Category T – Type I)</li> </ul>
		<ul> <li>NASDAQ Official Closing Price Details (Category T – Type J)</li> </ul>
		<ul> <li>NASDAQ Official Closing Price Cancellation (Category T – Type K)</li> </ul>
		<ul> <li>NASDAQ Official Closing Price Correction (Category T – Type M)</li> </ul>
		<ul> <li>Updated Section 7 to add the field definitions associated with the new NASDAQ Official Opening Price and NASDAQ Official Closing Price messages listed above.</li> </ul>
		<ul> <li>Updated Sections 7 and 9.3 to remove net change calculation notes for the NASDAQ-100 Pre-Market Indicator and NASDAQ- 100 After Hours Indicator. Net change values are now included within Index Details message for these two indicators.</li> </ul>
		<ul> <li>Updated Section 11.2.3.1 to reflect the new Price Type value of NASDAQ Opening Cross to be supported in 2<sup>nd</sup> or 3<sup>rd</sup> quarter of 2004.</li> </ul>
		<ul> <li>Updated Section 11.2.3.5 to indicate that NASDAQ will be releasing new NASDAQ Official Opening Price cancellation and correction messages in the March/April 2004 timeframe. The new messages are intended to replace two of the Price Validation Indicators listed.</li> </ul>
		<ul> <li>Added Section 11.3 to provide basic message processing rules for the NASDAQ Official Closing Price messages to be released in March/April 2004.</li> </ul>
		<ul> <li>Updated Appendix C – NIDS Transmission Schedule to reflect the processing times for the new NASDAQ Official Opening Price and NASDAQ Official Closing Price messages.</li> </ul>
2004-1	2/4/2004	<ul> <li>Updated the Price Type allowable values in Section 7.0 to reflect "Q" for Supervisory Corrections</li> </ul>

		Appendicies
Version	Date	Description of Documentation Change(s)
		<ul> <li>Updated Section 11.2.3 to better explain field values when a NASDAQ supervisor corrects a NASDAQ Official Opening Price value.</li> <li>Added Section 11.2.4 to better explain field values when a NASDAQ supervisor corrects a NASDAQ Official Opening Price value in the March/April 2004 release</li> <li>Updated Section 11.3.2 to better explain field values when a NASDAQ supervisor corrects a NASDAQ Official Closing Price value.</li> <li>Updated references to NASDAQ Daily List to reflect new product effecting on NASDAQ Trader website</li> </ul>
2004-1a	2/20/2004	<ul> <li>Updated Section 11.3.2.1 to accurately describe that issues not subject to the NASDAQ Closing Cross will have their NOCP determined by the current NOCP calculation methodology.</li> </ul>
2004-2	3/5/2004	<ul> <li>Updated reference to the MCI managed network throughout the document to reflect the name change. As of March 2004, the new network name is the MCI Financial Extranet (MFx).</li> <li>Modified section 1.2.2 of the document to introduce the</li> </ul>
		<ul> <li>NASDAQ Volume Weighted Opening Price (VWOP) Initative.</li> <li>Updated Section 1.3 to reflect the necessary fee liability for the VWOP data.</li> </ul>
		<ul> <li>Modified section 4.2 of the document to accommodate the new message category and type codes for the new NASDAQ VWOP messages.</li> </ul>
		<ul> <li>Added section 5.1.4 to show the message format for the NASDAQ Volume Weighted Opening Price (VWOP) Category I – Type W message.</li> </ul>
		<ul> <li>Added the two new directory messages to section 5.3</li> <li>Index Directory Message (Category A – Type I)</li> <li>Issue Symbol Participation Message (Category A- Type W)</li> </ul>
		<ul> <li>Modified section 6 and 7 to accommodate the new fields for the NASDAQ VWOP messages.</li> </ul>
		Modified section 9.1 to include the new NASDAQ VWOP message.
		<ul> <li>Modified section 9.2. Revised the eligibility standards for the NASDAQ 100, NASDAQ Financial and NASDAQ Biotech indexes.</li> <li>Added section 9.5 on the processing of the NASDAQ VWOP</li> </ul>
		message (Category I – Type W).
		<ul> <li>Added section 12.3 on the processing of the Index Directory Message (Category A – Type I).</li> </ul>
		<ul> <li>Added section 12.4 on the processing of the Issue Symbol Participation Message (Category A- Type W).</li> </ul>
		Updated Appendices to reflect definitions and timing for he new VWOP related messages.

Appendicies		
Version	Date	Description of Documentation Change(s)
2004-3	6/1/04	<ul> <li>Updated Specifications (including appendices) to reflect the successful launch of the NASDAQ Closing Cross and the anticipated launch of the NASDAQ Opening Cross in the 3<sup>rd</sup> Quarter of 2004.</li> </ul>
		<ul> <li>Updated Specifications (including appendices) to reflect the NASDAQ market center<sup>SM</sup> trading system</li> </ul>
		<ul> <li>Updated Section 4.6 so that all Market Center Originator Ids of "Q" are NASDAQ System Generated.</li> <li>Updated the Price Type field in Section 7 so that all values of "R" reflect a NASDAQ Reference Price. "S" is no longer a valid value.</li> </ul>
		<ul> <li>Updated allowable value in the the Price Validation Indicator field in Section 7 to reflect changes for the NASDAQ Opening Cross.</li> </ul>
		Updated the footnotes in the Price Validation Indicator field to reflect the new Benchmark VWAP calculation for the NASDAQ Opening Cross.
		<ul> <li>Updated the processing guidelines for Reference Price data to accommodate the NASDAQ Opening Cross and the new associated field values.</li> <li>Deleted the original message contents (from the Japuary 2004)</li> </ul>
		<ul> <li>Deleted the original message contents (norm the January 2004 release) section from Section 11.</li> <li>Undated Section 11.2.3 to reflect that the NASDAO Official</li> </ul>
		• Opening Price should now update the market center daily high and low values.
		Opdated Prevailing Inside Bid and Prevailing Inside Ask references in Appendix B, the Glossary of Terms.
		<ul> <li>Updated Test Cycle Message 5 In Appendix E to reflect a Price Type value of "P".</li> <li>Updated all references to the VM/OP release to reflect the</li> </ul>
		anticipated production date of August 2004.
2004-3a	7/26/04	<ul> <li>Updated Section 7.0 to add the value of "S" in the Price Type field. Please note that this value was taken out of the previous version of the specifications.</li> </ul>
		<ul> <li>Updated Section 7.0 to redefine the value of "R" in the Price Type field.</li> </ul>
		<ul> <li>Updated footnotes 3 and 4 in Section7.0 to better explain the bounding of the opening and closing crosses.</li> </ul>
		<ul> <li>Updated Section 11.2.1 to reflect the updated names in the Price Type field.</li> </ul>
		• Updated the sale condition modifier table in Section 11.2.2 to reflect that the sale condition modifier of "W" will no longer update the last sale value.
		Updated Section 11.2.3.1 to reflect the updated names and descriptions in the Price Type field.
		Updated Section 11.2.3.3 and 11.2.3.4 to reflect the updated Price Type values.
		Updated Section 11.2.3.5 to better define the Price Validation Indicator values and associate those values with the applicable Price Type.
2004-3b	08/09/2004	<ul> <li>Modified Section 9.2 of the document to reflect the August 2004 release of the new America's Community Bankers NASDAO Index<sup>SM</sup> (ACBO).</li> </ul>

		Appendicies
Version	Date	Description of Documentation Change(s)
2004-3c	11/08/2004	<ul> <li>Modified Section 1 of the document to reflect that the NASDAQ 100 Index<sup>®</sup> Tracking Stock will list on the NASDAQ National Market<sup>®</sup> and trade under the symbol QQQQ.</li> <li>Added the new symbology to Appendix A for QQQQ.</li> <li>Consolidated the Interface and Transmission Protocol sections.</li> <li>Renumbered and repaginated document as necessary.</li> </ul>
2004-4	12/07/2004	<ul> <li>Updated section 1.3 (connectivity options) to reflect that Radianz and SAVVIS now support NASDAQ data feed products.</li> </ul>
2004-4a	12/20/2004	<ul> <li>Added link to website in section 1.3 for current list of Extranet Providers.</li> </ul>
2005-1	02/25/2005	<ul> <li>Modified Section 1 of the document to reflect the Introduction of a NASDAQ Index Opening Value to be implemented in May 2005.</li> <li>Modified Section 8.2 to reflect the most current description of NASDAQ Indexes.</li> <li>Added Section 8.6 to reflect the process procedures for the new Index Opening Value.</li> <li>Revised test cycle message #2 to reflect the new index detail message format (Category L - Type V)</li> </ul>
2005-1a	03/18/2005	Add Section 8.6.3 Display Guidelines for Index Opening Price.
2005-2	04/04/2005	<ul> <li>Modified section 1 of the document to reflect the Introduction of a new Issue Symbol Participation (Category A – Type V) for non-NASDAQ issues.</li> <li>Added Section 4.3.4 to define the new message format for the Issue Symbol Participation Message – Non-NASDAQ Issues.</li> <li>Modified Section 5 &amp; 6 to include new definitions and occurrences for the new administrative message</li> </ul>
2005-2a	07/01/2005	<ul> <li>Modified section 8.2 – Current List of NASDAQ Indices to include the following new index products:         <ul> <li>Nasdaq-100 Equal Weighted Index (Index Identifier: NDXE)</li> <li>Nasdaq Health Care Index (Index Identifier: IXHC)</li> <li>Two new subordinate index values based on the NASDAQ Composite Index. The "QCX" value will be equal to the NASDAQ Composite Index while the "QCE" value will be a one tenth (1/10<sup>th</sup>) reduced value of the NASDAQ Composite Index.</li> </ul> </li> </ul>
2005-2b	10/5/2005	<ul> <li>Modified Section 1.4 to reflect the most recent data entitlement requirements. Details may be found in NASDAQ Vendor Alert 2005-046.</li> </ul>
2005-2c	11/11/2005	<ul> <li>Added notation of the discontinuance of the VWOP message beginning February 2006.</li> </ul>
2005-2d	12/7/2005	<ul> <li>Modified section 8.2 – Current List of NASDAQ Indices to include the following new index product:         <ul> <li>NASDAQ Biotechnology Equal Weighted Index (Index Identifier: NBIE)</li> </ul> </li> </ul>
2005.2e	12/31/2005	<ul> <li>Modified section 8.2 – Current List of NASDAQ Indices to include the following new index product:         <ul> <li>NASDAQ Greater Dallas Chamber Index (Index Identifier: DTEC)</li> </ul> </li> </ul>

	Appendicies		
Version	Date	Description of Documentation Change(s)	
2006.1	04/13/2006	<ul> <li>Revised Section 1.2 to reflect the current data feed changes.</li> <li>Modified Appendix A – Exchange Traded Funds Current Symbol List to include the following new ETF products:         <ul> <li>First Trust NASDAQ-100 Equal Weighted Index Fund (ETF Identifier: QQEW)</li> <li>First Trust NASDAQ-100 Technology Index Fund (ETF Identifier: QTEC)</li> </ul> </li> <li>Removed all reference from the document the VWOP messages. Removed section 8.5 and renumbered document accordingly.</li> </ul>	
2006.1a	05/31/2006	<ul> <li>With the introduction of the new indexes scheduled for 2006 NASDAQ will add two new allowable values within Calculation Method field in Section 6:         <ul> <li>Equal Weighted (E)</li> <li>Float Based (F)</li> </ul> </li> </ul>	
2006.2	07/24/2006	<ul> <li>NASDAQ to extend system hours. The new trading hours will be from 7 a.m to 8 p.m Eastern Time (ET). Once implemented NIDS will modify the dissemination of Pre Market and After Hours indicators as follows:         <ul> <li>NASDAQ-100 Pre-Market Indicator (Symbol: QMI) begin at 7:15 a.m., ET.</li> <li>NASDAQ-100 After Hours Indicator (Symbol: QIV) to end 8:00 p.m., ET</li> </ul> </li> <li>NASDAQ will eliminate the Morning Test Cycle messages</li> <li>NASDAQ will shorten the transmission window for evening test transmission window for evening test</li> </ul>	
2006.3	11/13/2006	<ul> <li>Removed all documentation of NASDAQ Reference Price messages and renumber the document. These messages were eliminated on November 6, 2006.</li> </ul>	
2007.1	04/09/2007	<ul> <li>Modified documentation to reflect new Index Directory and Issue Participation messages to be implemented in the 3<sup>rd</sup> Quarter 2007. Following sections were impacted: 1.2 – New Initiatives; 3.2 – Message Header / Message Type; 4.2 – Administrative Message Formats; Section 5 – Field Occurrence Matrix; Section 6 – Field Definitions; Section 10 – Administrative Message Processing, Appendix B – Glossary, and Appendix C – Transmission Schedule</li> <li>Removed out-of-date references from the documentation.</li> </ul>	
2007.2	09/17/2007	<ul> <li>Modified documentation to reflect new Index Detail, Index Held and ETF Daily Valuation messages to be implemented in the 4<sup>th</sup> Quarter 2007. Following sections were impacted: 1.2 – New Initiatives; 3.2 – Message Header / Message Type; 4.1 – Index/ETF Message Formats; Section 5 – Field Occurrence Matrix; Section 6 – Field Definitions; Section 8 – Index Processing; Section 9 ETF Message Processing and Appendix C – Transmission Schedule</li> <li>Removed out-of-date references from the documentation</li> </ul>	

		Appendicies
Version	Date	Description of Documentation Change(s)
2008-1	01/14/2008	<ul> <li>Updated the document to reflect only the supported production formats.</li> <li>Revised Section 1.2 to reflect the current data feed changes.         <ul> <li>NIDS start-of-day control message (Category C – Type I) will go out at approximately 2:55 a.m., Eastern Time (ET).</li> <li>The Index Details (Category I – Type A) messages may begin dissemination as early as 3:00 a.m., ET.</li> </ul> </li> <li>Added allowable value to Market of Origin in section 6</li> <li>Added Appendix C2 to reflect the new NIDS Transmission</li> </ul>
2008-2	10/09/2008	<ul> <li>Modified the document to properly reflect the distinction between "opening value" and "settlement value".</li> <li>Modified the field definition for "Index Weightings for Issue" so as to allow for the use of calculation which includes foreign component securities.</li> </ul>