




Nasdaq Fund Network Data Service

Version: 2022-1
Revised: August 3, 2022

Distributed by:
Nasdaq Global Information Services
805 King Farm Boulevard, Suite 200
Rockville, MD 20850

Phone : +1 301 978 5307
Email : Clientsuccess@nasdaq.com
[NFNOps@nasdaq.com](mailto:NFNops@nasdaq.com)

Table of Contents



	1
1.0	Introduction.....	4
1.1	Background Information.....	4
1.2	Data Entitlement.....	4
1.3	Connectivity Options.....	4
1.4	Upcoming Release – NFN to add an Instrument Registration value.....	4
1.5	Previous Release – NFN to update Instrument Code Values.....	5
1.6	Document Scope.....	5
1.7	Customer Notifications.....	5
2.0	Transmission Characteristics.....	5
2.1	Bandwidth Requirements.....	5
2.2	Transmission Protocol.....	6
2.2.1	Protocol Overview.....	6
2.2.2	IP Multicast Addresses.....	6
2.3	Transmission Block.....	6
2.4	Field Descriptions.....	7
2.4.1	IP Header Fields.....	7
2.4.2	UDP Header Fields.....	8
2.4.3	UDP Data Fields.....	8
2.5	Character Set.....	9
2.6	Retransmission Capability.....	9
3.0	Message Header.....	11
3.1	Message Category.....	11
3.2	Message Type.....	11
3.3	Session Identifier.....	12
3.4	Retransmission Requester.....	12
3.5	Message Sequence Number.....	13
3.6	Originator ID.....	13
3.7	Date/Time.....	14
3.8	Test Symbol Flag.....	14
4.0	Data Formats.....	15
4.1	NFN Valuation Message Format - Mutual Funds, Unit Investment Trusts (UITs), Annuities, Structured Products, Alternative Investment Products (AIPs), NextShares Exchange Traded Managed Funds, Collective Investment Trust (CITs), Managed Accounts, Separate Accounts, Hedge Funds, and Demand Deposit Accounts.....	15
4.2	NFN Valuation Message – Money Market Funds.....	16
	133 Bytes.....	16
4.3	NFN Distributions.....	17
4.3.1	NFN Dividends / Income Distributions.....	18
4.3.2	NFN Capital Distributions.....	19
4.4	Administrative Messages.....	20
4.4.1	General Administrative (Free-Form Text) Message.....	20
4.4.2	NFN Daily Statistics.....	21

Table of Contents

4.4.3	NFN Symbol Directory	22
4.4.3.1.	NFN Symbol Directory Message with Expanded Instrument Code.....	22
5.0	Control Messages	22
6.0	Please note that the NFN control messages will not be modified in the second quarter 2011 release. Field Occurrence Matrix	22
7.0	Field Definitions.....	25
8.0	Control Messages	54
8.1	Overview	54
8.2	Control Message Description	54
8.2.1	NFN Session Close	54
8.2.2	NFN Session Open.....	54
8.2.3	Start Of Day.....	55
8.2.4	End Of Day	55
8.2.5	End Of Retransmission Requests	55
8.2.6	Message Sequence Number Reset	55
8.2.7	Start of Summary Spin	56
8.2.8	End of Summary Spin.....	56
8.2.9	Line Integrity	56
8.2.10	End Of Transmissions	56
9.0	Message Processing Guidelines – NFN Valuation Data	57
9.1	Data Description	57
9.2	Scope of Data	57
9.3	NFN Eligibility Standards	59
9.4	Fund Symbology	59
9.5	Message Processing.....	61
9.5.1	Hours of Operation.....	61
9.5.2	Intra-Day Updates for Valuation Data	61
9.5.3	NFN Summary Spin Transmissions –Valuation Data	63
9.5.4	Intra-Day Updates for Corporate Action Data	63
9.5.5	NFN Summary Spin Transmission – Corporate Action Data	64
9.5.6	Net Change Calculation.....	64
9.6	Fund Display Guidelines	65
10.0	General Administrative Messages.....	66
10.1	General Administrative Messages	66
10.2	Mutual Fund Statistics.....	66
10.3	NFN Symbol Directory.....	67
11.0	Format Release and Testing Information	67
11.1	Release Notification	67
11.2	Types of Testing.....	68
1.1	Identification of test data	68
	Appendix A – Glossary of Terms	69
	Appendix B - Transmission schedule	73
	Appendix C – Date/Time Translation Table.....	75
	Appendix D – Intentionally Left Blank	78
	Appendix E – Version Control Information.....	79

Transmission Characteristics

1.0 Introduction

1.1 Background Information

Operated by Nasdaq Information, LLC, the Nasdaq Fund Network (NFN) facilitates the collection and dissemination of price and earnings information for U.S. investment companies. Nasdaq disseminates data from the NFN system on the Nasdaq Fund Network Data Service. Specifically, Nasdaq disseminates the following data for NFN securities via NFN Data Service:

- For Mutual Funds, NFN Data Service carries daily net asset values (NAVs) and offer/market prices for those instruments registered with NFN. NFN Data Service also supports periodic reporting of dividend, stock dividends and capital gains data for NFN instruments.
- For Money Market Funds, NFN Data Service carries average maturity and 7-day yield data for those instruments registered with NFN.
- For Unit Investment Trusts (UITs), NFN Data Service provides offer price and NAV data as well as other valuation information for debt and equity instruments registered with NFN.

1.2 Data Entitlement

Nasdaq has instituted distributor fees for redistributors of NFN Data Service data. Please refer to the [Nasdaq Global Data Products Price List](#) on the Nasdaq Trader website for details.

1.3 Connectivity Options

Nasdaq offers direct access to the NFN Data Service data feeds via its U.S. data centers. Firms may connect to U.S. data centers via the [co-location facility](#), [extranets](#) or [direct connectivity providers](#).

In 2014, Nasdaq introduced a web delivery option for the NFN Data Service data content. For details, please refer to the [NFN Data Service web service specification](#).

1.4 Upcoming Release – NFN to add an Instrument Registration value

On September 26, 2022, Nasdaq is updating the Instrument Code values listed below:

Code	Old Value	New Value
R	Index: Autocall	Growth
S	Single Stock	Income
T	Index: Buffer/Barrier Enhanced Upside	Digital
U	Index: Principal Protected	Growth and Income

Transmission Characteristics

1.5 Previous Release – NFN to update Instrument Code Values

On **March 7th, 2022**, Nasdaq is adding a new Instrument Registration type.

Code	Value
U	UCITS

1.6 Document Scope

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

This document was updated on **August 3, 2022**. Please refer to Appendix E 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. As noted above, direct data feed subscribers are required to code their systems to handle data feed format changes. In advance of each NFN product changes, Nasdaq will post a news item on the [Nasdaq Trader](#) web site detailing the data feed format change and release schedule.

1.7 Customer Notifications

To ensure that firms receive the most up-to-date information on Nasdaq data feed products – including data format, processing and bandwidth changes, direct data feed subscribers are advised to sign up for automatic e-mail notifications via the Nasdaq Trader website. At a minimum, NFN Data Service data feed subscribers should select news types of “Data News” and “Data Technical News” for The Nasdaq Market Center. NFN Data Service subscribers may also want to subscribe to “System Alerts – General” for real-time information about Nasdaq system outages.

2.0 Transmission Characteristics**2.1 Bandwidth Requirements**

The current bandwidth allocation for the NFN Data Service data feed is:

Data Feed Channel	Bandwidth Allocation (Per Multicast Group)
NFN Data Service	500 Kbps

As noted below, Nasdaq broadcasts two (a primary and a back-up) multicast groups for its data feeds. Please note that Nasdaq reserves the right to modify the bandwidth allocation

Transmission Characteristics

for these IP calls 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 (8th 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. Please refer to [UDP/IP Addresses page](#) on the Nasdaq Trader website for the current NFN Data Service address and port assignments.

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

Transmission Characteristics

in an End of Text (ETX). With the exception of certain messages (e.g. Control messages), each message sent over NFN Data Service 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 Headers	S	Message 1 header and text	U	Message 2 header and text	U	Message n header and text	E
	O H		S		S		T X
<i>1000 Byte Block (Max) from SOH to ETX</i>							

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	16	32	
IP	VERSION 4 bits	HEADER LENGTH 4 bits	TYPE OF SERVICE 8 bits	TOTAL LENGTH (in bytes) 16 bits	
	IDENTIFICATION 16 bits			FLAGS 3 bits	FRAGMENT OFFSET 13 bits
	TIME TO LIVE 8 bits	PROTOCOL 8 bits		IP HEADER CHECKSUM 16 bits	
	SOURCE IP ADDRESS 32 bits				
	DESTINATION IP ADDRESS 32 bits				
	UDP	UDP SOURCE PORT NUMBER 16 bits		UDP DESTINATION PORT NUMBER 16 bits	
		UDP LENGTH 16 bits		UDP CHECKSUM 16 bits	
UDP Data (BLOCK DATA < 1000 BYTES)					

2.4 Field Descriptions

2.4.1 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.

Transmission Characteristics

- **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 not 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 the table above for a list of current multicast groups.

2.4.2 UDP Header Fields

The following field descriptions pertain to the UDP header:

- **UDP SOURCE PORT NUMBER** – 16 bit field identifies the Port₁₆ address for each IP multicast group. Please see section 3.1 for a list of the current source port numbers.
- **UDP DESTINATION PORT NUMBER** – 16 bit field identifies the Port₁₀ address for each IP multicast group. Please see section 3.1 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.

2.4.3 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.

Transmission Characteristics

- **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.

2.5 Character Set

All transmissions will be in standard ASCII code: 7 data bits and the 8th bit always zero.

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:

Message Type	Value
T	Line Integrity

In the event of a system problem, Nasdaq may also be unable to fulfill requests for messages sent prior to the Message Sequence Number Reset or Intra-Day Quote Wipe-Out control message.

NFN Data Service retransmission requests may be made by placing a phone call to Nasdaq Computer Operations at +1 203 926 3400 or by sending an electronic mail message to RETRANQ@nasdaq.com. 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.

Transmission Characteristics

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 2.7 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 Global Information Services at +1 301 978 5307 or clientsuccess@nasdaq.com.

Message Header

3.0 Message Header

All outbound messages shall begin with a message header that identifies the basic message content and dissemination order of the NFN Data Service data element being published.

The Message Header is 22 bytes in length. The field definitions for the NFN Data Service 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.

The Message Header will consist of the following data fields:

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

Originator ID	Date/Time	Test Symbol Flag
1	7	1

3.1 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
C	Control Messages
F	NFN Valuation Messages

3.2 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 current allowable Message Category / Message Type combinations are:

Administrative Messages:

Message Category Code	Message Type Code	Message Format Description
A	A	General Administrative Message (Free-Form Text)
A	G	NFN Daily Statistics
A	J	NFN Symbol Directory Through August 17, 2018
A	K	NFN Symbol Directory with Expanded Instrument Code as of August 20, 2018

Message Header

Control Messages (Defined in section 8 of this document):

Message Category Code	Message Type Code	Message Format Description
C	E	NFN Session Close
C	F	NFN Session Open
C	I	Start of Day
C	J	End of Day
C	K	End of Retransmission Requests
C	L	Message Sequence Number Reset
C	P	Start of Summary Spin
C	S	End of Summary Spin
C	T	Line Integrity
C	Z	End of Transmissions

NFN Valuation Messages:

Message Category Code	Message Type Code	Message Format Description
F	G	NFN Valuation Message – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trusts, Managed Accounts, Separate Accounts, Hedge Funds, Demand Deposit Accounts
F	I	NFN Valuation Message – Money Market Funds

NFN Corporate Action Messages:

Message Category Code	Message Type Code	Message Format Description
F	W	Dividends / Interest Report for all NFN Instrument Types
F	X	Distributions for all NFN Instrument Types

3.3 Session Identifier

The Session Identifier is comprised of one alphabetic byte. This field indicates the market session of the message to follow.

The current allowable values are as follows:

Code	Description
A	Session Independent
P	NFN - U.S. Session (8:00 a.m. – 8:00 p.m., ET)

3.4 Retransmission Requester

The Retransmission Requester is comprised of two, alphanumeric bytes. This field indicates if the message is an original transmission or retransmission. If the message is a retransmission, this field indicates the two-character retransmission identifier of the intended data recipient.

Message Header

All NFN Data Service recipients must code their systems to process the following values:

Code	Description
O (space)	Original Transmission to All
R (space)	Retransmission to All
<i>Specific Vendor ID</i>	To be assigned on vendor-by-vendor basis.

Note: In addition to these three codes, Nasdaq will assign a special two-character retransmission requester to each direct subscriber of NFN Data Service. 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 Nasdaq Global Information Services at +1 301 978 5307 or Clientsuccess@nasdaq.com. For more information on the NFN Data Service retransmission capability, please refer to section 3.6 of this document.

3.5 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). Throughout the day, the message sequence number for each original transmission will be incremented by one with the exception of the 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.

For more information on these control messages, please refer to section 8 of this document. To obtain the test cycle messages, please refer to Appendix D of this document.

3.6 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	NFN Data Service Data Feed Handler
F	Nasdaq Fund Network (NFN) host system

Message Header

3.7 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 identified in the Market Center Originator ID field. 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 transaction occurred. This two-byte field will be stated in numeric format, with possible values 00 to 99.
- **Date Month:** The month the transaction occurred. 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 transaction occurred. 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 transaction occurred 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 transaction occurred. 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 transaction occurred. 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.

Note: The Date/Time translation table is available in Appendix C of this document.

3.8 Test Symbol Flag

Nasdaq uses this field to denote if the NFN Data Service data element to follow is related to a live or test symbol. The allowable values are:

Code	Description
T	NFN Test Symbol
<space>	NFN Live / Production Symbol

Field Definitions

4.0 Data Formats

In this section, Nasdaq illustrates the field layout for each NFN Data Service message format. The data definition for each field is outlined in section 7 of this document. For NFN Data Service message processing guidelines, please refer to section 10 of this document.

4.1 NFN Valuation Message Format - Mutual Funds, Unit Investment Trusts (UITs), Annuities, Structured Products, Alternative Investment Products (AIPs), NextShares Exchange Traded Managed Funds, Collective Investment Trust (CITs), Managed Accounts, Separate Accounts, Hedge Funds, and Demand Deposit Accounts.

Category F – Type G

Nasdaq will use the following NFN valuation message to support the daily price reporting from Mutual Funds, Unit Investment Trusts (UITs), Annuities, Structured Products, Alternative Investment Products (AIPs), NextShares Exchange Traded Mutual Funds, Collective Investment Trust (CITs), Managed Accounts, Separate Accounts, Hedge Funds, and Demand Deposit Accounts.

This NFN Valuation message will support valuation data for the life of the instrument.

Instrument Type / Tier	Symbol	Reporting Type	Footnotes	Net Asset Value (NAV)
2	11	1	10	13

Offer Price	Market Price	Redemption Price	Wrap Price	Total Net Assets
13	13	13	13	15

Current Yield	Current Yield Direction	Estimated Long Term Return (ELTR)	ELTR Direction	Accrued Interest
9	1	9	1	13

Daily Dividend Factor	Daily Dividend Adjustment Indicator	Currency	Entry Date
9	1	3	8

158 bytes

Field Definitions

4.2 NFN Valuation Message – Money Market Funds*Category F – Type I*

Nasdaq will use the following NFN valuation message to support the intraday, daily and weekly price reporting from Money Market Funds.

This NFN Valuation message will support valuation data for the life of the fund.

Instrument Type / Tier	Symbol	Reporting Type	Footnotes	Average Maturity
2	11	1	10	3

Average Life	NAV	Gross 7 Day Yield	Gross 7 Day Yield Direction	Subsidized 7 Day Yield
3	13	9	1	9

Subsidized 7 Day Yield Direction	Effective Annualized 7 Day Yield	Effective Annualized 7 Day Yield Direction	30 Day Yield	30 Day Yield Direction
1	9	1	9	1

30 Day Yield Date	Daily Dividend Factor	Daily Dividend Adjustment Indicator	Total Net Assets	Currency
8	9	1	15	3

Entry Date	Calculation Time
8	6

133 Bytes

Field Definitions

4.3 NFN Distributions

Nasdaq supports two message formats that relay income distributions and capital distributions to the market data community.

- The **Dividend / Interest message** may be used to report dividend and interest payments for NFN instruments. Because the message format provides explicit date fields, NFN fund families and trust sponsors may report their income distributions in advance.
- The **Distributions message** may be used to report capital distributions for NFN instruments. Because the message format provides explicit date fields, NFN fund families and trust sponsors may report their capital distributions in advance.

Please note that the Corporate Action processing logic is based on the Symbol, Ex-Date and Action fields. Firms may use the Action field to determine the appropriate database action for the stated Symbol, Cash Distribution Type and Ex-Date. For the Corporate Action Reporting field, the possible values will be:

Actions		
Code	Value	Appropriate Database Action
N	New Dividend or Distribution record	Add the new record to database for the symbol, cash distribution type and ex-date.
C	Corrected Dividend or Distribution record	Replace the existing record in database for the symbol, cash distribution type and ex-date with the new record.
X	Cancelled corporate action record	Remove the existing record in database for the given symbol, cash distribution type and ex-date.
E	Restatement of the Corporate Action in the NFN Data Service Ex-Date spin	Verify the existing record in database for given symbol, cash distribution and ex-date.

Field Definitions

4.3.1 NFN Dividends / Income Distributions*Category F – Type W*

Nasdaq will use the following message format will be used to report cash dividends, stock dividends and interest payment information for NFN instruments. Nasdaq disseminates the NFN Corporate Actions - Dividends and Interest message format at the time of data entry as well as part of a pre-opening spin on ex-date.

Instrument Type / Tier	Symbol	Action	Cash Distribution Type	Total Cash Distribution
2	11	1	1	13

Non-Qualified Cash Distribution	Qualified Cash Distribution	Tax-Free Cash Distribution	Ordinary Foreign Tax Credit	Qualified Foreign Tax Credit
13	13	13	13	13

Stock Dividend Ratio	Currency	Payment Date	Record Date	Ex Date
11	3	8	8	8

Reinvest Date
8

139 Bytes

Field Definitions

4.3.2 NFN Capital Distributions*Category F – Type X*

Nasdaq will use the following message format is used to report capital distributions information for NFN instruments. Nasdaq disseminates the NFN Corporate Actions – Capital Distributions message format at the time of data entry as well as part of a pre-opening spin on ex-date.

Instrument Type / Tier	Symbol	Action	Short-Term Capital Gain	Long-Term Capital Gain
2	11	1	13	13

Unallocated Distributions	Return of Capital (ROC)	Currency	Payment Date	Record Date
13	13	3	8	8

Ex Date	Reinvest Date
8	8

101 Bytes

Field Definitions

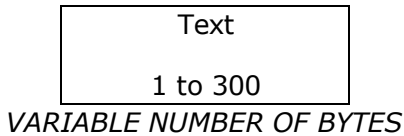
4.4 Administrative Messages

Nasdaq supports the following administrative messages on the NFN Data Service. Of these messages, only the NFN Directory message will be updated in the second quarter 2011 release.

4.4.1 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.



Field Definitions

4.4.2 NFN Daily Statistics*Category A – Type G*

Nasdaq will use the following NFN Statistic message to relay the number of instruments reporting NAVs or other relevant valuation data points during the current session. The NFN statistics message will immediately follow the start of summary spin control event.

Mutual Fund Media List 7	Mutual Fund Supplemental List 7	Mutual Fund Reporting 7	Money Market Fund Media List 7	Money Market Fund Supplemental List 7
Money Market Fund Reporting 7	Debt UIT List 7	Debt UIT Reporting 7	Equity UIT List 7	Equity UIT Reporting 7
Structured Product List 7	Structured Product Reporting 7	Annuity List 7	Annuity Reporting 7	AIP List 7
AIP Reporting 7	NextShares List (pka ETMF List) 7	NextShares Reporting (pka ETMF Reporting) 7	Collective Investment Trust List 7	Collective Investment Trust Reporting 7
Managed Accounts List 7	Managed Accounts Reporting 7	Separate Accounts List 7	Separate Accounts Reporting 7	Hedge Fund List 7
Hedge Fund Reporting 7	Demand Deposit Account List 7	Demand Deposit Account Reporting 7	NFN Data Service Spin Count 1	

197 bytes

Field Definitions

4.4.3 NFN Symbol Directory**4.4.3.1. NFN Symbol Directory Message with Expanded Instrument Code***Category A – Type K*

Nasdaq will use the following message format to relay basic instrument information, such as the Symbol, Instrument Name, Instrument Code, Instrument Registration and Expected Pricing Frequency, for NFN instruments. For closed-end mutual funds and NextShares exchange traded funds, the NFN directory also relays the primary listing Market Identification Code (MIC) and trading symbol for the instrument if needed for market data mapping purposes. The NFN Directory messages are disseminated as part of the NFN Data Service pre-opening process.

Instrument Type / Tier	Instrument Code	Symbol	Pricing Frequency	Instrument Name
2	4	11	1	150

Exchange Code for Listed Instruments	Exchange Symbol For Listed Instruments	Currency	Instrument Registration	Model Portfolio Flag
4	11	3	1	1

*188 bytes***5.0 Control Messages**

Control messages consist of a message header only. For processing information, please refer to section 9 of this document.

6.0 Please note that the NFN control messages will not be modified in the second quarter 2011 release. Field Occurrence Matrix

The following table outlines the Message Category and Message Type by field name.

Field Name	Message Category	Message Type(s)
Accrued Interest	F	G
Action	F	W, X
AIP List	A	G
AIP Reporting	A	G
Annuity List	A	G
Annuity Reporting	A	G

Field Definitions

Field Name	Message Category	Message Type(s)
Average Life	F	I
Average Maturity	F	I
Calculation Time	F	I
Cash Distribution Type	F	W
Collective Investment Trust (CIT) Listing	A	G
Collective Investment Trust (CIT) Reporting	A	G
Currency	A	J,K
Currency	F	G, I, W, X
Current Yield	F	G
Current Yield Direction	F	G
Daily Dividend Adjustment Indicator	F	G, I
Daily Dividend Factor	F	G, I
Debt UIT List	A	G
Debt UIT Reporting	A	G
Demand Deposit Account Listing	A	G
Demand Deposit Account Reporting	A	G
Effective Annualized 7 Day Yield	F	I
Effective Annualized 7 Day Yield Direction	F	I
ELTR Direction	F	G
Entry Date	F	G, I
Equity UIT List	A	G
Equity UIT Reporting	A	G
Estimated Long Term Return (ELTR)	F	G
Ex Date	F	W, X
Exchange Code for Listed Instruments	A	J, K
Exchange Symbol For Listed Instruments	A	J, K
Footnotes	F	G, I
Gross 7 Day Yield	F	I
Gross 7 Day Yield Direction	F	I

Field Definitions

Field Name	Message Category	Message Type(s)
Hedge Funds Listing	A	G
Hedge Funds Reporting	A	G
Instrument Code	A	J, K
Instrument Name	A	J, K
Instrument Registration	A	J, K
Instrument Type / Tier	A	J, K
Instrument Type / Tier	F	G, I, W, X
Long Term Capital Gain	F	X
Market Price	F	G
Managed Accounts Listing	A	G
Managed Accounts Reporting	A	G
NFN Data Service Spin Count	A	G
Symbol	A	J, K
Symbol	F	G, I, W, X
Model Portfolio Flag	A	K
Money Market Fund News Media List	A	G
Money Market Fund Reporting	A	G
Money Market Fund Supplemental List	A	G
Mutual Fund News Media List Count	A	G
Mutual Fund Supplemental List Count	A	G
NFN Fund Reporting	A	G
Net Asset Value (NAV)	F	G, I
NextShares List (pka EMTF List)	A	G
NextShares Reporting (pka EMTF Reporting)	A	G
Non-Qualified Cash Distribution	F	W
Offer Price	F	G
Ordinary Foreign Tax Credit	F	W
Payment Date	F	W, X
Pricing Frequency	A	J, K
Qualified Cash Distribution	F	W
Qualified Foreign Tax Credit	F	W
Record Date	F	W, X

Field Definitions

Field Name	Message Category	Message Type(s)
Redemption Price / Redemption NAV	F	G
Reinvest Date	F	W, X
Reporting Type	F	G, I
Return of Capital	F	X
Separate Accounts Listing	A	G
Separate Accounts Reporting	A	G
Short Term Capital Gain	F	X
Stock Dividend Ratio (pka Stock Dividend Factor)	F	W
Structured Product List	A	G
Structured Product Reporting	A	G
Subsidized 7 Day Yield	F	I
Subsidized 7 Day Yield Direction	F	I
Tax Free Cash Distribution	F	W
Text	A	A
30 (Thirty) Day Yield	F	I
30 (Thirty) Day Yield Date	F	I
30 (Thirty) Day Yield Direction	F	I
Total Cash Distribution	F	W
Total Net Assets	F	G, I
Unallocated Distribution	F	X
Wrap Price	F	G

7.0 Field Definitions

Note: 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.

A

Field Name	Accrued Interest
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, SIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)
Field Format	13 bytes, Alphanumeric
Definition	This field denotes the interest accrued for a NFN instrument since the last interest payment was made to investors. The field format is:

Field Definitions

	<ul style="list-style-type: none"> • If accrued interest is entered into NFN, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The accrued interest value will be zero filled as necessary. • If no accrued interest is entered, the field will contain the value "NA" (right justified, space filled).
--	---

Field Name	Action										
Message Format(s)	NFN Corporate Action – Dividends/Interest (Category F – Type W) NFN Corporate Action – Distributions (Category F – Type X)										
Field Format	1 byte, Alphanumeric.										
Definition	<p>This field indicates the type of corporate action update that is being disseminated for the stated Symbol, Cash Distribution Type and Ex-Date. The allowable values will be:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 95%;"></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">N</td> <td>New record: Add corporate action record for stated symbol, cash distribution type and ex-date.</td> </tr> <tr> <td style="text-align: center;">C</td> <td>Corrected record: Update corporate action record for stated symbol, cash distribution type and ex-date with new field values.</td> </tr> <tr> <td style="text-align: center;">X</td> <td>Cancelled record: Remove corporate action record for stated symbol, cash distribution type and ex-date.</td> </tr> <tr> <td style="text-align: center;">E</td> <td>Restated / Corporate Action Spin record: Verify corporate action record for stated symbol, cash distribution type and ex-date in database.</td> </tr> </tbody> </table>			N	New record: Add corporate action record for stated symbol, cash distribution type and ex-date.	C	Corrected record: Update corporate action record for stated symbol, cash distribution type and ex-date with new field values.	X	Cancelled record: Remove corporate action record for stated symbol, cash distribution type and ex-date.	E	Restated / Corporate Action Spin record: Verify corporate action record for stated symbol, cash distribution type and ex-date in database.
N	New record: Add corporate action record for stated symbol, cash distribution type and ex-date.										
C	Corrected record: Update corporate action record for stated symbol, cash distribution type and ex-date with new field values.										
X	Cancelled record: Remove corporate action record for stated symbol, cash distribution type and ex-date.										
E	Restated / Corporate Action Spin record: Verify corporate action record for stated symbol, cash distribution type and ex-date in database.										

Field Name	AIP List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Alternative Investment Products (AIPs) currently registered with NFN.

Field Name	AIP Reporting
Message Format(s)	<i>NFN Daily Statistics (Category A – Type G)</i>
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of AIPs that reported a NAV for the current business day.

Field Name	Annuity List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Annuities currently registered with NFN.

Field Definitions

Field Name	Annuity Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Annuities that reported redemption NAV for the current entry day.

Field Name	Average Life
Message Format(s)	NFN Valuation – Money Market Fund (Category F – Type I)
Field Format	3 bytes, Alphanumeric.
Definition	<p>This field reflects the weighted average life (in days) of a money market fund as calculated in accordance with the SEC Money Market Reform Act. The field format is as follows:</p> <ul style="list-style-type: none"> • If average life is entered, the amount will be stated in numeric format (right justified, zero filled). • If no average life is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Average Maturity
Message Format(s)	NFN Valuation – Money Market Fund (Category F – Type I)
Field Format	3 bytes, Alphanumeric.
Definition	<p>This field indicates the average time to maturity (stated in days) of the securities held by the fund. The field format is as follows:</p> <ul style="list-style-type: none"> • If average maturity is entered, the amount will be stated in numeric format (right justified, zero filled). • If no average maturity is entered, the field will contain the value "NA" (right justified, space filled).

Field Definitions

C

Field Name	Calculation Time
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	6 bytes, Alphanumeric. HHMMSS or NA.
Definition	<p>Denotes the NFN pricing agent calculation time from the inbound money market message format. Field will be populated in HHMMSS (military time) format for the U.S. Eastern Time (ET) zone.</p> <p>Examples:</p> <ul style="list-style-type: none"> • 110000 => 11:00 a.m., ET • 160000 => 4:00 p.m., ET <p>If no time is provided in the inbound NFN message format, the field will be populated as "NA".</p>

Field Name	Cash Distribution Type										
Message Format(s)	NFN Corporate Actions – Dividends / Interest (Category F – Type W)										
Field Format	1 byte, Alphanumeric.										
Definition	<p>This field indicates the type of cash distribution being reported in the following cash distribution fields. The allowable values will be:</p> <table border="1" data-bbox="553 1104 1435 1339"> <tr> <td></td> <td></td> </tr> <tr> <td>D</td> <td>Cash Dividend (Default for Mutual Funds)</td> </tr> <tr> <td>I</td> <td>Interest Income (Default for UITs)</td> </tr> <tr> <td>S</td> <td>Special Cash Dividend (Used on as of basis by all instrument types)</td> </tr> <tr> <td><space></td> <td>Not applicable, no cash distribution being reported (only stock dividends).</td> </tr> </table>			D	Cash Dividend (Default for Mutual Funds)	I	Interest Income (Default for UITs)	S	Special Cash Dividend (Used on as of basis by all instrument types)	<space>	Not applicable, no cash distribution being reported (only stock dividends).
D	Cash Dividend (Default for Mutual Funds)										
I	Interest Income (Default for UITs)										
S	Special Cash Dividend (Used on as of basis by all instrument types)										
<space>	Not applicable, no cash distribution being reported (only stock dividends).										

Field Name	Collective Investment Trusts (CITs) List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Collective Investment Trusts (CITs) currently registered with NFN.

Field Name	Collective Investment Trusts (CITs) Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Collective Investment Trusts (CITs) that reported redemption NAV for the current entry day.

Field Definitions

Field Name	Currency				
Message Format(s)	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p> <p>NFN Valuation – Money Market Funds (Category F – Type I)</p> <p>NFN Corporate Action – Dividend/Interest (Category F – Type W)</p> <p>NFN Corporate Action – Distribution (Category F – Type Y)</p> <p>NFN Symbol Directory (Category A – Type k)</p>				
Field Format	3 bytes, Alphanumeric.				
Definition	<p>This field indicates the ISO currency code associated with the NFN price-related fields. Default value will be:</p> <table border="1" data-bbox="553 842 1425 909"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>USD</td> <td>US Dollars</td> </tr> </tbody> </table>	Code	Value	USD	US Dollars
Code	Value				
USD	US Dollars				

Field Name	Current Yield
Message Format(s)	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p>
Field Format	9 bytes, Alphanumeric.
Definition	<p>This field indicates the current yield (annual rate of return on investment) for a NFN instrument.</p> <ul style="list-style-type: none"> • If current yield is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd format. The yield will be zero filled as necessary. This field is expressed as a percentage. [Example, a 5.75% effective annualized yield would be stated as "0005.7500".] • If no current yield is entered, the field will contain the value "NA" (right justified, space filled).

Field Definitions

Field Name	Current Yield Direction								
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)								
Field Format	1 byte, Alphanumeric (including special characters).								
Definition	This field indicates if the current yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be: <table border="1" data-bbox="553 615 1445 758"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>Negative yield; Current yield is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td><dash></td> <td>Negative yield; Current yield is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td><space></td> <td>Positive or zero yield (Default)</td> </tr> </tbody> </table>	Code	Value	-	Negative yield; Current yield is less than 0.00% so it should be displayed with negative sign.	<dash>	Negative yield; Current yield is less than 0.00% so it should be displayed with negative sign.	<space>	Positive or zero yield (Default)
Code	Value								
-	Negative yield; Current yield is less than 0.00% so it should be displayed with negative sign.								
<dash>	Negative yield; Current yield is less than 0.00% so it should be displayed with negative sign.								
<space>	Positive or zero yield (Default)								

D

Field Name	Daily Dividend Factor
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G) NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	9 bytes, Alphanumeric.
Definition	This field indicates the dividend factor for a NFN instrument that declares a daily dividend. Please refer to the Daily Dividend Adjustment Indicator to determine if the NFN pricing agent made adjustments for weekends and holidays. <ul style="list-style-type: none"> • If Daily Dividend is entered, the amount will be stated in the following numeric format: \$.dddddd format. • If Daily Dividend is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Daily Dividend Adjustment Indicator
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G) NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	1 byte, Alphanumeric.

Field Definitions

Definition	This field indicates if the Daily Dividend Adjustment Factor was fattened to reflect weekend, holiday or other non-reported period. Allowable values are:	
	Code	Value
	Y	Fat adjustment reflected in Daily Dividend Factor
	N	No fat adjustment for Daily Dividend Factor
	<space>	Not applicable; no Daily Dividend Factor provided

Field Name	Debt UIT List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of debt-focused UITs currently registered with NFN.

Field Name	Debt UIT Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Debt UITs that reported redemption NAV for the current entry day.

Field Name	Demand Deposit Account List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Demand Deposit Accounts currently registered with NFN.

Field Name	Demand Deposit Account Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Demand Deposit Accounts that reported redemption NAV for the current entry day.

E

Field Name	Effective Annualized 7 Day Yield
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	9 bytes, Alphanumeric.

Field Definitions

Definition	<p>This field indicates the effective yield for a money market fund. In calculating the effective annualized yield, most money markets assume that any income earned is reinvested. The field format is as follows:</p> <ul style="list-style-type: none"> • If effective annualized yield is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd. This field is expressed as a percentage. [Example, a 5.75% effective annualized yield would be stated as "0005.7500".] • If no effective annualized yield is entered, the field will contain the value "NA" (right justified, space filled). • Please see the following yield direction field to determine if the effective annualized 7 day yield should be stated as a positive or negative number.
-------------------	--

Field Name	Effective Annualized 7 Day Yield Direction						
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)						
Field Format	1 byte, Alphanumeric (including special characters).						
Definition	<p>This field indicates if the effective annualized 7 day yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="background-color: #e1eef6;">Code</th> <th style="background-color: #e1eef6;">Value</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">- <dash></td> <td>Negative yield; Effective annualized yield is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td style="text-align: center;"><space></td> <td>Positive or zero yield (Default)</td> </tr> </tbody> </table>	Code	Value	- <dash>	Negative yield; Effective annualized yield is less than 0.00% so it should be displayed with negative sign.	<space>	Positive or zero yield (Default)
Code	Value						
- <dash>	Negative yield; Effective annualized yield is less than 0.00% so it should be displayed with negative sign.						
<space>	Positive or zero yield (Default)						

Field Name	Entry Date
Message Format(s)	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p> <p>NFN Valuation – Money Market Funds (Category F – Type I)</p>
Field Format	8 bytes, Alphanumeric.

Field Definitions

Definition	<p>This field denotes the date associated with the price information in the NFN Valuation message.</p> <ul style="list-style-type: none"> • If an entry date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the date. • For current day's valuation data, the entry date should be equal to the current day's date. • If the date is earlier than the current business date, the message should be used to correct the historical database record for the fund. • If no entry date is entered, the field will either be space filled. When this field is populated this way the intent is for the transaction to represent data for the current trading day.
-------------------	---

Field Name	Equity UIT Count
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of equity-focused UITs currently registered with NFN.

Field Name	Equity UIT Reporting
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Equity UITs that reported redemption NAV for the current entry day.

Field Name	Estimated Long Term Return (ELTR)
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)
Field Format	9 bytes, Alphanumeric.
Definition	<p>Estimated return (yield) over the life of the portfolio of a UIT or other NFN instrument.</p> <ul style="list-style-type: none"> • If ELTR is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd format. The ELTR will be zero filled as necessary. This field is expressed as a percentage. [Example, a 5.75% ELTR would be stated as "0005.7500".] • If no ELTR is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	ELTR Direction
-------------------	-----------------------

Field Definitions

Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)				
Field Format	1 byte, Alphanumeric (including special characters).				
Definition	This field indicates if the estimated long term return (ELTR) should be stated as a positive or negative number for the NFN instrument. Allowable values will be: <table border="1" style="margin-left: 20px;"> <tr> <td>- <dash></td> <td>Negative yield or return; ELTR is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td><space></td> <td>Positive or zero ELTR (Default)</td> </tr> </table>	- <dash>	Negative yield or return; ELTR is less than 0.00% so it should be displayed with negative sign.	<space>	Positive or zero ELTR (Default)
- <dash>	Negative yield or return; ELTR is less than 0.00% so it should be displayed with negative sign.				
<space>	Positive or zero ELTR (Default)				

Field Name	Ex Date
Message Format(s)	NFN Corporate Action – Dividends / Interest (Category F – Type W) NFN Corporate Action – Distributions (Category F – Type X)
Field Format	8 bytes, alphanumeric.
Definition	This field indicates the ex date for the dividend or distribution. This is the date that NAV should be adjusted. <ul style="list-style-type: none"> • If an ex date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the date. • If no ex date is entered by the NFN inbound user, Nasdaq will populate this field with the current trading date.

Field Name	Exchange Code for Listed Instruments (pka Listing Market Center)
Message Format(s)	NFN Symbol Directory (Category A – Type K)
Field Format	4 bytes, Alphanumeric.

Field Definitions

Definition	<p>This field indicates the ISO 10383 Market Identification Codes (MICs) for the listing market center for a NFN instrument, if applicable. For the U.S. equity markets, the current MIC codes are:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>XASE</td> <td>NYSE MKT (pka NYSE Amex)</td> </tr> <tr> <td>XNYS</td> <td>New York Stock Exchange (NYSE)</td> </tr> <tr> <td>XNAS</td> <td>The NASDAQ Stock Market</td> </tr> <tr> <td>ARCX</td> <td>NYSE Arca</td> </tr> <tr> <td>BATS</td> <td>BATS Exchange</td> </tr> <tr> <td>IEXG</td> <td>Investors' Exchange, LLC</td> </tr> <tr> <td>XXXX</td> <td>Instrument Not Listed on Exchange</td> </tr> <tr> <td><space></td> <td>No Exchange Code Not Available</td> </tr> </tbody> </table>	Code	Value	XASE	NYSE MKT (pka NYSE Amex)	XNYS	New York Stock Exchange (NYSE)	XNAS	The NASDAQ Stock Market	ARCX	NYSE Arca	BATS	BATS Exchange	IEXG	Investors' Exchange, LLC	XXXX	Instrument Not Listed on Exchange	<space>	No Exchange Code Not Available
Code	Value																		
XASE	NYSE MKT (pka NYSE Amex)																		
XNYS	New York Stock Exchange (NYSE)																		
XNAS	The NASDAQ Stock Market																		
ARCX	NYSE Arca																		
BATS	BATS Exchange																		
IEXG	Investors' Exchange, LLC																		
XXXX	Instrument Not Listed on Exchange																		
<space>	No Exchange Code Not Available																		

Field Name	Exchange Symbol For Listed Instruments (pka Listing Market Symbol)
Message Format(s) –	NFN Symbol Directory (Category A – Type k)
Field Format	11 byte, Alphanumeric.
Definition	This field indicates the exchange ticker for the NFN instrument from the primary listing market (if available).

E

Field Name	Footnotes															
Message Format(s)	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p> <p>NFN Valuation – Money Market Funds (Category F – Type I)</p>															
Field Format	10 bytes, Alphanumeric.															
Definition	<p>The fund footnote field is a floating-position value field. This field may contain up to ten different footnote codes. The current allowable values are:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Code</th> <th>Footnote Value</th> <th>Instrument Type</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Actual return to shareholders may differ due to capital gains or losses</td> <td>Money Market Fund</td> </tr> <tr> <td>B</td> <td>Account size varies, yield due to fixed charges</td> <td>Money Market Fund</td> </tr> <tr> <td>C</td> <td>Revaluation of assets</td> <td>AIP, Structured Product, and Hedge Fund</td> </tr> <tr> <td>D</td> <td>Ex-distribution</td> <td>All, excluding Demand Deposit Account</td> </tr> </tbody> </table>	Code	Footnote Value	Instrument Type	A	Actual return to shareholders may differ due to capital gains or losses	Money Market Fund	B	Account size varies, yield due to fixed charges	Money Market Fund	C	Revaluation of assets	AIP, Structured Product, and Hedge Fund	D	Ex-distribution	All, excluding Demand Deposit Account
Code	Footnote Value	Instrument Type														
A	Actual return to shareholders may differ due to capital gains or losses	Money Market Fund														
B	Account size varies, yield due to fixed charges	Money Market Fund														
C	Revaluation of assets	AIP, Structured Product, and Hedge Fund														
D	Ex-distribution	All, excluding Demand Deposit Account														

Field Definitions

	F	Fund always prices using a previous day's quotation	All
	H	Deferred sales charge	UIT
	G	Redemption gate in effect	Money Market Fund
	I	Repurchase offer period for Interval Fund	Mutual Fund
	L	Liquidity fee in effect	Money Market Fund
	N	No front-end load or contingent deferred sales load	Mutual Fund
	O	Primary offering. Portfolio that is currently available to investors	UIT
	P	12(b)(1) plan – fund assets are used to pay for distribution costs	Mutual Fund
	R	Redemption fee or contingent deferred sales load may apply	Mutual Fund
	S	Stock split/dividend	All, excluding Demand Deposit Account
	W	NRO or "Brown-out" indicator. Trust will not re-offer	UIT
	X	Ex-dividend	All, excluding Demand Deposit Account
Y	Secondary offering; past portfolio that is in the secondary offering period	UIT	
<p>Note: The position of a footnote(s) in the dissemination of the data will be consistent with the Nasdaq information processed from the front-end host funds data entry system to the NFN Data Service journal file to the NFN Data Service broadcast. For example, if only one value is apparent in the field, it may be disseminated in any of the ten positions of the field.</p>			

G

Field Name	Gross 7 Day Yield
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	9 bytes, Alphanumeric.

Field Definitions

Definition	<p>This field indicates the gross 7 day yield for a money market fund. This yield is based on average net income earned by the securities in the fund’s portfolio during the past 7 days. In accordance with the SEC definition, gross 7 day yield should exclude capital changes and income other than investment income. In addition, the gross 7 day yield should not reflect a deduction of shareholders fees and fund operating expenses.</p> <ul style="list-style-type: none"> • If gross 7 day yield is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd. This field is expressed as a percentage. [Example, a 5.75% gross 7 day yield would be stated as “0005.7500”.] • If no gross 7 day yield is entered, the field will contain the value “NA” (right justified, space filled). • Please see the following yield direction field to determine if the gross 7 day yield should be stated as a positive or negative number.
-------------------	---

Name	Gross 7 Day Yield Direction						
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)						
Field Format	1 byte, Alphanumeric (including special characters).						
Definition	<p>This field indicates if the gross 7 day yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be:</p> <table border="1" data-bbox="553 1052 1435 1186"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>- <dash></td> <td>Negative yield; gross 7 day yield is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td><space></td> <td>Positive or zero yield (Default)</td> </tr> </tbody> </table>	Code	Value	- <dash>	Negative yield; gross 7 day yield is less than 0.00% so it should be displayed with negative sign.	<space>	Positive or zero yield (Default)
Code	Value						
- <dash>	Negative yield; gross 7 day yield is less than 0.00% so it should be displayed with negative sign.						
<space>	Positive or zero yield (Default)						

Field Definitions

H

Field Name	Hedge Fund List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Hedge Funds on the NFN system as of the start of the current business day.

Field Name	Hedge Fund Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Hedge Funds that reported redemption NAV for the current entry day.

I

Field Name	Instrument Code (pka Fund Code)																													
Message Format(s) - Through August 17, 2018	NFN Symbol Directory (Category A – Type J)																													
Message Format(s) - As of August 20, 2018	NFN Symbol Directory with Expanded Instrument Code (Category A – Type K)																													
Field Format	4 byte, Alphanumeric.																													
Definition <i>(New value as of 9/26/22)</i>	<p>This field indicates the general investment strategy of the NFN instrument. Please note that this field is impacted by the NFN field name / value standardization effort. <space> denotes one ASCII space character.</p> <p>The allowable values will be as follows:</p> <table border="1" data-bbox="548 1331 1446 1894"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td colspan="2">Mutual Funds</td> </tr> <tr> <td>O <space> <space> <space></td> <td>Mutual Fund – Open End</td> </tr> <tr> <td>C <space> <space> <space></td> <td>Mutual Fund – Closed End</td> </tr> <tr> <td>Y <space> <space> <space></td> <td>Interval Fund</td> </tr> <tr> <td>Z <space> <space> <space></td> <td>Tender Offer Fund</td> </tr> <tr> <td colspan="2">Money Market Funds</td> </tr> <tr> <td>A <space> <space> <space></td> <td>Money Market Fund – General Purpose</td> </tr> <tr> <td>G <space> <space> <space></td> <td>Money Market Fund – Government Securities</td> </tr> <tr> <td>X <space> <space> <space></td> <td>Money Market Fund – Tax Exempt Securities</td> </tr> <tr> <td colspan="2">Unit Investment Trusts (UITs)</td> </tr> <tr> <td>D <space> <space> <space></td> <td>UIT – Debt Securities</td> </tr> <tr> <td>E <space> <space> <space></td> <td>UIT – Equity Securities</td> </tr> <tr> <td colspan="2">Annuities</td> </tr> </tbody> </table>		Code	Value	Mutual Funds		O <space> <space> <space>	Mutual Fund – Open End	C <space> <space> <space>	Mutual Fund – Closed End	Y <space> <space> <space>	Interval Fund	Z <space> <space> <space>	Tender Offer Fund	Money Market Funds		A <space> <space> <space>	Money Market Fund – General Purpose	G <space> <space> <space>	Money Market Fund – Government Securities	X <space> <space> <space>	Money Market Fund – Tax Exempt Securities	Unit Investment Trusts (UITs)		D <space> <space> <space>	UIT – Debt Securities	E <space> <space> <space>	UIT – Equity Securities	Annuities	
Code	Value																													
Mutual Funds																														
O <space> <space> <space>	Mutual Fund – Open End																													
C <space> <space> <space>	Mutual Fund – Closed End																													
Y <space> <space> <space>	Interval Fund																													
Z <space> <space> <space>	Tender Offer Fund																													
Money Market Funds																														
A <space> <space> <space>	Money Market Fund – General Purpose																													
G <space> <space> <space>	Money Market Fund – Government Securities																													
X <space> <space> <space>	Money Market Fund – Tax Exempt Securities																													
Unit Investment Trusts (UITs)																														
D <space> <space> <space>	UIT – Debt Securities																													
E <space> <space> <space>	UIT – Equity Securities																													
Annuities																														

Field Definitions

M <space> <space> <space>	Annuity - Variable
N <space> <space> <space>	Annuity - Equity Indexed
Alternative Investment Products (AIPs)	
F <space> <space> <space>	AIP - Fund of Hedge Funds
B <space> <space> <space>	AIP - Managed Future Funds
K <space> <space> <space>	AIP - Commodity Pool Funds
I <space> <space> <space>	AIP - Non-Traded REITs
J <space> <space> <space>	AIP - Non-Traditional Hedge Funds (Registered)
P <space> <space> <space>	AIP - Private Equity Offerings
Structured Products / Structured Notes	
R <space> <space> <space>	Structured Product - Growth
S <space> <space> <space>	Structured Product - Income
T <space> <space> <space>	Structured Product - Digital
U <space> <space> <space>	Structured Product - Growth and Income
V <space> <space> <space>	Structured Product - Commodity / FX
W <space> <space> <space>	Structured Product - Rates
L <space> <space> <space>	Structured Product - Other
NextShares Exchange Traded Managed Funds	
Q <space> <space> <space>	NextShares
Hedge Fund	
H <space> <space> <space>	Hedge Fund
Collective Investment Trust	
1 <space> <space> <space>	Collective Investment Trust
Managed Accounts	
2 <space> <space> <space>	Managed Accounts - Separately Managed Accounts (SMA)
3 <space> <space> <space>	Managed Accounts - Unified Managed Accounts (UMA)
Separate Accounts	
4 <space> <space> <space>	Separate Accounts
Demand Deposit Accounts	
5 <space> <space> <space>	Demand Deposit Account

Field Name	Instrument Name (pka Fund Name)
Message Format(s)	NFN Symbol Directory - (Category A - Type I)
Field Format	150 bytes, Alphanumeric (including special characters)
Definition	This field indicates the name of the NFN instrument as reported to Nasdaq by the investment company.

Field Name	Instrument Registration
Message Format(s)	NFN Symbol Directory (Category A - Type K)
Field Format	1 byte, alphanumeric.
Definition	This field will denote the regulatory oversight body with which the NFN instrument is registered. The allowable values will be:

Field Definitions

Code	Value
S	U.S. Securities and Exchange Commission (SEC)
M	Municipal Securities Rulemaking Board (MSRB)
C	U.S. Commodity Futures Trading Commission (CFTC)
X	Exemption
N	Not Registered with U.S. Regulatory Agency
U	UCITS
O	Other

Field Name	Instrument Type / Tier																														
Message Format(s) –	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p> <p>NFN Valuation – Money Market Funds (Category F – Type I)</p> <p>NFN Corporate Action – Dividend / Interest (Category F – Type W)</p> <p>NFN Corporate Action – Distribution (Category F – Type X)</p> <p>NFN Symbol Directory (Category A – Type K)</p>																														
Field Format	2 bytes, Alphanumeric (including special characters).																														
Definition	<p>This field indicates the level of participation of the instrument in NFN. The level of participation is based on minimum eligibility requirements established by NFN. The associated values are as follows:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>MF</td> <td>Mutual Fund – News Media List</td> </tr> <tr> <td>MS</td> <td>Mutual Fund –Supplemental List</td> </tr> <tr> <td>\$\$</td> <td>Money Market Fund – News Media List</td> </tr> <tr> <td>\$S</td> <td>Money Market Fund –Supplemental List</td> </tr> <tr> <td>US</td> <td>Unit Investment Trust (UIT)</td> </tr> <tr> <td>SP</td> <td>Structured Product</td> </tr> <tr> <td>AN</td> <td>Annuity</td> </tr> <tr> <td>AP</td> <td>Alternative Investment Product (AIP)</td> </tr> <tr> <td>EM</td> <td>NextShares Exchange Traded Managed Fund</td> </tr> <tr> <td>CT</td> <td>Collective Investment Trust</td> </tr> <tr> <td>MA</td> <td>Managed Accounts</td> </tr> <tr> <td>SA</td> <td>Separate Accounts</td> </tr> <tr> <td>HF</td> <td>Hedge Fund</td> </tr> <tr> <td>DD</td> <td>Demand Deposit Accounts</td> </tr> </tbody> </table>	Code	Value	MF	Mutual Fund – News Media List	MS	Mutual Fund –Supplemental List	\$\$	Money Market Fund – News Media List	\$S	Money Market Fund –Supplemental List	US	Unit Investment Trust (UIT)	SP	Structured Product	AN	Annuity	AP	Alternative Investment Product (AIP)	EM	NextShares Exchange Traded Managed Fund	CT	Collective Investment Trust	MA	Managed Accounts	SA	Separate Accounts	HF	Hedge Fund	DD	Demand Deposit Accounts
Code	Value																														
MF	Mutual Fund – News Media List																														
MS	Mutual Fund –Supplemental List																														
\$\$	Money Market Fund – News Media List																														
\$S	Money Market Fund –Supplemental List																														
US	Unit Investment Trust (UIT)																														
SP	Structured Product																														
AN	Annuity																														
AP	Alternative Investment Product (AIP)																														
EM	NextShares Exchange Traded Managed Fund																														
CT	Collective Investment Trust																														
MA	Managed Accounts																														
SA	Separate Accounts																														
HF	Hedge Fund																														
DD	Demand Deposit Accounts																														

L

Field Definitions

Field Name	Long-Term Capital Gains
Message Format(s)	NFN Corporate Action – Distributions (Category F – Type X)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field indicates the portion of the total capital gain for the NFN instrument that is taxed to the shareholder at the long-term capital gains rate.</p> <ul style="list-style-type: none"> • If long-term capital gain is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no long-term capital gain is entered, the field will contain the value "NA" (right justified, space filled).

M

Field Name	Managed Accounts List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Managed Accounts on the NFN system as of the start of the current business day.

Field Name	Managed Accounts Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Managed Accounts that reported redemption NAV for the current entry day.

Field Name	Market Price
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)
New Field Format	13 bytes, Alphanumeric.
New Definition	<p>This field represents the closing price from the primary market for a NFN instrument that trades on an exchange. The field format is as follows:</p> <ul style="list-style-type: none"> • If market price is entered, the value will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no market price is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Model Portfolio Flag
Message Format(s)	NFN Symbol Directory (Category A – Type K)

Field Definitions

Field Format	1 byte Alphanumeric.						
Definition	This field denotes that the Instrument is a Model Portfolio. Associated values are as follows: <table border="1" data-bbox="657 363 1341 464"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>Yes</td> </tr> <tr> <td>N</td> <td>No</td> </tr> </tbody> </table>	Code	Value	Y	Yes	N	No
Code	Value						
Y	Yes						
N	No						

Field Name	Money Market Fund News Media List
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of money market funds currently registered with NFN for the news media list.

Field Name	Money Market Fund Supplemental List
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of money market funds currently registered with NFN for the supplemental list.

Field Name	Money Market Fund Reporting
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered money market funds that reported average maturity and 7-day yield for the current entry date.

Field Name	Mutual Fund News Media List
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of open- and closed-end mutual funds currently registered with NFN for the news media list.

Field Name	Mutual Fund Supplemental List
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of open- and closed-end mutual funds currently registered with NFN for the supplemental list.

Field Name	Mutual Fund Reporting
Message Format(s)	NFN Daily Statistics (Category A - Type G)
Field Format	7 bytes, Numeric.

Field Definitions

Definition	This field denotes the total number of registered mutual funds that reported a NAV for the current entry day.
-------------------	---

N

Field Name	Net Asset Value (NAV)
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G) NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	13 bytes, Alphanumeric.
Definition	This field indicates the net asset value for a NFN instrument. The field format is as follows: <ul style="list-style-type: none"> • If a NAV is entered, the field will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as needed. • If no NAV is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	NFN Data Service Spin Count												
Message Format(s)	NFN Daily Statistics (Category A – Type G)												
Field Format	1 byte, numeric.												
Definition	This field indicates the NFN Data Service spin instance associated with the NFN statistics message. Nasdaq will support four NFN Data Service summary spins: <table border="1" data-bbox="553 1318 1425 1518"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>8:05 a.m., ET</td> </tr> <tr> <td>2</td> <td>6:05 p.m., ET</td> </tr> <tr> <td>3</td> <td>6:25 p.m., ET</td> </tr> <tr> <td>4</td> <td>6:45 p.m., ET</td> </tr> <tr> <td>5</td> <td>8:00 p.m., ET (Final)</td> </tr> </tbody> </table>	Code	Value	1	8:05 a.m., ET	2	6:05 p.m., ET	3	6:25 p.m., ET	4	6:45 p.m., ET	5	8:00 p.m., ET (Final)
Code	Value												
1	8:05 a.m., ET												
2	6:05 p.m., ET												
3	6:25 p.m., ET												
4	6:45 p.m., ET												
5	8:00 p.m., ET (Final)												

Field Name	NextShares List (pka ETMF List)
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered NextShares on the NFN system as of the start of the current business day.

Field Name	NextShares Reporting (pka ETMF Reporting)
-------------------	--

Field Definitions

Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered NextShares that reported redemption NAV for the current entry day.

Field Name	Non-Qualified Cash Distribution
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field reflects the portion of the cash dividend or interest income that is taxed as ordinary income to the shareholder. Please note that this value should be entered as a dollar amount (not a percentage).</p> <ul style="list-style-type: none"> • If a non-qualified cash distribution is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The field will be zero filled as necessary. • If a non-qualified cash distribution is not entered, the field will contain the value "NA" (right justified, space filled).

O

Field Name	Offer Price
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field reflects the price at which a NFN instrument's shares can be purchased from the issuer or distributor. The offer price includes the current net asset value per share plus any sales charges. The field format is as follows:</p> <ul style="list-style-type: none"> • If an offer price is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The field will be zero filled as necessary. • If an offer price is not entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Ordinary Foreign Tax Credit
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	13 bytes, Alphanumeric.

Field Definitions

Definition	<p>Reflects the portion of the cash dividend or interest from a foreign corporation that is not "qualified" by the IRS. Please note that this value should be entered as a dollar amount (not a percentage). The field format is as follows:</p> <ul style="list-style-type: none"> • If ordinary foreign tax credit is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no ordinary foreign tax credit is entered, the field will contain the value "NA" (right justified, space filled).
-------------------	--

P

Field Name	Payment Date
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W) NFN Corporate Action – Distributions (Category F – Type X)
Field Format	8 bytes, Alphanumeric.
Definition	<p>This field denotes the date on which dividends, interest payments or distributions will be distributed to the NFN instrument's shareholders of record. The field format is as follows:</p> <ul style="list-style-type: none"> • If a payment date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the payment date. • If no payment date is entered, the field will either be space filled or contain the value of "NA".

Field Name	Pricing Frequency																		
Message Format(s)	NFN Symbol Directory with Instrument Registration (Category A – Type K)																		
Field Format	1 byte, alphanumeric.																		
Definition	<p>This field indicates the frequency at which the pricing agent is expected to report price updates for the NFN instrument. The allowable values will be:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>Intraday</td> </tr> <tr> <td>D</td> <td>Daily (Default)</td> </tr> <tr> <td>W</td> <td>Weekly</td> </tr> <tr> <td>B</td> <td>Bi-weekly</td> </tr> <tr> <td>M</td> <td>Monthly</td> </tr> <tr> <td>Q</td> <td>Quarterly</td> </tr> <tr> <td>S</td> <td>Semi-Annually</td> </tr> <tr> <td>A</td> <td>Annually</td> </tr> </tbody> </table>	Code	Value	I	Intraday	D	Daily (Default)	W	Weekly	B	Bi-weekly	M	Monthly	Q	Quarterly	S	Semi-Annually	A	Annually
Code	Value																		
I	Intraday																		
D	Daily (Default)																		
W	Weekly																		
B	Bi-weekly																		
M	Monthly																		
Q	Quarterly																		
S	Semi-Annually																		
A	Annually																		

Q

Field Definitions

Field Name	Qualified Cash Distribution
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field reflects the portion of the cash dividend or interest that is taxed as a qualified dividend to shareholder. Please note that this value should be entered as a dollar amount (not a percentage).</p> <ul style="list-style-type: none"> • If qualified cash distribution is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The field will be zero filled as necessary. • If no qualified cash distribution is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Qualified Foreign Tax Credit
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field reflects the portion of the cash dividend or interest attributable to qualified foreign corporation as defined by the IRS. Please note that this value should be entered as a dollar amount (not a percentage).</p> <ul style="list-style-type: none"> • If qualified foreign tax credit is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The field will be zero filled as necessary. • If no qualified foreign tax credit is entered, the field will contain the value "NA" (right justified, space filled).

R

Field Name	Record Date
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W) NFN Corporate Action – Distributions (Category F – Type X)
Field Format	8 bytes, Alphanumeric.
Definition	<p>This field denotes the date on which shareholders must hold fund shares to receive dividend, interest or distributions. The field format is as follows:</p> <ul style="list-style-type: none"> • If a record date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the record date. • If no record date is entered, the field will either be space filled or contain the value "NA".

Field Name	Redemption Price
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust,

Field Definitions

	Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field denotes the price that an investor would receive if he were to redeem units with the NFN instrument’s issuer or distributor. The field format is as follows:</p> <ul style="list-style-type: none"> • If Redemption NAV is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no Redemption NAV is entered, the field will contain the value “NA” (right justified, space filled). <p>Note: Only UITs currently use the Redemption Price field.</p>

Field Name	Reinvest Date
Message Format(s)	<p>NFN Corporate Action – Dividends / Interest (Category F – Type W)</p> <p>NFN Corporate Action – Distributions (Category F – Type X)</p>
Field Format	8 bytes, alphanumeric.
Definition	<p>This field indicates the reinvestment date for the dividend or distribution.</p> <ul style="list-style-type: none"> • If a reinvest date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the date. • If no reinvest is entered, the value will be “NA”.

Field Definitions

Field Name	Reporting Type												
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G) NFN Valuation – Money Market Funds (Category F – Type I)												
Field Format	1 byte, alphanumeric.												
Definition	This field indicates the dissemination type and frequency for the NFN instrument. The allowable values will be: <table border="1" data-bbox="581 611 1419 907"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>C</td> <td>Previous day fund price correction</td> </tr> <tr> <td>I</td> <td>Current day's price for a NFN instrument that submits intraday updates</td> </tr> <tr> <td>R</td> <td>Current day's price for a NFN instrument that submits daily or weekly updates</td> </tr> <tr> <td>E</td> <td>NFN Summary Spin</td> </tr> <tr> <td>P</td> <td>Previous day's fund price update, entered on current business day.</td> </tr> </tbody> </table>	Code	Value	C	Previous day fund price correction	I	Current day's price for a NFN instrument that submits intraday updates	R	Current day's price for a NFN instrument that submits daily or weekly updates	E	NFN Summary Spin	P	Previous day's fund price update, entered on current business day.
Code	Value												
C	Previous day fund price correction												
I	Current day's price for a NFN instrument that submits intraday updates												
R	Current day's price for a NFN instrument that submits daily or weekly updates												
E	NFN Summary Spin												
P	Previous day's fund price update, entered on current business day.												

Field Name	Return of Capital (ROC)
Message Format(s)	NFN Corporate Action – Distributions (Category F – Type X)
Field Format	13 bytes, Alphanumeric.
Definition	This field reflects amount of return of capital to the NFN instrument's shareholders. Please note that this value should be entered as a dollar amount (not a percentage). <ul style="list-style-type: none"> • If return of capital is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no return of capital is entered, the field will contain the value "NA" (right justified, space filled).

S

Field Name	Separate Accounts List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of registered Separate Accounts on the NFN system as of the start of the current business day.

Field Name	Separate Accounts Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.

Field Definitions

Definition	This field denotes the total number of registered Separate Accounts that reported redemption NAV for the current entry day.
-------------------	---

Field Name	Short-Term Capital Gains
Message Format(s)	NFN Corporate Action – Distributions (Category F – Type X)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field indicates the portion of the total capital gain for the NFN instrument that is taxed to the shareholder at the short-term capital gains rate.</p> <ul style="list-style-type: none"> • If short-term capital gain is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The field will be zero filled as necessary. • If no short-term capital gain is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Stock Dividend Ratio
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	11 bytes, Alphanumeric.
Definition	<p>This field indicates the stock split/dividend ratio for a NFN instrument. The field format is as follows:</p> <ul style="list-style-type: none"> • If a stock split/dividend is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd. The field will be zero filled as necessary. • Examples: <ul style="list-style-type: none"> ○ 2-for-1 stock split should be reported as "0002.000000". ○ 1-for-2 reverse stock split should be reported as "0000.500000". ○ 10% stock dividend would be reported as "0001.100000". • If no stock split/dividend is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Structured Product List
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Structured Products currently registered with NFN.

Field Name	Structured Product Reporting
Message Format(s)	NFN Daily Statistics (Category A – Type G)
Field Format	7 bytes, Numeric.
Definition	This field denotes the total number of Structured Products that reported a NAV for the current business day.

Field Name	Subsidized 7 Day Yield
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)

Field Definitions

Field Format	9 bytes, Alphanumeric.
Definition	<p>The subsidized yield (also known as simple yield) reflects the yield calculation with expense limitation currently in effect.</p> <ul style="list-style-type: none"> • If subsidized 7 day yield is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd. This field is expressed as a percentage. [Example, a 5.75% gross 7 day yield would be stated as "0005.7500".] • If no subsidized 7 day yield is entered, the field will contain the value "NA" (right justified, space filled). • Please see the following yield direction field to determine if the subsidized 7 day yield should be stated as a positive or negative number.

Field Name	Subsidized 7 Day Yield Direction						
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)						
Field Format	1 byte, Alphanumeric (including special characters).						
Definition	<p>This field indicates if the subsidized 7 day yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>- <dash></td> <td>Negative yield; subsidized 7 day yield is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td><space></td> <td>Positive or zero yield (Default)</td> </tr> </tbody> </table>	Code	Value	- <dash>	Negative yield; subsidized 7 day yield is less than 0.00% so it should be displayed with negative sign.	<space>	Positive or zero yield (Default)
Code	Value						
- <dash>	Negative yield; subsidized 7 day yield is less than 0.00% so it should be displayed with negative sign.						
<space>	Positive or zero yield (Default)						

Field Name	Symbol
Message Format(s) –	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p> <p>NFN Valuation – Money Market Funds (Category F – Type I)</p> <p>NFN Corporate Action – Dividend / Interest (Category F – Type W)</p> <p>NFN Corporate Action – Distribution (Category F – Type X)</p> <p>NFN Symbol Directory (Category A – Type K)</p>
Field Format	11 bytes, Alphanumeric.

Field Definitions

Definition	<p>This field indicates the NFN ticker symbol as assigned by NFN to instrument.</p> <p>To download the current NFN symbol directory without CUSIPs, please visit the Nasdaq Trader web site.</p> <p>To access the current directory with CUSIPs as well as daily corporate action files with NFN security additions, deletions, or security attribute changes, please subscribe to the NFN Daily List product.</p>
-------------------	--

I

Field Name	Tax Free Cash Distribution
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	13 bytes, Alphanumeric.
Definition	<p>Reflects the portion of the cash dividend or interest attributable to bonds that is not taxed to the shareholder. Please note that this value should be entered as a dollar amount (not a percentage).</p> <ul style="list-style-type: none"> • If tax free cash distribution is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddd. The field will be zero filled as necessary. • If no tax free cash distribution is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Text
Message Format(s)	General Administration / Text Message (Category A – Type A)
Field Format	1 to 300 bytes (variable length), Alphanumeric.
Definition	Free-form text is used to notify data feed subscribers of special situations.

Field Name	30 (Thirty) Day Yield
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	9 bytes, Alphanumeric.
Definition	<p>Indicates the 30 day yield value based on the SEC calculation methodology with expense limitation currently in effect.</p> <ul style="list-style-type: none"> • If 30 day yield is entered, the amount will be stated in the following numeric format: \$\$\$\$.dddd. This field is expressed as a percentage. [Example, a 5.75% 30 day yield would be stated as "0005.7500".] • If no 30 day yield is entered, the field will contain the value "NA" (right justified, space filled). • Please see the following yield direction field to determine if the 30 day yield should be stated as a positive or negative number. Please see the following date field to determine the end date for the 30 day yield calculation.

Field Name	30 (Thirty) Day Yield Direction
-------------------	--

Field Definitions

Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)						
Field Format	1 byte, Alphanumeric (including special characters).						
Definition	<p>This field indicates if the 30 day yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be:</p> <table border="1" data-bbox="553 415 1425 550"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>- <dash></td> <td>Negative yield; 30 day yield is less than 0.00% so it should be displayed with negative sign.</td> </tr> <tr> <td><space></td> <td>Positive or zero yield (Default)</td> </tr> </tbody> </table>	Code	Value	- <dash>	Negative yield; 30 day yield is less than 0.00% so it should be displayed with negative sign.	<space>	Positive or zero yield (Default)
Code	Value						
- <dash>	Negative yield; 30 day yield is less than 0.00% so it should be displayed with negative sign.						
<space>	Positive or zero yield (Default)						

Field Name	30 (Thirty) Day Yield Date
Message Format(s)	NFN Valuation – Money Market Funds (Category F – Type I)
Field Format	8 bytes, Alphanumeric.
Definition	<p>This field indicates the period end date for which the 30 day yield was calculated.</p> <ul style="list-style-type: none"> • If a 30 day yield date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the date. • If NFN pricing agent enters "NA" in the date field, firms should show the date field as blank. • If no 30 day yield date is entered, the value will be "NA".

Field Name	Total Net Assets
Message Format(s)	<p>NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)</p> <p>NFN Valuation – Money Market Funds (Category F – Type I)</p>
Field Format	15 bytes, Alphanumeric. Stated in actual dollars.
Definition	<p>This field indicates the total net assets, <u>in actual dollars</u>) for the NFN instrument.</p> <p>The field format is as follows:</p> <ul style="list-style-type: none"> • If assets are entered, the amount will be stated in the following numeric format: \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$. The asset amount will be zero filled as necessary. • Example: If a fund holds \$25,500,000 in assets, the field value would be "000000025500000". • If no asset amount is entered, the field will contain the value "NA" (right justified, space filled).

Field Name	Total Cash Distribution
Message Format(s)	NFN Corporate Action – Dividend / Interest (Category F – Type W)
Field Format	13 bytes, Alphanumeric.

Field Definitions

Definition	<p>This field reflects the total cash dividend or total interest distribution being reported for the NFN instrument. Firms may report the breakdown of cash dividends / interest distribution in the fields that follow. The field format is as follows:</p> <ul style="list-style-type: none"> • If total cash distribution is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no total cash distribution is entered, the field will contain the value "NA" (right justified, space filled).
-------------------	--

U

Field Name	Unallocated Distribution
Message Format(s)	NFN Corporate Action – Distributions (Category F – Type X)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field reflects the amount of unassigned term gains being reported for the NFN instrument. The field format is as follows:</p> <ul style="list-style-type: none"> • If unallocated distribution is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no unallocated distribution is entered, the field will contain the value "NA" (right justified, space filled).

W

Field Name	Wrap Price
Message Format(s)	NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, & Demand Deposit Accounts. (Category F – Type G)
Field Format	13 bytes, Alphanumeric.
Definition	<p>This field denotes the price that an investor would pay to purchase units if the NFN instrument is held in an account that is managed by a financial representative for a fee. The field format is as follows:</p> <ul style="list-style-type: none"> • If wrap price is entered, the amount will be stated in the following numeric format: \$\$\$\$\$.dddddd. The field will be zero filled as necessary. • If no wrap price is entered, the field will contain the value "NA" (right justified, space filled).

Control Messages

8.0 Control Messages

8.1 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. Please refer to Section 3.0 for the layout of the NFN Data Service Message Header.

Control messages are used to notify NFN Data Service subscribers of certain system events. The following control messages are supported on the NFN Data Service data feed:

Category	Type	Usage
C	E	NFN Session Close
C	F	NFN Session Open
C	I	Start of Day
C	J	End of Day
C	K	End of Retransmission Requests
C	L	Message Sequence Number Reset
C	P	Start of Summary Spin
C	S	End of Summary Spin
C	T	Line Integrity
C	Z	End of Transmissions

All control messages will be session independent. For a schedule of transmissions, please refer to Appendix B.

8.2 Control Message Description

8.2.1 NFN Session Close

Category C – Type E

The Session Close control message signals the official closing time of the NFN system for the reporting session indicated in the message header. The NFN session close message will go out at approximately 8:00 p.m., ET.

The Message Sequence Number field for the Reporting Session Close control message will contain a number one greater than the highest Original Message Sequence Number previously transmitted.

8.2.2 NFN Session Open

Category C – Type F

The Session Open control message signifies the official opening time of the NFN system for the reporting session indicated in the message header. The Reporting Session Open message will be disseminated at approximately 8:00 a.m., ET.

The Message Sequence Number field for the Session Open control message will contain a number one greater than the highest Original Message Sequence Number previously transmitted.

Control Messages

8.2.3 Start Of Day*Category C – Type I*

The Start of Day control message signifies the beginning of each operational cycle for NFN Data Service processing. Each day, the Start of Day control message will be sent to the vendor community upon receiving the associated event trigger from an inbound data source. The purpose of this message is to inform 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.

8.2.4 End Of Day*Category C – Type J*

The End of Day control message signals the end of active message dissemination for the NFN Data Service operational cycle. The End of Day message shall follow the final summary spin on NFN. 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 one-minute 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.

8.2.5 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. Although Nasdaq Operations may no longer accept retransmission requests after this control message is disseminated, it will disseminate retransmissions that are in the queue.

8.2.6 Message Sequence Number Reset*Category C – Type L*

The Message Sequence Number Reset control message forces downstream data recipients to reset their Message Sequence Number log to a new number. The Message Sequence Number may either be reset to zero or to a number greater than the last message previously transmitted. If the Message Sequence Number is reset, the system will not support retransmission requests for data sent prior to the time that the reset was disseminated. The Message Sequence Number Reset control message will be disseminated as needed between the Start of Day control message and the End of Day control message.

Control Messages

8.2.7 Start of Summary Spin*Category C – Type P*

The Start of Summary Spin control message shall immediately precede the summary spins. The NFN summary spin times will be:

- **8:05 a.m., ET**
- 6:05 p.m., ET
- 6:25 p.m., ET
- 6:45 p.m., ET
- 8:00 p.m., ET

The Message Sequence Number field for the End-of-Summary Spin control message will contain a number one greater than the highest Original Message Sequence Number previously transmitted.

8.2.8 End of Summary Spin*Category C – Type S*

The End of Summary Spin control message is disseminated immediately following the last record in the summary spin transmission. The Message Sequence Number field for the End of Summary Spin control message will contain a number one greater than the highest Original Message Sequence Number previously transmitted.

8.2.9 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 NFN Data Service 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.

8.2.10 End Of Transmissions*Category C – Type Z*

The End of Transmissions control message is used to signal the end of the normal transmission schedule for NFN Data Service. Retransmission requests, however, may be accepted and disseminated if Operations so chooses. This message will be transmitted at the end 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.

Format Release and Testing

9.0 Message Processing Guidelines – NFN Valuation Data

9.1 Data Description

Nasdaq supports daily price data for the following securities on the U.S. security classes via the NFN/ NFN Data Service system:

- Mutual Funds
- Money Market Funds
- Unit Investment Trusts (UITs)
- Structured Products
- Annuities
- Alternative Investment Products (AIPs)
- NextShares Exchange Traded Managed Funds
- Collective Investment Trusts
- Managed Accounts
- Separate Accounts
- Hedge Funds
- Demand Deposit Accounts

For more information on mutual funds, money market funds and UITs, please refer to the Investment Company Institute (ICI) website at www.ici.org. For more information on structured products, please refer to the Structured Products Association website at www.structuredproducts.org. For more information on annuities, please visit the Insured Retirement Institute website at www.irionline.org. For more information on NextShares Exchange Traded Managed Funds, please visit the NextShares website at www.nextshares.com.

9.2 Scope of Data

The NFN system is currently designed to capture the following data elements for investment companies for dissemination on a daily basis via the NFN Data Service data feed:

- **Mutual Funds, Unit Investment Trusts (UITs), Annuities, Structured Products, Alternative Investment Products (AIPs), NextShares, Collective Investment Trusts (CITs), Managed Accounts, Separate Accounts, Hedge Fund, and Demand Deposit Accounts:**
 - Net Asset Value (NAV) for mutual funds, annuities, structured products, AIPs, NextShares, collective investment trusts, managed accounts, separate accounts, hedge funds, and demand deposit accounts
 - Offer price for non-traded instruments (such as Open End Funds, UITs and Annuities)
 - Market Price for exchange-listed instruments (such as Closed End Funds and NextShares)
 - Redemption NAVs for UITs
 - Wrap Price for UITs

Format Release and Testing

- Current Yield for mutual funds, unit investment trusts (UIT), annuities, structured products, AIPs, NextShares, collective investment trusts, managed accounts, separate accounts, hedge funds, and demand deposit accounts
- Estimated Long Term Return (ELTR) for UITs and other debt-based securities
- Accrued Interest for mutual funds, unit investment trusts (UIT), annuities, structured products, AIPs, NextShares, collective investment trusts, managed accounts, separate accounts, hedge funds, and demand deposit accounts
- Total Net Assets
- Daily Dividend Factor
- **Money Market Funds:**
 - Net Asset Value (NAV)
 - Average Maturity
 - Average Life
 - Gross 7 Day Yield
 - Subsidized 7 Day Yield
 - Effective Annualized 7 Day Yield
 - 30 Day Yield
 - Daily Dividend Factor
 - Calculation Time

In addition, the NFN system collects the following corporate action data elements on an ad-hoc basis:

- **Dividends / Interest:**
 - Total Cash Distribution, with break out fields for:
 - Non-Qualified Cash Distribution
 - Qualified Cash Distribution
 - Tax-Free Cash Distribution
 - Ordinary Foreign Tax Credit
 - Qualified Foreign Tax Credit
 - Stock Dividend / Spilt Ratio
 - Date Fields associated with Dividend or Interest payment:
 - Record Date
 - Payment Date
 - Ex Date
 - Reinvestment Date
- **Capital Distributions:**
 - Short Term Capital Gains
 - Long Term Capital Gains
 - Unallocated Distributions
 - Return of Capital
 - Date Fields associated with Distribution:
 - Record Date
 - Payment Date
 - Ex Date
 - Reinvestment Date

Format Release and Testing

9.3 NFN Eligibility Standards

Nasdaq has established standards that investment companies must meet in order to use NFN. NFN has established the following two levels of participation based on how widely the data is disseminated by downstream users:

- **News Media List¹:** Due to space limitations, newspaper and printed media may restrict the number of funds included in fund tables. In order to assist the newspapers in determining which funds have the broadest appeal to the investing public, Nasdaq established the following eligibility requirements for this top level of funds.

Instrument Type / Tier	Initial Eligibility Criteria	Maintenance Criteria
News Media List – Open End Mutual Funds and Money Markets	<ul style="list-style-type: none"> • SEC or UCITS registration of the fund and either: <ul style="list-style-type: none"> ▪ \$25 million in net assets or ▪ 1,000 shareholder accounts 	<ul style="list-style-type: none"> • \$15 million net assets or • 750 shareholder accounts
News Media List – Closed End Mutual Funds, Interval Funds, Business Development Company	<ul style="list-style-type: none"> • SEC or UCITS registration of the fund and • \$60 million in net assets 	<ul style="list-style-type: none"> • \$30 million in net assets

Supplemental List: Since the electronic media² does not have the same space considerations as the print media, Nasdaq provides a second level of funds for the smaller investment companies and newer asset classes. Please refer to the [NFN Eligibility Standards](#) for the latest requirements.

9.4 Fund Symbology

Symbols are comprised of five to six alphabetic characters. To help distinguish NFN instruments from other securities, Nasdaq has historically required that the last character of the fund symbol to be "X".

Within the NFN industry, Nasdaq attempts to delineate between instrument types by using the following symbology guidelines. For current NFN instrument types, the symbol assignment rules are as follows:

¹ While Nasdaq has established a news media list, it cannot guarantee that print media will show all funds that meet the listing criteria outlined above. Newspapers may place additional limits on fund tables based on their own editorial guidelines.

² The Electronic media, such as market data vendors, display prices for funds on both the news media and supplemental lists.

Format Release and Testing

Instrument Type / Tier	Proposed Fund Symbology
Open End Mutual Fund	Five-character symbol that always ends with a single "X". Example: ABCDX
Closed End Mutual Fund	Five-character symbol that begins and ends with "X". Whenever possible, the middle characters will reflect the security identifier on the listing market or exchange. Example: XABCDX
Interval Funds	Five-character symbols that can begin with any letter, including "X", and end with a single "X". Example: ABCDX, XABCDX
Business Development Company	Five-character symbols that can begin with any letter, including "X", and end with a single "X". Example: ABCDX, XABCDX
Money Market Fund	Five-character symbol that always ends with "XX". Example: ABCXX
Unit Investment Trust (UIT) ³	Six-character symbols that end with "X". If the symbol is six characters in length, the symbol will end with "X". Example: ABCDEX.
Structured Product	Six-character symbol that begins and ends with "X". Example: XABCDX
Annuity	Six-character symbol that begins with "Q" and ends with "X". Example: QABCDX
Alternative Investment Product (AIP)	Six-character symbol that begins with "Z" and ends in "X". Example: ZABCDX
NextShares Exchange Traded Managed Fund	Seven-character symbol that consists of the NextShares trading symbol as assigned by the Nasdaq exchange followed by "NX". Example: ETMFCNX
Collective Investment Trust	Six-character symbols that end with "X". If the symbol is six characters in length, the symbol will end with "X". Cannot begin with "Z" or "Q". Example: ABCDEX

³ As outlined in Data News #2000-25, Nasdaq changed its symbology format for UITs in April 2001. Due to a grandfather clause, the following UIT has a five character ticker: First Trust GNMA Reinvestment Income Trust (GRIT) Srs 79 (symbol: ZFGMX). There may also be a few UIT tickers that begin with "Q" that pre-date the NFN introduction of newer asset classes.

Format Release and Testing

Instrument Type / Tier	Proposed Fund Symbology
Managed Accounts	Six-character symbols that end with "X". If the symbol is six characters in length, the symbol will end with "X". Cannot begin with "Z" or "Q". Example: ABCDEX
Separate Accounts	Six-character symbols that end with "X". If the symbol is six characters in length, the symbol will end with "X". Cannot begin with "Z" or "Q". Example: ABCDEX
Hedge Fund	Six-character symbol that begins with "Z" and ends in "X". Example: ZABCDX
Demand Deposit Accounts	Five-character symbol that always ends with a single "X". Example: ABCDX

9.5 Message Processing**9.5.1 Hours of Operation**

The NFN reporting session will run from 8:00 a.m. to 8:00 p.m., ET, with no breaks.

9.5.2 Intra-Day Updates for Valuation Data

During the NFN session, Nasdaq will disseminate updates to fund prices via NFN Data Service as the data is entered into the NFN system.

With the introduction of the SEC Money Market Reform Act, Nasdaq expects to see changes in the reporting profile for money market fund instruments. Specifically, Nasdaq expects NFN pricing agents to report floating NAVs up to 4 decimal place for institutional prime money market funds at pre-defined time intervals during the trading day. To ensure that timing is consistent, Nasdaq added a Calculation Time field to the inbound and outbound money market fund message format in July 2016.

Nasdaq strongly recommends that NFN Data Service redistributors display the Calculation Time for money market funds if available.

Nasdaq's recommended processing rules for NFN Data Service records is based on the Reporting Type and Reporting Frequency fields.

Instrument Type	Reporting Frequency	Reporting Type	Processing / Display Rules
Mutual Funds, UITs, Annuities, AIPs, NextShares,	Daily (or less)	Real Time, End of Day	NFN Data Service distributors should retain the most recent entry for the

Format Release and Testing

CITs, Managed Accounts, Separate Accounts, Hedge Funds, Demand Deposit Accounts			NFN instrument for the given Entry Date only. If Footnote code "F" is used, the Entry Date should be back dated by one business day.
Mutual Funds, UITs, Annuities, AIPs, NextShares, CITs, Managed Accounts, Separate Accounts, Hedge Funds, Demand Deposit Accounts	Intraday	Intraday	NFN Data Service distributors should retain all intraday records for the NFN instrument for the current Entry Date. Data should be sorted by entry time field.
Mutual Funds, UITs, Annuities, AIPs, NextShares, CITs, Managed Accounts, Separate Accounts, Hedge Funds, Demand Deposit Accounts	All	Correction	NFN Data Service distributors should retain corrected record for the NFN instrument for the given Entry Date only.
Money Market Funds	Daily (or less)	Real Time, End of Day	NFN Data Service distributors should retain the most recent entry for the NFN instrument for the given Entry Date only.
Money Market Funds	Intraday	Intraday	NFN Data Service distributors should retain all intraday records for the NFN instrument for the current Entry Date. If provided, money market fund records should be sorted by Calculation Time field. If not provided, money market fund records should be populated by NFN Data Service dissemination time. <i>Note: In the event that two NFN Data Service records have the same Entry Date and Calculation Time values, NFN Data Service distributors only need to retain the one with the most recent NFN Data Service dissemination time.</i>
Money Market Funds	Daily (or less)	Correction	NFN Data Service distributors should retain corrected record for the NFN instrument for the given Entry Date only.
Money Market Funds	Intraday	Correction	If Calculation Time field is populated, NFN Data Service distributors should retain corrected record for the NFN

Format Release and Testing

			<p>instrument for the given Entry Date and Calculation Time combination.</p> <p>If Calculation Time field is not populated, NFN Data Service distributors should retain corrected record for the NFN instrument for the given Entry Date only.</p>
--	--	--	--

Please note that there are a handful of NFN instruments that may price their funds using yesterday's closing price values. These funds will be denoted by the "F" value in the Footnotes field of the message. Nasdaq recommends that firms follow the same processing rules as defined above.

9.5.3 NFN Summary Spin Transmissions – Valuation Data

Nasdaq will support NFN Data Service summary spin transmissions at the following times:

- **8:05 a.m., ET**
- 6:05 p.m., ET
- 6:25 p.m., ET
- 6:45 p.m., ET
- 8:00 p.m., ET

At the stated dissemination time, Nasdaq will disseminate a Start of Summary Spin (Category C – Type P) message on NFN Data Service.

Within the spin, Nasdaq will restate the most recent valuation record for each and every NFN instrument security in the NFN system. The summary spin transmission will use the same message formats as the intra-day fund price updates with the Reporting Period field set to "E". Please note that the summary spin process is the same for all NFN instruments (regardless of whether they price on a daily or intraday basis).

At the completion of the summary spin, Nasdaq will disseminate an End of Summary Spin (Category C – Type S) control event.

Once the spin process is complete, Nasdaq will immediately resume processing of incoming price updates from NFN pricing agents on a real-time basis.

9.5.4 Intra-Day Updates for Corporate Action Data

During the NFN session, Nasdaq will disseminate Corporate Action – Dividend/Interest and Corporate Action – Distributions messages via NFN Data Service as the data is entered into the NFN system. Using the Corporate Action messages, firms may report dividends, interest payments, and other distributions for the past and future business dates as well as the current business dates.

Format Release and Testing

Because Nasdaq allows for future reporting of corporate actions, firms must be prepared to process Corporate Action corrections and cancellations. Nasdaq will use the Action field within the message format to denote if the Corporate Action is a new entry, corrected entry or cancelled entry.

9.5.5 NFN Summary Spin Transmission – Corporate Action Data

Nasdaq support a recap spin process for NFN Corporate Actions – Dividend / Interest (Category F – Types Y, W) and NFN Corporate Action – Distributions (Category F – Types Z, Y) message formats. The Corporate Action spin is designed to ensure that firms have a record of previously reported Dividend / Interest and Capital Distribution records with the current day's Ex-Date. The Corporate Action spin will be disseminated at approximately 7:15 a.m., ET, as part of the pre-opening process.

Please note that Nasdaq will also support an Ex-Date Report via the secured NFN website and NFN Daily List web service.

9.5.6 Net Change Calculation

Nasdaq does not provide net change values on the NFN Data Service data feed. Firms that wish to display net change data will need to calculate the value on their end.

For most situations, the Net Change calculation should be:

For mutual funds, money market funds, annuities, AIPs, NextShares, collective investment trust, managed accounts, separate accounts, hedge funds, and demand deposit accounts:

$$\text{Net Change} = \text{Current NAV} - \text{Prior Day's NAV}$$

For UITs:

$$\text{Net Change} = \text{Current Redemption Price} - \text{Prior Day's Redemption Price}$$

With the following exceptions, the Prior Day's NAV and Prior Day's Redemption Price may be sourced from the final summary spin on the prior trading day for most NFN instruments.

- If the Prior Day's NAV / Redemption Price = NA (null), please do not calculate or show a net change value.
- If the Prior Day's NAV / Redemption Price is updated during the current trading day, please use the corrected value as the basis for the net change calculation.
- If NFN instrument is reported with an ex-distribution footnote code, please adjust the NAV for cash dividends, special cash dividends, stock dividends and/or capital gain distributions.

Format Release and Testing

9.6 Fund Display Guidelines

For all instruments, Nasdaq strongly recommends that market data vendors disclose the Instrument Code and Instrument Registration on displays and other downstream data products.

For **Money Market Funds**, Nasdaq also strongly recommends that market data vendors display those data fields outlined in the Securities and Exchange Commission (SEC) Money Market Reform Act:

- Symbol
- Average Maturity
- Average Life
- Net Asset Value (NAV)
- Gross 7 Day Yield
- Subsidized 7 Day Yield
- Total Net Assets
- Calculation Time

For **Mutual Funds, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trusts, Managed Accounts, Separate Accounts, Hedge Funds, and Demand Deposit Accounts**, Nasdaq recommends that market data vendors display the following field values:

- Symbol
- Net Asset Value (NAV)
- Offer / Market Price
- Total Net Assets
- Income Distributions (Dividends and Interest)
- Capital Distributions (Short Term Gains, Long Term Gains, Unallocated Distributions and Return of Capital)

For **UITs**, Nasdaq recommends that market data vendors display the following field values:

- Symbol
- Redemption Price
- Offer Price
- Wrap Price
- Total Net Assets
- Income Distributions (Daily Dividends, Dividend/Interest)
- Capital Distributions (Short Term Gains, Long Term Gains, Unallocated Distributions and Return of Capital)

Please note that NFN Data Service distributors are asked to display NAVs to the provided granularity. Under the SEC Money Market Reform Act, NFN pricing agents are expected to calculate and report floating NAVs to 4 decimal digits. For UITs, structured products and AIPs, Nasdaq regularly sees NAVs / Redemption Price to the full 6 decimal digits supported on the NFN system.

Format Release and Testing

For Income Distributions, Nasdaq recommends that firms display the Total Cash Distribution value from the Category F – Types Y, W message format on ex-date and the Daily Dividend from the Category F – Types E, F, G, I message formats on entry date.

For Capital Distributions, Nasdaq also recommends that firms display the values on ex-date. Within the Distribution message, NFN Data Service breaks out capital gains information into four separate fields: (1) Short-Term Capital Gains, (2) Long-Term Capital Gains, (3) Unallocated Distributions and (4) Return of Capital. If a vendor chooses to display only one capital gains field, Nasdaq recommends that the day's values from the four capital gains fields be aggregated by the vendor and displayed as "Total Capital Gains."

For those firms that display historical data, Nasdaq recommends that they add separate fields marked "historical" or "year-to-date" for previously reported distribution information.

As noted above, Nasdaq also reminds market data vendors to factor income and capital distributions into net change calculations on ex-date.

10.0 General Administrative Messages

Nasdaq uses administrative messages to communicate Nasdaq Fund Network daily statistics and NFN symbol directory messages. In addition, Nasdaq supports 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 6 of this document.

10.1 General Administrative Messages

The General Administrative Message (Category A – Type A) is a free form text message used to notify NFN Data Service subscribers of special situations, operational or regulatory conditions. The length of the Administrative Message is variable but cannot exceed a maximum of 300 characters. Nasdaq will 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.

10.2 Mutual Fund Statistics

The Nasdaq Fund Network Statistic Message (Category A – Types G) is designed to relay the number of funds reporting select price information data during the current business day. This statistics message is disseminated immediately following the summary spin.

The Statistic message contains the following data elements:

Format Release and Testing

- Total number of Open and Closed End Mutual Fund currently registered with NFN for the news media list or supplemental lists.
- Total number of Open and Closed End Mutual funds that have reported NAV data for the current business day.
- Total number of Money Market Funds currently registered with NFN for the News Media or Supplemental lists.
- Count of Money Market Funds that have reported 7 Day Yield for the current business day.
- Total number of Debt UITs and Equity UITs registered with NFN.
- Count of Debt UITs and Equity UITs reporting Redemption NAV values for the current business day.
- Total number of Structured Products, Variable Annuities, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, and Demand Deposit Accounts registered with NFN.
- Count of Structured Products, Variable Annuities, AIPs, NextShares, Collective Investment Trust, Managed Accounts, Separate Accounts, Hedge Funds, and Demand Deposit Accounts that have reported NAV data for current business day.

Please note that NFN test symbols are omitted from the NFN statistical calculation.

10.3 NFN Symbol Directory

The NFN Symbol Directory message (Category A – Types I, J) will be used to relay basic information (such as instrument type / tier, instrument code, expected pricing frequency, symbol and instrument name) for those securities quoted via the Nasdaq Fund Network (NFN) system. The NFN Symbol Directory also provides the exchange MIC code and exchange ticker symbol for closed end funds and NextShares for potential data mapping. As of June 5, 2017, the NFN Symbol Directory message will also note U.S. regulatory agency for the instrument listing. The NFN Symbol Directory message shall be disseminated as part of the pre-opening process on the NFN Data Service data feed.

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 its direct connect customers of the format change via a news item 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 Data News / Data Technical News is posted to the Nasdaq Trader web site, please send an e-mail request to Nasdaq Global Information Services at Clientsuccess@nasdaq.com.

Format Release and Testing

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 9:05 p.m. to 10:05 p.m., ET. To generate the sample data, Nasdaq creates a test script to exercise the full range of values for the affected message formats.
- *Saturday 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 only. Prior to each UAT, Nasdaq will post a Data News / Data Technical News with the registration information.

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 all direct subscribers use these testing opportunities to check their hardware and software applications. During the testing phase, Nasdaq Global Information Services may ask market data vendors or market participants to provide status updates and/or submit testing verification forms as part of the QA process.

1.1 Identification of test data

During normal operational hours, Nasdaq may disseminate test symbols via NFN Data Service. Nasdaq will identify test symbols via the Test Symbol Flag value of "T" in the NFN Data Service message header.

During non-market hours, Nasdaq will broadcast unmarked test data on its direct data feeds. For test transmissions that occur outside market hours, Nasdaq may use live symbols for testing purposes. Nasdaq, therefore, recommends that NFN Data Service subscribers take precautions to protect their systems against database corruption during evenings, weekends, and market holidays. Please refer to the Appendix B of this document for the current data feed transmission schedule.

Appendices

Appendix A – Glossary of Terms

Term	Definition
12b-1 Fee	A mutual fund fee, named for the SEC rule that permits it, used to pay for distribution costs (such as advertising and dealer commissions). If a fund has a 12b-1 fee, it will be disclosed via the footnote field in the NFN Data Service message format.
Alternative Investment Product (AIP)	An alternative investment is an investment product other than traditional investments such as stocks, bonds or cash. While there are numerous definitions for AIPs, Nasdaq will use the same AIP classifications as DTCC: Fund of Hedge Funds, Managed Future Funds, Commodity Pool Funds, Non-Traded REITs, Non-Traditional Hedge Funds (Registered) and Private Equity Offerings.
Annuity	A financial product sold by financial institutions that is designed to, upon annuitization, pay out a stream of payments.
Assets	The current dollar value of the pool of money shareholders have invested in a fund.
Bid Price	The price at which a mutual fund's shares are redeemed by the fund. The bid price is usually the current net asset value per share.
Business Development Company (BDC)	A type of closed-end investment company for the purpose of making capital more readily available to small, developing, and financially troubled companies that do not have ready access to the public capital markets or other forms of conventional financing. Please refer to the SEC website for BDC rules.
Capital Gain	The profits distributed to shareholders that result from the sale of securities held in the fund portfolio.
Collective Investment Trust (CIT)	A Collective Investment Trust (CIT) is operated by a bank or trust company and handles a group of pooled trust accounts. Collective investment funds group's assets from individuals and organizations to develop a larger, diversified portfolio. There are two types of funds: A1 funds are grouped assets contributed for the purpose of investment or reinvestment, and A2 funds are grouped assets contributed by trusts exempt from federal income tax.
Closed-End Fund	A type of investment company that has a fixed number of shares that are publicly traded. The price of a closed-end fund share fluctuates based on investor supply and demand in the marketplace. Closed-end funds may be traded on an equity exchange (such as NYSE, NYSE Amex, or Nasdaq) or over-the-counter.
Demand Deposit Accounts	A demand deposit is an account with a bank or other financial institution that allows the depositor to withdraw his or her funds from the account without warning or with less than seven days' notice. Demand deposits are a key component of the M1 money supply calculated by the Federal Reserve.
Distribution	The payment of dividends and capital gains to shareholders.

Appendices

Term	Definition
Hedge Funds	Hedge funds are alternative investments using pooled funds that employ numerous different strategies to earn active return, or alpha, for their investors. Hedge funds may be aggressively managed or make use of derivatives and leverage in both domestic and international markets with the goal of generating high returns (either in an absolute sense or over a specified market benchmark). It is important to note that hedge funds are generally only accessible to accredited investors as they require less SEC regulations than other funds. One aspect that has set the hedge fund industry apart is the fact that hedge funds face less regulation than mutual funds and other investment vehicles.
Interval Fund	An interval fund is a type of investment company that periodically offers to repurchase its shares from shareholders. That is, the fund periodically offers to buy back a stated portion of its shares from shareholders. Shareholders are not required to accept these offers and sell their shares back to the fund. For more information, refer to http://www.sec.gov/answers/mfinter.htm .
Investment Company	A corporation, trust, or partnership that invests pooled shareholder dollars in securities appropriate to the organization's objective. Mutual funds, closed-end funds, and unit investment trusts are three types of investment companies.
Long-Term Funds	The mutual fund industry designation for all funds except money market funds. Long-term funds are broadly divided into equity (stock) or bond and income funds.
Managed Accounts	A managed account is an investment account that is owned by an individual investor and overseen by a hired professional money manager. Managed accounts are personalized investment portfolios tailored to the specific needs of the account holder. Managed accounts typically include separately managed accounts (SMA) and Unified Managed Accounts (UMA).
Management Fee	The amount paid by a mutual fund to the investment adviser for its services.
Maturity	The date by which an issuer promises to repay the bond's face value.
Money Market Funds	A mutual fund with a portfolio of short-term investments with maturities of one year or less. Also known as short-term mutual funds.
Model Portfolio	A Model Portfolio is a combination of managed investments which are researched and used across a portfolio for the purpose of blending various asset classes, equities or other investments. Investment managers build Model Portfolios to meet various investment styles and objectives to achieve diversification.
NextShares Exchange Traded Managed Funds	NextShares Exchange Traded Managed Funds are a new exchange-listed and exchange-traded asset class that launched in February 2016. For more information, visit the NextShares website at http://www.nextshares.com .
Open-End Mutual Fund	An investment company that stands ready to buy back its shares at their current NAV.

Appendices

Term	Definition
Net Asset Value (NAV)	The per share value of a mutual fund, found by subtracting the fund's liabilities from its assets and dividing by the number of shares outstanding.
No Load Fund	A mutual fund that sells shares without a sales commission or without a 12b-1 fee of more than 0.25 percent per year.
Offer Price	The price at which a mutual fund's shares can be purchased. The offer price includes the current net asset value per share plus any sale charges.
Operating Expenses	Business costs paid from a fund's assets before earnings are distributed to shareholders. These costs include management fees, 12b-1 fees, and other expenses.
Pooling	The basic concept behind mutual funds, in which a fund aggregates the assets of investors who share common financial goals. A fund uses the investment pool to buy a diversified portfolio of investments, and each mutual fund share purchased represents an ownership interest in the fund's underlying securities.
Portfolio	A collection of securities owned by an individual or an institution (such as an investment company) that may include stock, bonds, money market, or derivative securities.
Portfolio Manager	A specialist employed by a mutual fund's adviser to invest the fund's assets in accordance with pre-determined investment objectives.
Redemption Price	The amount per share that a NFN instrument's shareholders receive if they cash in their shares. The value of a NFN instrument's shares depends on the current market value of its underlying investment portfolio at the time.
SEC Money Market Reform Act	The U.S. Securities and Exchange Commission (SEC) enacted a series of rules to increase transparency of, and address the risk of investor runs in, money market funds. The SEC Money Market Reform Act was initially adopted in 2010 and focused on yield and maturity calculations for money market funds. The SEC Money Market Reform Act was amended in July 2014 to include floating net asset value (NAV) calculations for institutional prime money market funds and new tools – liquidity fees and redemption gates – to address runs in non-government money market funds. For details, please refer to http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370542347679 .
Separate Accounts	A separate account is a privately managed investment account owned by an investor seeking to manage a pool of individual assets. Separate accounts are typically opened through a brokerage or financial advisor. They may also be held at a bank or opened with an insurance company.
Structured Products	Structured products are financial instruments designed to facilitate highly customized risk-return objectives.

Appendices

Term	Definition
Total Return	A measure of a fund's performance that encompasses all elements of return: dividends, capital gains, and changes in net asset value. Total return is the change in value of an investment over a given period, assuming reinvestment of any dividends and capital gain distributions. Total return is expressed as a percentage of initial investment.
Unit Investment Trust (UIT)	An investment company that buys and holds a fixed number of shares until the trust's termination date. When the trust is dissolved, proceeds are paid to shareholders. A UIT has an unmanaged portfolio. Like a mutual fund, shares of a UIT may be redeemed on any business day.
Yield	A measure of net income (dividends and interest) earned by the securities in the fund's portfolio less the fund's expenses during a specified period. A fund's yield is expressed as a percentage of the maximum offer price per share on a specified date.

Data Feed Release Terms:

Term	Definition
Hot Cut	A product release in which Nasdaq replaces an existing message 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.
Parallel Period	A product release in which Nasdaq is phasing in a new 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.

Appendices

Appendix B - Transmission schedule

Note: All times referenced 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 Category	Message Type(s)	Originator ID	Session ID
5:00	Start of Day Message	C	I	E	A
5:01	Start of Day Message	C	I	E	A
5:02	Start of Day Message	C	I	E	A
5:03	Line Integrity Messages (Disseminated at 1 minute intervals throughout the operational day)	C	T	E	A
7:15	Symbol Directory Message Spin	A	J, K	F	A
7:15+	Corporate Action Pre-Opening Spin – Current Day’s Ex Date	F	W, X	F	A
8:00	Primary Session Open	C	F	F	P
8:05	Start of Summary Spin Control Message for NFN Data Service Spin #1	C	P	F	P
8:05	NFN Statistics for NFN Data Service Spin #1	A	G	F	P
8:05 – 8:06	NFN Summary Spin #1	F	G, I	F	P
8:06	End-of-Summary Spin Control Message for NFN Data Service Spin #1	C	S	F	P
8:00 to 20:00	Fund Price Updates (Real-time messages as data is entered into NFN)	F	G, I, W, X	F	P
18:05	Start of Summary Spin Control Message for NFN Data Service Spin #2	C	P	F	P
18:05	NFN Statistics for NFN Data Service Spin #2	A	G	F	P
18:05 – 18:06	NFN Summary Spin #2 (Intended for use by print news media with 6:05 p.m. deadlines)	F	G, I	F	P
18:06	End-of-Summary Spin Control Message for NFN Data Service Spin #2	C	S	F	P
18:25	Start of Summary Spin Control Message For NFN Data Service Spin #3	C	P	F	P
18:25	NFN Statistics for NFN Data Service Spin #3	A	G	F	P
18:25 – 18:26	NFN Summary Spin #3 (Intended for use by print news media with later deadlines)	F	G, I	F	P
18:26	End-of-Summary Spin Control Message for NFN Data Service Spin #3	C	S	F	P
18:45	Start of Summary Spin Control Message For NFN Data Service Spin #4	C	P	F	P
18:45	NFN Statistics for NFN Data Service Spin #4	A	G	F	P
18:45 – 18:46	NFN Summary Spin #4 (Intended to correspond to NextShares End-of-Day Trade Processing Timing)	F	G, I	F	P
18:46	End-of-Summary Spin Control Message for NFN Data Service Spin #4	C	S	F	P
20:00	NFN Session Close	C	E	F	P
20:00	Start of Summary Spin Control Message	C	P	F	P

Appendices

Time	Transmission	Message Category	Message Type(s)	Originator ID	Session ID
20:00	Final NFN Statistics message	A	G	F	P
20:00 – 20:01	Final NFN Summary Spin (Intended for firms that need final daily prices)	F	G, I	F	P
20:01	End-of-Summary Spin Control Message for Final Spin	C	S	F	P
20:05	End of Day Message	C	J	E	A
20:06	End of Day Message	C	J	E	A
20:07	End of Day Message	C	J	E	A
20:17	End of Retransmission Requests Message	C	K	E	A
20:18	End of Retransmission Requests Message	C	K	E	A
20:19	End of Retransmission Requests Message	C	K	E	A
20:24	End of Transmissions Message (Time is approximate – Delayed when retransmissions still active)	C	Z	E	A
20:25	End of Transmissions Message	C	Z	E	A
20:26	End of Transmissions Message	C	Z	E	A

Appendices

Appendix C – 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 NFN Data Service 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	A	41	65
18	B	42	66

Appendices

DATE/TIME TRANSLATION TABLE

TIME	ASCII	HEXADECIMAL	DECIMAL
19	C	43	67
20	D	44	68
21	E	45	69
22	F	46	70
23	G	47	71
24	H	48	72
25	I	49	73
26	J	4A	74
27	K	4B	75
28	L	4C	76
29	M	4D	77
30	N	4E	78
31	O	4F	79
32	P	50	80
33	Q	51	81
34	R	52	82
35	S	53	83
36	T	54	84
37	U	55	85
38	V	56	86
39	W	57	87

Appendices

DATE/TIME TRANSLATION TABLE

TIME	ASCII	HEXADECIMAL	DECIMAL
40	X	58	88
41	Y	59	89
42	Z	5A	90
43	[5B	91
44	\	5C	92
45]	5D	93
46	^	5E	94
47	_	5F	95
48	`	60	96
49	a	61	97
50	b	62	98
51	c	63	99
52	d	64	100
53	e	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

Appendix D – Intentionally Left Blank

Appendices

Appendix E – Version Control Information

Version	Date	Description of Documentation Change(s)
2003-1	10/10/2003	<ul style="list-style-type: none"> Initial Release of Mutual Funds Dissemination Service (MFDS) user interface specification document.
2003-1a	10/14/2003	<ul style="list-style-type: none"> Modified Test Cycle 5 and 6. The value for Income Distribution and Capital Distribution was incorrectly shown as 11 bytes. These have been modified to their correct size of 9 bytes.
2003-1b	11/03/2003	<ul style="list-style-type: none"> Modified Test Cycle 6 – Equity UIT. The value for Offer Price was incorrectly shown as 12 bytes and has been modified to the correct size of 11 bytes.
2003-1c	11/11/2003	<ul style="list-style-type: none"> Modified Test Cycle 3 – Mutual Fund Regular Release (Closed End Fund). The value for Offer Price was incorrectly shown as 8 bytes and has been modified to the correct size of 6 bytes.
2003-2	11/14/2003	<ul style="list-style-type: none"> Added NFN Data Entitlement information to Section 1.
2004-1	01/12/2004	<ul style="list-style-type: none"> Modified Section 8: Added an allowable value of “C” (Previous day fund price correction) to the field definition for Reporting Period.
2004-1a	03/15/2004	<ul style="list-style-type: none"> Modified Section 8: Revised the definition for Entry Date as follows: 8 bytes, Alphanumeric. This field denotes the date associated with the price information in the fund message. If the date is earlier than the current business date, the message should be used to correct the historical database record for the fund. The field formats are as follows: <ul style="list-style-type: none"> If an entry date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the payment date. If no entry date is entered, the field will either be space filled or contain the value of “NA”. When this field is populated this way the intent is for the transaction to represent data for the current trading day.
2004-1b	05/25/2004	<ul style="list-style-type: none"> Modified Section 8: Revised the definition for Footnotes. This field value is now defined as a float-position value. Also added the following note to the field definition: Note: <i>The position of a footnote(s) in the dissemination of the data will be consistent with the Nasdaq information processed from the front-end host funds data entry system to the NFN Data Service journal file to the NFN Data Service broadcast. For example, if only one value is apparent in the field, it may be disseminated in any of the five positions of the field.</i>
2004-1c	12/21/04	<ul style="list-style-type: none"> Updated document to reflect new extranet connectivity options.

Appendices

Version	Date	Description of Documentation Change(s)
2005-1	3/7/05	<ul style="list-style-type: none"> Updated document to reflect the new NFN session closing time of 18:00.
2007-1	12/20/07	<ul style="list-style-type: none"> Updated document to reflect the new second session start time of 18:15 and the new second session closing time of 20:00.
2008-1	9/30/2008	<ul style="list-style-type: none"> Updated phone numbers and email addresses for Nasdaq departments. Updated eligibility requirements for NFN Supplemental List.
2008-2	10/17/2008	<ul style="list-style-type: none"> Updated overview to reflect that NFN is now operated by Nasdaq Information LLC (rather than The NASDAQ Stock Market LLC). Updated references throughout the document to reflect the new corporate name "Nasdaq". Also updated phone numbers and email addresses for Nasdaq departments. Increased the bandwidth allocation for NFN Data Service to 500 Kb (from 56 Kb), effective first quarter of 2009. Added a NFN Valuation – Mutual Fund format. New format, which includes an assets field, will replace the Mutual Fund Regular Release message format in first quarter of 2009. Added a NFN Valuation – Money Market Funds message format to be released in 2009. New format will allow NFN to support prior day corrections for this fund class. Revised the NFN Statistics message to add new instrument type fields. New message will be released in first quarter of 2009. Updated the list of allowable values for the Fund Codes and Fund Type fields to reflect the addition of the following instrument types to the NFN system in first quarter of 2009: <ul style="list-style-type: none"> ○ Annuities ○ Structured Notes Removed the NFN Data Service test cycle transmissions from the service.
2008-2a	10/30/2008	<ul style="list-style-type: none"> Revised the NFN Valuation – Money Market Fund verbiage to reflect that the new Category F – Type H message format will be included in the first quarter 2009 release.
2008-2b	11/20/2008	<ul style="list-style-type: none"> Modified upcoming release section to clarify the format changes to be released / replaced in second quarter of 2009. Changed release date to February 9, 2009.
2008-2c	12/11/2008	<ul style="list-style-type: none"> Modified primary session closing time from 6:00 p.m. to 6:05 p.m., ET, throughout document. The new 6:05 p.m. cut-off time will take effect on February 9, 2009, as part of larger NFN Data Service release.

Appendices

Version	Date	Description of Documentation Change(s)
2008-2d	1/15/2009	<ul style="list-style-type: none"> • Modified the NFN Data Service release information for the 1st Quarter 2009 <ul style="list-style-type: none"> ◦ Operational changes – such as the NFN primary reporting period closing time change and the NFN Data Service bandwidth allocation increase – will be implemented on February 9, 2009 ◦ Format changes – such as the new NFN valuation messages for mutual funds and money market funds – will be moved to March 2, 2009
2009-1	5/20/2009	<ul style="list-style-type: none"> • Added NFN release information for temporary footnote code release planned for 3rd Quarter 2009. • Updated field descriptions for footnotes to include the new temporary values for those funds with prices outside the current NFN Data Service field size limitations. • Updated section 1 to highlight Nasdaq Trader self-enrollment feature • Added link to the IP multicast address page on Nasdaq Trader. • Removed references to NFN Data Service message formats retired in March 2009.
2009-2	6/20/2009	<ul style="list-style-type: none"> • Added NFN release information for the session changes planned for 4th Quarter 2009. • Expanded temporary footnote code definitions rules based on customer input.
2009-2	7/28/2009	<ul style="list-style-type: none"> • Added note in release section that Nasdaq is eliminating the “indicative” price indicator display guideline in association with the November 16, 2009 release.

Appendices

Version	Date	Description of Documentation Change(s)																																		
2010-1	7/1/2010	<ul style="list-style-type: none"> Updated document to reflect new NFN Data Service messages to be released on or about June 13, 2011. The data format mapping for the release is as follows: <table border="1" data-bbox="708 384 1395 1226"> <thead> <tr> <th data-bbox="708 384 891 541" rowspan="2">NFN Data Service Message Format</th> <th colspan="2" data-bbox="891 384 1141 453">New Messages To Be Released</th> <th colspan="2" data-bbox="1141 384 1395 453">Old Messages To Be Retired</th> </tr> <tr> <th data-bbox="891 453 1024 541">Message Category</th> <th data-bbox="1024 453 1141 541">Message Type</th> <th data-bbox="1141 453 1274 541">Message Category</th> <th data-bbox="1274 453 1395 541">Message Type(s)</th> </tr> </thead> <tbody> <tr> <td data-bbox="708 541 891 751">NFN Valuation – Mutual Funds, Unit Investment Trusts, Annuities and Structured Products</td> <td data-bbox="891 541 1024 751">F</td> <td data-bbox="1024 541 1141 751">E</td> <td data-bbox="1141 541 1274 751">F</td> <td data-bbox="1274 541 1395 751">D, G, I</td> </tr> <tr> <td data-bbox="708 751 891 863">NFN Valuation – Money Market Funds</td> <td data-bbox="891 751 1024 863">F</td> <td data-bbox="1024 751 1141 863">F</td> <td data-bbox="1141 751 1274 863">F</td> <td data-bbox="1274 751 1395 863">H</td> </tr> <tr> <td data-bbox="708 863 891 1024">NFN Corporate Actions – Dividends / Interest for All Instruments</td> <td data-bbox="891 863 1024 1024">F</td> <td data-bbox="1024 863 1141 1024">Y</td> <td data-bbox="1141 863 1274 1024">F</td> <td data-bbox="1274 863 1395 1024">D, G, I</td> </tr> <tr> <td data-bbox="708 1024 891 1161">NFN Corporate Actions – Distributions for All Instruments</td> <td data-bbox="891 1024 1024 1161">F</td> <td data-bbox="1024 1024 1141 1161">Z</td> <td data-bbox="1141 1024 1274 1161">F</td> <td data-bbox="1274 1024 1395 1161">D, G, I</td> </tr> <tr> <td data-bbox="708 1161 891 1226">NFN Directory</td> <td data-bbox="891 1161 1024 1226">A</td> <td data-bbox="1024 1161 1141 1226">D</td> <td data-bbox="1141 1161 1274 1226">A</td> <td data-bbox="1274 1161 1395 1226">F</td> </tr> </tbody> </table> Refer to Section 5 for the field level mapping for the release. 	NFN Data Service Message Format	New Messages To Be Released		Old Messages To Be Retired		Message Category	Message Type	Message Category	Message Type(s)	NFN Valuation – Mutual Funds, Unit Investment Trusts, Annuities and Structured Products	F	E	F	D, G, I	NFN Valuation – Money Market Funds	F	F	F	H	NFN Corporate Actions – Dividends / Interest for All Instruments	F	Y	F	D, G, I	NFN Corporate Actions – Distributions for All Instruments	F	Z	F	D, G, I	NFN Directory	A	D	A	F
NFN Data Service Message Format	New Messages To Be Released			Old Messages To Be Retired																																
	Message Category	Message Type	Message Category	Message Type(s)																																
NFN Valuation – Mutual Funds, Unit Investment Trusts, Annuities and Structured Products	F	E	F	D, G, I																																
NFN Valuation – Money Market Funds	F	F	F	H																																
NFN Corporate Actions – Dividends / Interest for All Instruments	F	Y	F	D, G, I																																
NFN Corporate Actions – Distributions for All Instruments	F	Z	F	D, G, I																																
NFN Directory	A	D	A	F																																

Appendices

2010-1	8/17/2010	<ul style="list-style-type: none"> Fixed the following documentation errors related to the next NFN Data Service release: 																														
<table border="1"> <thead> <tr> <th data-bbox="711 304 878 361">Page Number(s)</th> <th data-bbox="878 304 1045 361">Field Name</th> <th data-bbox="1045 304 1393 361">Correction</th> </tr> </thead> <tbody> <tr> <td data-bbox="711 361 878 600">19, 24</td> <td data-bbox="878 361 1045 600">Accrued Interest</td> <td data-bbox="1045 361 1393 600">Field added to NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products and AIPs message format (before Daily Dividends). Inadvertently omitted from original document.</td> </tr> <tr> <td data-bbox="711 600 878 787">24, 25</td> <td data-bbox="878 600 1045 787">Action</td> <td data-bbox="1045 600 1393 787">Field added to both Corporate Action message formats (as last field in message). Inadvertently omitted from original document. [See correction below]</td> </tr> <tr> <td data-bbox="711 787 878 1016">19, 24</td> <td data-bbox="878 787 1045 1016">Daily Dividend Factor</td> <td data-bbox="1045 787 1393 1016">Adjusted field name from “Daily Dividend” to “Daily Dividend Factor” within the NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products and AIPs message format to match the rest of the document.</td> </tr> <tr> <td data-bbox="711 1016 878 1115">24</td> <td data-bbox="878 1016 1045 1115">Stock Dividend Factor</td> <td data-bbox="1045 1016 1393 1115">Field size should be 11 bytes.</td> </tr> <tr> <td data-bbox="711 1115 878 1293">27</td> <td data-bbox="878 1115 1045 1293">Pricing Frequency</td> <td data-bbox="1045 1115 1393 1293">Adjusted field name from “Reporting Frequency” to “Pricing Frequency” within the NFN Directory message to match the rest of the document.</td> </tr> <tr> <td data-bbox="711 1293 878 1495">Field Occurrence Table (32)</td> <td data-bbox="878 1293 1045 1495">Listing Market Center</td> <td data-bbox="1045 1293 1393 1495">Corrected table to remove the F/E message under the new data format column header. With next release, the Listing Market Center will appear in the NFN Directory only.</td> </tr> <tr> <td data-bbox="711 1495 878 1648">Field Occurrence Table (32)</td> <td data-bbox="878 1495 1045 1648">Redemption NAV Net Change</td> <td data-bbox="1045 1495 1393 1648">Corrected table to remove the F/E message under the new data format column header. With next release, this field will be omitted.</td> </tr> <tr> <td data-bbox="711 1648 878 1801">Field Occurrence Table (33)</td> <td data-bbox="878 1648 1045 1801">Structured Product List</td> <td data-bbox="1045 1648 1393 1801">Adjusted field name from “Structured Product Count” to “Structured Product List” to match the rest of the document.</td> </tr> <tr> <td data-bbox="711 1801 878 1894">37</td> <td data-bbox="878 1801 1045 1894">Cash Distribution Type</td> <td data-bbox="1045 1801 1393 1894">Field appears in the Corporate Action – Dividend / Interest message format (not</td> </tr> </tbody> </table>			Page Number(s)	Field Name	Correction	19, 24	Accrued Interest	Field added to NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products and AIPs message format (before Daily Dividends). Inadvertently omitted from original document.	24, 25	Action	Field added to both Corporate Action message formats (as last field in message). Inadvertently omitted from original document. [See correction below]	19, 24	Daily Dividend Factor	Adjusted field name from “Daily Dividend” to “Daily Dividend Factor” within the NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products and AIPs message format to match the rest of the document.	24	Stock Dividend Factor	Field size should be 11 bytes.	27	Pricing Frequency	Adjusted field name from “Reporting Frequency” to “Pricing Frequency” within the NFN Directory message to match the rest of the document.	Field Occurrence Table (32)	Listing Market Center	Corrected table to remove the F/E message under the new data format column header. With next release, the Listing Market Center will appear in the NFN Directory only.	Field Occurrence Table (32)	Redemption NAV Net Change	Corrected table to remove the F/E message under the new data format column header. With next release, this field will be omitted.	Field Occurrence Table (33)	Structured Product List	Adjusted field name from “Structured Product Count” to “Structured Product List” to match the rest of the document.	37	Cash Distribution Type	Field appears in the Corporate Action – Dividend / Interest message format (not
Page Number(s)	Field Name	Correction																														
19, 24	Accrued Interest	Field added to NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products and AIPs message format (before Daily Dividends). Inadvertently omitted from original document.																														
24, 25	Action	Field added to both Corporate Action message formats (as last field in message). Inadvertently omitted from original document. [See correction below]																														
19, 24	Daily Dividend Factor	Adjusted field name from “Daily Dividend” to “Daily Dividend Factor” within the NFN Valuation – Mutual Funds, UITs, Annuities, Structured Products and AIPs message format to match the rest of the document.																														
24	Stock Dividend Factor	Field size should be 11 bytes.																														
27	Pricing Frequency	Adjusted field name from “Reporting Frequency” to “Pricing Frequency” within the NFN Directory message to match the rest of the document.																														
Field Occurrence Table (32)	Listing Market Center	Corrected table to remove the F/E message under the new data format column header. With next release, the Listing Market Center will appear in the NFN Directory only.																														
Field Occurrence Table (32)	Redemption NAV Net Change	Corrected table to remove the F/E message under the new data format column header. With next release, this field will be omitted.																														
Field Occurrence Table (33)	Structured Product List	Adjusted field name from “Structured Product Count” to “Structured Product List” to match the rest of the document.																														
37	Cash Distribution Type	Field appears in the Corporate Action – Dividend / Interest message format (not																														

Appendices

Version	Date	Description of Documentation Change(s)		
				the Corporate Action – Distributions message format).
2010-1	9/27/2010	<ul style="list-style-type: none"> Updated release date for NFN data format release. Fixed following documentation errors: 		
		Page Number(s)	Field Name	Correction
		24, 25	Corporate Action Reporting Type	Added definition for this field. Field indicates if corporate action is being reported, being corrected, or being cancelled. Note: Removed duplicate "Action" field value.

Appendices

Version	Date	Description of Documentation Change(s)									
2010-1	9/30/2010	<ul style="list-style-type: none"> In the previous version of the NFN Data Service documentation, Nasdaq had intermixed terms like "Reporting Type", "Reporting Period" and "Reporting Session". To rectify the issue, Nasdaq made the following documentation edits: <table border="1" data-bbox="704 426 1401 1413"> <thead> <tr> <th data-bbox="704 426 878 495">Page Number(s)</th> <th data-bbox="878 426 1040 495">Field Name</th> <th data-bbox="1040 426 1401 495">Correction</th> </tr> </thead> <tbody> <tr> <td data-bbox="704 495 878 1108">14, 76</td> <td data-bbox="878 495 1040 1108">Session Control messages</td> <td data-bbox="1040 495 1401 1108"> <p>Changed definitions for the NFN Session Open and NFN Session Close messages. These Session Control messages are intended to signal the start and end of the NFN – U.S. Hours of Operation. Currently, the NFN – U.S. session runs from 9 a.m. to 8 p.m., ET.</p> <p>Prior to November 2009, Nasdaq had broken up the U.S. Operational Day into two sub-sessions (which it called sometimes called "reporting periods"). With the elimination of the sub-sessions, Nasdaq should have removed the term "reporting period" from the control message definitions.</p> </td> </tr> <tr> <td data-bbox="704 1108 878 1413">32, 66</td> <td data-bbox="878 1108 1040 1413">Reporting Type</td> <td data-bbox="1040 1108 1401 1413"> <p>Nasdaq had intermixed "Reporting Type" and "Reporting Period" within the documentation for the valuation message field that delineated real-time updates from end of day summary messages. With the expansion of values for this field, Nasdaq believes that "Reporting Type" term is more appropriate.</p> </td> </tr> </tbody> </table> 	Page Number(s)	Field Name	Correction	14, 76	Session Control messages	<p>Changed definitions for the NFN Session Open and NFN Session Close messages. These Session Control messages are intended to signal the start and end of the NFN – U.S. Hours of Operation. Currently, the NFN – U.S. session runs from 9 a.m. to 8 p.m., ET.</p> <p>Prior to November 2009, Nasdaq had broken up the U.S. Operational Day into two sub-sessions (which it called sometimes called "reporting periods"). With the elimination of the sub-sessions, Nasdaq should have removed the term "reporting period" from the control message definitions.</p>	32, 66	Reporting Type	<p>Nasdaq had intermixed "Reporting Type" and "Reporting Period" within the documentation for the valuation message field that delineated real-time updates from end of day summary messages. With the expansion of values for this field, Nasdaq believes that "Reporting Type" term is more appropriate.</p>
Page Number(s)	Field Name	Correction									
14, 76	Session Control messages	<p>Changed definitions for the NFN Session Open and NFN Session Close messages. These Session Control messages are intended to signal the start and end of the NFN – U.S. Hours of Operation. Currently, the NFN – U.S. session runs from 9 a.m. to 8 p.m., ET.</p> <p>Prior to November 2009, Nasdaq had broken up the U.S. Operational Day into two sub-sessions (which it called sometimes called "reporting periods"). With the elimination of the sub-sessions, Nasdaq should have removed the term "reporting period" from the control message definitions.</p>									
32, 66	Reporting Type	<p>Nasdaq had intermixed "Reporting Type" and "Reporting Period" within the documentation for the valuation message field that delineated real-time updates from end of day summary messages. With the expansion of values for this field, Nasdaq believes that "Reporting Type" term is more appropriate.</p>									
2010-1	1/14/2011	<ul style="list-style-type: none"> Updated the NFN release date for the new valuation and distribution messages to Monday, May 23, 2011. Updated section 8.6 - Fund Display Guidelines to reflect the NFN 0050 data format changes. 									
2010-1	1/28/2011	<ul style="list-style-type: none"> Corrected the total message length for the Dividend/Interest and Capital Distribution message formats. 									
2010-1	2/1/2011	<ul style="list-style-type: none"> Added section 8.5.2 on the Net Change field population logic that outlines the multiple limitations in the current Nasdaq net change calculation process. 									

Appendices

Version	Date	Description of Documentation Change(s)
2010-1	5/11/2011	<ul style="list-style-type: none"> • Clarified processing logic for the following fields: <ul style="list-style-type: none"> ○ 30 Day Yield Date: Added bullet for NA processing when associated yield value is populated as a numeric value. ○ Cash Distribution Type: Added note to indicate that the Cash Distribution Type field should be space-filled in situation where only a stock dividend is being reported.
2010-1	May 18, 2011	<ul style="list-style-type: none"> • Updated the NFN release date for the new valuation and distribution messages to Monday, June 13, 2011. • Added section 8.5.7 on Net Change Calculation.
2010-1	May 25, 2011	<ul style="list-style-type: none"> • Updated NFN Dividend/Distribution and Capital Distribution processing sections to reflect the Corporate Action Reporting Type value of "E" for the ex-date spin. Please note that Nasdaq plans to support the "E" in the NFN Data Service messages beginning Tuesday, June 14, 2011 or as soon as there are adequate advanced entries of corporate action data. For the pre-opening spin, the session ID will be "A".
2013-1	January 14, 2013	<ul style="list-style-type: none"> • Removed discontinued NFN Data Service message formats and references from document • Added new Fund Type and Fund Category field values for Alternative Investment Product (AIP) securities to be supported on the NFN system beginning March 2013. • Added new "C" footnote code value for Revaluation of Asset situations. • Updated NFN Daily Statistics message format to add AIP List and AIP Reporting fields. Updated message format will be disseminated as Category A – Type E as of March 2013. • Updated NFN Fund Directory message format to expand Fund Name field size to 150 characters. Updated message format will be disseminated as Category A – Type F as of March 2013. • Updated NFN Daily List information in Fund ID field descriptions. • Updated Nasdaq Global Data Products / Nasdaq Global Information Services mailing address on cover page. • Removed references to the Equity Symbology Initiative (ESI) as there is currently no defined plan or timeline for implementation.
2013-2	May 18, 2013	<ul style="list-style-type: none"> • Removed discontinued NFN Data Service message formats and references from document • Updated Daily Dividend Factor field format to denote that the inbound price format will be changed from \$\$\$\$\$.dddd to \$\$.dddddd in the third quarter of 2013. • Added new Cash Distribution Type of "S" for Special Cash Dividends.
2013-2	July 5, 2013	<ul style="list-style-type: none"> • Updated Fund Code values for structured products for third quarter 2013 release. • Updated release date to September 9, 2013 (from August 19, 2013).

Appendices

Version	Date	Description of Documentation Change(s)												
2013-2	August 13, 2013	<ul style="list-style-type: none"> Added two new Pricing Frequency field values: "S" for Semi-Annual and "A" for Annual. 												
2013-2	October 25, 2013	<ul style="list-style-type: none"> Updated listing / eligibility requirements to reflect that Nasdaq allows 529 plans registered with the MSRB to use the NFN system. 												
2014-1	April 28, 2014	<ul style="list-style-type: none"> Added Test Symbol Flag to NFN Data Service Message Header. As of August 11, 2014, Nasdaq will repurpose "Reserved" field to be a Test Symbol Flag. Updated the following field names in the NFN Data Service data feed specification document to be aligned with other NFN documents and reports: <ul style="list-style-type: none"> NFN Symbol Directory (previously known as NFN Fund Directory) Symbol (pka Fund ID) Instrument Name (pka Fund Name) Instrument Type / Tier (pka Fund Type) Instrument Code (pka Fund Code) Exchange Code for Listed Instruments (pka Listing Market Code) Exchange Symbol For Listed Instruments (pka Listing Market Symbol) Action (pka Corporate Action Reporting Type) Stock Dividend Ratio (pka Stock Dividend Factor) Updated the allowable field values for Instrument Code field for NFN instruments. As of August 11, 2014, Nasdaq will use the code "O" for open end mutual funds and "C" for closed end mutual funds. 												
2015-1	January 7, 2015	<ul style="list-style-type: none"> Added the following Footnote values to be supported in 2015: <table border="1" data-bbox="706 1239 1396 1449"> <thead> <tr> <th>Value</th> <th>Definition</th> <th>Instrument Type</th> </tr> </thead> <tbody> <tr> <td>G</td> <td>Redemption gate in effect</td> <td>Money Market Fund</td> </tr> <tr> <td>I</td> <td>Repurchase offer period for Interval Fund</td> <td>Mutual Fund</td> </tr> <tr> <td>L</td> <td>Liquidity fee in effect</td> <td>Money Market Fund</td> </tr> </tbody> </table> Updated Net Change Calculation section to remind firms to include dividend and distribution adjustments on Ex-Date. 	Value	Definition	Instrument Type	G	Redemption gate in effect	Money Market Fund	I	Repurchase offer period for Interval Fund	Mutual Fund	L	Liquidity fee in effect	Money Market Fund
Value	Definition	Instrument Type												
G	Redemption gate in effect	Money Market Fund												
I	Repurchase offer period for Interval Fund	Mutual Fund												
L	Liquidity fee in effect	Money Market Fund												
2015-1	March 2, 2015	<ul style="list-style-type: none"> Updated release date for new Footnote code values to April 13, 2015. 												

Appendices

Version	Date	Description of Documentation Change(s)																					
2015-2	March 6, 2015	<ul style="list-style-type: none"> • Added new NFN Data Service message formats for NextShares Exchange Traded Managed Fund release to be implemented in September 2015 timeframe. The new Message Category and Message Type values will be as follows: <table border="1" data-bbox="706 449 1393 741" style="margin: 10px 0;"> <thead> <tr style="background-color: #e1eef6;"> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>NFN Daily Statistics</td> <td>A</td> <td>G</td> </tr> <tr> <td>NFN Symbol Directory</td> <td>A</td> <td>H</td> </tr> <tr> <td>NFN Valuation Message – All Instruments Except Money Market Funds</td> <td>F</td> <td>G</td> </tr> <tr> <td>NFN Valuation Message – Money Market Funds</td> <td>F</td> <td>H</td> </tr> <tr> <td>NFN Dividend / Interest</td> <td>F</td> <td>W</td> </tr> <tr> <td>NFN Capital Distributions</td> <td>F</td> <td>X</td> </tr> </tbody> </table> • Updated Field Descriptions to reflect the following formatting changes: <ul style="list-style-type: none"> ○ Instrument Type / Tier field size will be increased by 1 byte (to 2 bytes). Values will be updated to match the NFN Daily List and web-based report codes. ○ Instrument Code will be supported on NFN Symbol Directory message format only. (Note: In future release, Nasdaq will look to make the Instrument Code values specific to the Instrument Type / Tier.) ○ Par Value field was removed from NFN Symbol Directory message format. • Added Field Descriptions for NextShares List (pka ETMF List) and NextShares Reporting (pka ETMF Reporting) fields that were added to the NFN Daily Statistics message format. • Added NextShares to NFN symbology page. 				NFN Daily Statistics	A	G	NFN Symbol Directory	A	H	NFN Valuation Message – All Instruments Except Money Market Funds	F	G	NFN Valuation Message – Money Market Funds	F	H	NFN Dividend / Interest	F	W	NFN Capital Distributions	F	X
NFN Daily Statistics	A	G																					
NFN Symbol Directory	A	H																					
NFN Valuation Message – All Instruments Except Money Market Funds	F	G																					
NFN Valuation Message – Money Market Funds	F	H																					
NFN Dividend / Interest	F	W																					
NFN Capital Distributions	F	X																					
2015-2	May 29, 2015	<ul style="list-style-type: none"> • Updated NFN symbology for NextShares to be seven characters with no delimiters. • Updated release dates for new NFN Data Service messages to September 14, 2015. • Updated transmission schedules to reflect new NFN system open time of 8:00 a.m., ET (as of September 14, 2015). • Updated transmission schedule to add a new NFN Data Service summary spin event at approximately 6:45 p.m., ET, as requested by the NextShares trading venues. Also updated the new NFN Statistics (Category A – Type G) message format to add NFN Data Service Count field. 																					
2016-1	March 7, 2016	<ul style="list-style-type: none"> • Added NFN Valuation – Money Market Funds with Calculation Time (Category F – Type I) message format. This new message format will be released on or about July 11, 2016. • Updated display guidelines to reflect intraday processing rules under the SEC Money Market Reform Act regulation. 																					

Appendices

Version	Date	Description of Documentation Change(s)																		
2017-1	March 9, 2017	<ul style="list-style-type: none"> Removed out-of-date references and message formats from document. Added new NFN Symbol Directory with Instrument Registration (Category A – Type J) message format to document. Message will be released on June 5, 2017. Added Instrument Codes values for Interval Fund (Y) and Business Development Company (Z). Updated NFN Data Service Display Guidelines to include Instrument Code and Instrument Registration fields. 																		
2017-1	May 17, 2017	<ul style="list-style-type: none"> Updated retransmission email address to RETRANQ@nasdaq.com. Effective June 5, 2017, all retransmission requests must be directed to this email box. 																		
2017-1	September 13, 2017	<ul style="list-style-type: none"> Added IEXG to U.S. Equity Exchange codes. 																		
2018-1	January 12, 2018	<ul style="list-style-type: none"> Added Instrument Codes values for Collective Investment Trust, Managed Accounts, Separate Accounts, and Hedge Funds. Message will be released on March 26, 2018. 																		
2018-2	March 22, 2018	<ul style="list-style-type: none"> Added Instrument Codes values for Collective Investment Trust, Managed Accounts, Separate Accounts, and Hedge Funds to Field Occurrence Matrix, Section 6.0 																		
2018-3	April 24, 2018	<ul style="list-style-type: none"> Rebranded from MFDS to Nasdaq Fund Network Data Service. Removed out-of-date references and message formats from document. Added new NFN Symbol Directory with Expanded Instrument Code (Category A – Type K) message format to document. Message will be released on August 20, 2018. Added Instrument Code value for Demand Deposit Accounts. Code will be released August 20, 2018. 																		
2018-4	October 3, 2018	<ul style="list-style-type: none"> Removal of the historical data limit of 365 days. 																		
2019-1	July 3, 2019	<ul style="list-style-type: none"> Added Model Portfolio flag field to the NFN Symbol Directory Message (Category A – Type K). 																		
2020-1	February 11, 2019	<ul style="list-style-type: none"> Added an 8:05 a.m. ET Summary Spin to the Summary Spin Transmission schedule. Adjusting the spin schedule so the 8:05 a.m. spin is spin #1. Added a previous day correction message Reporting Type "P" to NFN Spin files. 																		
2020-2	November 16, 2020	<ul style="list-style-type: none"> Updated the following Instrument Code values: <table border="1"> <thead> <tr> <th>Code</th> <th>Old Value</th> <th>New Value</th> </tr> </thead> <tbody> <tr> <td>Z</td> <td>Business Development Company</td> <td>Tender Offer Fund</td> </tr> <tr> <td>R</td> <td>Hybrid</td> <td>Index: Autocall</td> </tr> <tr> <td>T</td> <td>Buffer/Barrier Enhanced Upside</td> <td>Index: Buffer/Barrier Enhanced Upside</td> </tr> <tr> <td>U</td> <td>Principal Protected</td> <td>Index: Principal Protected</td> </tr> <tr> <td>W</td> <td>Rates Enhanced</td> <td>Rates</td> </tr> </tbody> </table>	Code	Old Value	New Value	Z	Business Development Company	Tender Offer Fund	R	Hybrid	Index: Autocall	T	Buffer/Barrier Enhanced Upside	Index: Buffer/Barrier Enhanced Upside	U	Principal Protected	Index: Principal Protected	W	Rates Enhanced	Rates
Code	Old Value	New Value																		
Z	Business Development Company	Tender Offer Fund																		
R	Hybrid	Index: Autocall																		
T	Buffer/Barrier Enhanced Upside	Index: Buffer/Barrier Enhanced Upside																		
U	Principal Protected	Index: Principal Protected																		
W	Rates Enhanced	Rates																		

Appendices

Version	Date	Description of Documentation Change(s)															
2021-1	December 10, 2021	<ul style="list-style-type: none"> <li data-bbox="711 275 1317 300">Added following Instrument Registration Code value: <table border="1" data-bbox="873 327 1232 384"> <thead> <tr> <th data-bbox="873 327 987 352">Code</th> <th data-bbox="987 327 1232 352">Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="873 352 987 384">U</td> <td data-bbox="987 352 1232 384">UCITS</td> </tr> </tbody> </table> 	Code	Value	U	UCITS											
Code	Value																
U	UCITS																
2022-1	August 3, 2022	<ul style="list-style-type: none"> <li data-bbox="711 390 1256 415">Updated the following Instrument Code values: <table border="1" data-bbox="704 443 1404 627"> <thead> <tr> <th data-bbox="704 443 794 468">Code</th> <th data-bbox="794 443 1187 468">Old Value</th> <th data-bbox="1187 443 1404 468">New Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="704 468 794 493">R</td> <td data-bbox="794 468 1187 493">Index: Autocall</td> <td data-bbox="1187 468 1404 493">Growth</td> </tr> <tr> <td data-bbox="704 493 794 518">S</td> <td data-bbox="794 493 1187 518">Single Stock</td> <td data-bbox="1187 493 1404 518">Income</td> </tr> <tr> <td data-bbox="704 518 794 575">T</td> <td data-bbox="794 518 1187 575">Index: Buffer/Barrier Enhanced Upside</td> <td data-bbox="1187 518 1404 575">Digital</td> </tr> <tr> <td data-bbox="704 575 794 627">U</td> <td data-bbox="794 575 1187 627">Index: Principal Protected</td> <td data-bbox="1187 575 1404 627">Growth and Income</td> </tr> </tbody> </table> 	Code	Old Value	New Value	R	Index: Autocall	Growth	S	Single Stock	Income	T	Index: Buffer/Barrier Enhanced Upside	Digital	U	Index: Principal Protected	Growth and Income
Code	Old Value	New Value															
R	Index: Autocall	Growth															
S	Single Stock	Income															
T	Index: Buffer/Barrier Enhanced Upside	Digital															
U	Index: Principal Protected	Growth and Income															