Nasdaq Fund Network Data Service (NFNDS) via Nasdaq Data Link Streaming API

Updated: May 3, 2024

Product Overview

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, Annuities, Structured Products, Alternative Investment Products, NextShares, Hedge Funds, Collective Investment Trusts (CITs), Managed Accounts, Separate Accounts and Demand deposit accounts, 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.

Publisher

Nasdaq Global Information Services equips investors with the tools to make informed decisions by providing innovative real-time and historical analytic products and intelligent solutions designed to tap new data sets and meet new industry challenges. Nasdaq Data Link via Quandl eliminates infrastructure and resource obstacles from collecting and storing large data sets, providing tools with industry adopted open standards to ingest and analyze market data and other financial information.

Delivery

Nasdaq Data Link provides a modern and efficient method of delivery for realtime exchange data and other financial information. Data is made available through a suite of APIs, allowing for effortless integration of data from disparate sources, and a dramatic reduction in time to market for customer-designed applications. The API is highly scalable, and robust enough to support the delivery of real-time exchange data.

This repository provides an SDK for developing applications to access the Nasdaq Data Link API. While the SDK is open source, connecting to the API does require credentials, which are provided by Nasdaq during an on-boarding process.

For more information please use the link- https://github.com/Nasdaq/CloudDataService

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Admin Daily Statistics

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.

Category A – Type G

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “A”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“G” Combined with Message Category “A” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>This field indicates the market session of the message to follow.

The current allowable values are as follows:<table><tr><th>Code</th><th>Description</th></tr><tr><td>A</td><td>Session Independent</td></tr><tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr></table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
<tr><td>Mutual Fund News Media List</td><td>MutualFundMediaList</td><td>string</td><td>This field denotes the total number of open- and closed-end mutual funds currently registered with NFN for the news media list.</td></tr>
<tr><td>Mutual Fund Supplemental List</td><td>MutualFundSupplementalList</td><td>string</td><td>This field denotes the total number of open- and closed-end mutual funds currently registered with NFN for the supplemental list.</td></tr>
<tr><td>Mutual Fund Reporting</td><td>MutualFundReporting</td><td>string</td><td>This field denotes the total number of registered mutual funds that reported a NAV for the current entry day.</td></tr>
<tr><td>Money Market Fund News Media List</td><td>MoneyMarketFundMediaList</td><td>string</td><td>This field denotes the total number of money market funds currently registered with NFN for the news media list.</td></tr>
<tr><td>Money Market Fund Supplemental List</td><td>MoneyMarketFundSupplementalList</td><td>string</td><td>This field denotes the total number of money market funds currently registered with NFN for the supplemental list.</td></tr>
<tr><td>Money Market Fund Reporting</td><td>MoneyMarketFundReporting</td><td>string</td><td>This field denotes the total number of registered money market funds that reported average maturity and 7-day yield for the current entry date.</td></tr>
<tr><td>Debt UIT List</td><td>DebtUITList</td><td>string</td><td>This field denotes the total number of debt-focused UITs currently registered with NFN.</td></tr>
</table>

Debt UIT Reporting	DebtUITReporting	string	This field denotes the total number of registered Debt UITs that reported redemption NAV for the current entry day.
Equity UIT Count	EquityUITList	string	This field denotes the total number of equity-focused UITs currently registered with NFN.
Equity UIT Reporting	EquityUITReporting	string	This field denotes the total number of registered Equity UITs that reported redemption NAV for the current entry day.
Structured Product List	StructuredProductList	string	This field denotes the total number of Structured Products currently registered with NFN.
Structured Product Reporting	StructuredProductReporting	string	This field denotes the total number of Structured Products that reported a NAV for the current business day.
Annuity List	AnnuityList	string	This field denotes the total number of Annuities currently registered with NFN.
Annuity Reporting	AnnuityReporting	string	This field denotes the total number of registered Annuities that reported redemption NAV for the current entry day.
AIP List	AIPList	string	This field denotes the total number of Alternative Investment Products (AIPs) currently registered with NFN.
AIP Reporting	AIPReporting	string	This field denotes the total number of AIPs that reported a NAV for the current business day.
NextShares List	NextSharesList	string	This field denotes the total number of registered NextShares on the NFN system as of the start of the current business day.
NextShares Reporting	NextSharesReporting	string	This field denotes the total number of registered NextShares that reported redemption NAV for the current entry day.
Collective Investment Trust List	CollectiveInvestmentTrustList	string	This field denotes the total number of Collective Investment Trusts (CITs) currently registered with NFN.
Collective Investment Trust Reporting	CollectiveInvestmentTrustReporting	string	This field denotes the total number of Collective Investment Trusts (CITs) that reported redemption NAV for the current entry day.
Managed Accounts List	ManagedAccountsList	string	This field denotes the total number of registered Managed Accounts on the NFN system as of the start of the current business day.
Managed Accounts Reporting	ManagedAccountsReporting	string	This field denotes the total number of registered Managed Accounts that reported redemption NAV for the current entry day.

Separate Accounts List	SeparateAccountsList	string	This field denotes the total number of registered Separate Accounts on the NFN system as of the start of the current business day.
Separate Accounts Reporting	SeparateAccountsReporting	string	This field denotes the total number of registered Separate Accounts that reported redemption NAV for the current entry day.
Hedge Fund List	HedgeFundList	string	This field denotes the total number of registered Hedge Funds on the NFN system as of the start of the current business day.
Hedge Fund Reporting	HedgeFundReporting	string	This field denotes the total number of registered Hedge Funds that reported redemption NAV for the current entry day.
Demand Deposit Account List	DemandDepositAccountList	string	This field denotes the total number of Demand Deposit Accounts currently registered with NFN.
Demand Deposit Account Reporting	DemandDepositAccountReporting	string	This field denotes the total number of Demand Deposit Accounts that reported redemption NAV for the current entry day.
Data Service Spin Count	DataServiceSpinCount	string	This field indicates the NFN Data Service spin instance associated with the NFN statistics message. Nasdaq will support four NFN Data Service summary spins: **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)

Schema

```
{
	"type": "record",
	"name": "AdminDailyStatistics",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
```

```
            "name": "MessageSequenceNumber",
            "type": "string"
        },
        {
            "name": "OriginatorId",
            "type": "string"
        },
        {
            "name": "MessageDateTime",
            "type": "string"
        },
        {
            "name": "TestSymbolFlag",
            "type": "string"
        },
        {
            "name": "MutualFundMediaList",
            "type": "string"
        },
        {
            "name": "MutualFundSupplementalList",
            "type": "string"
        },
        {
            "name": "MutualFundReporting",
            "type": "string"
        },
        {
            "name": "MoneyMarketFundMediaList",
            "type": "string"
        },
        {
            "name": "MoneyMarketFundSupplementalList",
            "type": "string"
        },
        {
            "name": "MoneyMarketFundReporting",
            "type": "string"
        },
        {
            "name": "DebtUITList",
            "type": "string"
        },
        {
            "name": "DebtUITReporting",
            "type": "string"
        },
        {
            "name": "EquityUITList",
            "type": "string"
        },
        {
            "name": "EquityUITReporting",
            "type": "string"
        },
        {
            "name": "StructuredProductList",
            "type": "string"
        },
```

```
{
        "name": "StructuredProductReporting",
        "type": "string"
},
{
        "name": "AnnuityList",
        "type": "string"
},
{
        "name": "AnnuityReporting",
        "type": "string"
},
{
        "name": "AIPList",
        "type": "string"
},
{
        "name": "AIPReporting",
        "type": "string"
},
{
        "name": "NextSharesList",
        "type": "string"
},
{
        "name": "NextSharesReporting",
        "type": "string"
},
{
        "name": "CollectiveInvestmentTrustList",
        "type": "string"
},
{
        "name": "CollectiveInvestmentTrustReporting",
        "type": "string"
},
{
        "name": "ManagedAccountsList",
        "type": "string"
},
{
        "name": "ManagedAccountsReporting",
        "type": "string"
},
{
        "name": "SeparateAccountsList",
        "type": "string"
},
{
        "name": "SeparateAccountsReporting",
        "type": "string"
},
{
        "name": "HedgeFundList",
        "type": "string"
},
{
        "name": "HedgeFundReporting",
        "type": "string"
```

```
                },
                {
                        "name": "DemandDepositAccountList",
                        "type": "string"
                },
                {
                        "name": "DemandDepositAccountReporting",
                        "type": "string"
                },
                {
                        "name": "DataServiceSpinCount",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
  "AdminDailyStatistics": {
    "MessageCategory": "A",
    "MessageType": "G",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000001",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6219803-04:00",
    "TestSymbolFlag": " ",
    "MutualFundMediaList": "1234",
    "MutualFundSupplementalList": "1234",
    "MutualFundReporting": "123",
    "MoneyMarketFundMediaList": "1234",
    "MoneyMarketFundSupplementalList": "1234",
    "MoneyMarketFundReporting": "123",
    "DebtUITList": "1234",
    "DebtUITReporting": "123",
    "EquityUITList": "1234",
    "EquityUITReporting": "123",
    "StructuredProductList": "1234",
    "StructuredProductReporting": "123",
    "AnnuityList": "1234",
    "AnnuityReporting": "123",
    "AIPList": "1234",
    "AIPReporting": "123",
    "NextSharesList": "1234",
    "NextSharesReporting": "123",
    "CollectiveInvestmentTrustList": "1234",
    "CollectiveInvestmentTrustReporting": "123",
    "ManagedAccountsList": "1234",
    "ManagedAccountsReporting": "123",
    "SeparateAccountsList": "1234",
    "SeparateAccountsReporting": "123",
    "HedgeFundList": "1234",
    "HedgeFundReporting": "123",
    "DemandDepositAccountList": "1234",
    "DemandDepositAccountReporting": "1234",
    "DataServiceSpinCount": "2"
  }
}
```

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.

Category A – Type A

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “A”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“A” Combined with Message Category “A” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>A</td><td>Session Independent</td></tr><tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr></table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
<tr><td>System Alert</td><td>SystemAlert</td><td>string</td><td>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.</td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "AdminGeneral",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
```

```
                "type": "string"
            },
            {
                "name": "RetransmissionRequester",
                "type": "string"
            },
            {
                "name": "MessageSequenceNumber",
                "type": "string"
            },
            {
                "name": "OriginatorId",
                "type": "string"
            },
            {
                "name": "MessageDateTime",
                "type": "string"
            },
            {
                "name": "TestSymbolFlag",
                "type": "string"
            },
            {
                "name": "SystemAlert",
                "type": "string"
            }
        ]
}
```


Sample


```
{
   "AdminGeneral": {
      "MessageCategory": "A",
      "MessageType": "A",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "0",
      "MessageSequenceNumber": "00000000",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.5874640-04:00",
      "TestSymbolFlag": " ",
      "SystemAlert": "Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Tortor at risus viverra adipiscing at in. In cursus turpis massa tincidunt."
   }
}
```


NFN Symbol Directory

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 purposed. The NFN Directory messages are disseminated as part of the NFN Data Service pre-opening process.

Category A – Type K

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “A”.</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“K” Combined with Message Category “A” provides the messages in this table.</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>A</td><td>Session Independent</td></tr><tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr></table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>• 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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
• "yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
<tr><td>Instrument Type Tier</td><td>InstrumentTypeTier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
<tr><td>Instrument Code</td><td>InstrumentCode</td><td>string</td><td>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.

The allowable values will be as follows:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
</table>

			Y <space> <space> <space>	Interval Fund
			Z <space> <space> <space>	Business Development Company (BDC)
			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	
			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	

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Q <space> <space> <space></td><td>NextShares</td></tr>
<tr><td colspan="2">Hedge Fund</td></tr>
<tr><td>H <space> <space> <space></td><td>Hedge Fund</td></tr>
<tr><td colspan="2">Collective Investment Trust</td></tr>
<tr><td>1 <space> <space> <space></td><td>Collective Investment Trust</td></tr>
<tr><td colspan="2">Managed Accounts</td></tr>
<tr><td>2 <space> <space> <space></td><td>Managed Accounts - Separately Managed Accounts (SMA)</td></tr>
<tr><td>3 <space> <space> <space></td><td>Managed Accounts - Unified Managed Accounts (UMA)</td></tr>
<tr><td colspan="2">Separate Accounts</td></tr>
<tr><td>4 <space> <space> <space></td><td>Separate Accounts</td></tr>
<tr><td colspan="2">Demand Deposit Accounts</td></tr>
<tr><td>5 <space> <space> <space></td><td>Demand Deposit Account</td></tr>
</table>
</td></tr>
<tr><td>Symbol</td><td>Symbol</td><td>string</td><td>This field indicates the NFN ticker symbol as assigned by NFN to instrument.</td></tr>
<tr><td>Pricing Frequency</td><td>PricingFrequency</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Value</th></tr>
<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>
</table>
</td></tr>
<tr><td>Instrument Name</td><td>InstrumentName</td><td>string</td><td>This field indicates the name of the NFN instrument as reported to Nasdaq by the investment company.</td></tr>
<tr><td>Exchange Code For Listed Instruments</td><td>ExchangeCodeForListedInstruments</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Value</th></tr>
<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>
</table>
</td></tr>
</table>

<table>
<tr><td>Exchange Symbol For Listed Instrument</td><td>ExchangeSymbolForListedInstrument</td><td>string</td><td>This field indicates the exchange ticker for the NFN instrument from the primary listing market (if available).</td></tr>
<tr><td>Currency</td><td>Currency</td><td>string</td><td>This field indicates the ISO currency code associated with the NFN price-related fields. Default value will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>USD</td><td>US Dollars</td></tr></table></td></tr>
<tr><td>Instrument Registration
(New value as of 4/2/2024)</td><td>InstrumentRegistration</td><td>string</td><td>This field will denote the regulatory oversight body with which the NFN instrument is registered. The allowable values will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>S</td><td>U.S. Securities and Exchange Commission (SEC)</td></tr><tr><td>M</td><td>Municipal Securities Rulemaking Board (MSRB)</td></tr><tr><td>C</td><td>U.S. Commodity Futures Trading Commission (CFTC)</td></tr><tr><td>X</td><td>Exemption</td></tr><tr><td>N</td><td>Not Registered with U.S. Regulatory Agency</td></tr><tr><td>A</td><td>Canadian Securities Administration (CSA)</td></tr><tr><td>U</td><td>UCITS</td></tr><tr><td>O</td><td>Other</td></tr></table></td></tr>
<tr><td>Model Portfolio Flag</td><td>ModelPortfolioFlag</td><td>string</td><td>This field denotes that the Instrument is a Model Portfolio. Associated values are as follows:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Y</td><td>Yes</td></tr><tr><td>N</td><td>No</td></tr></table></td></tr>
</table>

Schema

```
{
	"type": "record",
	"name": "AdminSymbolDirectory",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
```

```
                "name": "MessageSequenceNumber",
                "type": "string"
            },
            {
                "name": "OriginatorId",
                "type": "string"
            },
            {
                "name": "MessageDateTime",
                "type": "string"
            },
            {
                "name": "TestSymbolFlag",
                "type": "string"
            },
            {
                "name": "InstrumentTypeTier",
                "type": "string"
            },
            {
                "name": "InstrumentCode",
                "type": "string"
            },
            {
                "name": "Symbol",
                "type": "string"
            },
            {
                "name": "PricingFrequency",
                "type": "string"
            },
            {
                "name": "InstrumentName",
                "type": "string"
            },
            {
                "name": "ExchangeCodeForListedInstruments",
                "type": "string"
            },
            {
                "name": "ExchangeSymbolForListedInstruments",
                "type": "string"
            },
            {
                "name": "Currency",
                "type": "string"
            },
            {
                "name": "InstrumentRegistration",
                "type": "string"
            },
            {
                "name": "ModelPortfolioFlag",
                "type": "string"
            }
        ]
}
```

Sample


```
{
   "AdminSymbolDirectory": {
      "MessageCategory": "A",
      "MessageType": "K",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000001",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6317815-04:00",
      "TestSymbolFlag": " ",
      "InstrumentTypeTier": "MS",
      "InstrumentCode": "O   ",
      "Symbol": "ZZZZX",
      "PricingFrequency": "D",
      "InstrumentName": "NFN Mutual Fund",
      "ExchangeCodeForListedInstruments": " ",
      "ExchangeSymbolForListedInstruments": "NA",
      "Currency": "USD",
      "InstrumentRegistration": "S",
      "ModelPortfolioFlag": "N"
   }
}
```

Control Message – End of Day

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.

Category C – Type J

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“J” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>A</td><td>Session Independent</td></tr><tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr></table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema

```
{
	"type": "record",
	"name": "ControlEndOfDay",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
```

```
                "type": "string"
            },
            {
                "name": "MessageSequenceNumber",
                "type": "string"
            },
            {
                "name": "OriginatorId",
                "type": "string"
            },
            {
                "name": "MessageDateTime",
                "type": "string"
            },
            {
                "name": "TestSymbolFlag",
                "type": "string"
            }
        ]
}
```


Sample


```
{
  "ControlEndOfDay": {
    "MessageCategory": "C",
    "MessageType": "J",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000001",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6552460-04:00",
    "TestSymbolFlag": " "
  }
}
```


Control Message – End of Retransmission Requests

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.

Category C – Type K

Field	Name	Type	Description
Message Category	MessageCategory	string	The message category for this table is Category “C”
Message Type	MessageType	string	“K” Combined with Message Category “C” provides the messages in this table
Session Identifier	SessionIdentifier	string	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:

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table>
</td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr>
<tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlEndOfRetransmissionRequests",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
			"name": "MessageSequenceNumber",
			"type": "string"
		},
		{
			"name": "OriginatorId",
			"type": "string"
		},
		{
			"name": "MessageDateTime",
			"type": "string"
		},
		{
			"name": "TestSymbolFlag",
			"type": "string"
		}
	]
}
```


Sample


```
{
  "ControlEndOfRetransmissionRequests": {
```

```
    "MessageCategory": "C",
    "MessageType": "K",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000001",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6593863-04:00",
    "TestSymbolFlag": " "
  }
}
```


Control Message – End of Summary Spin

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.

Category C – Type S

Field	Name	Type	Description
Message Category	MessageCategory	string	The message category for this table is Category "C"
Message Type	MessageType	string	"S" Combined with Message Category "C" provides the messages in this table
Session Identifier	SessionIdentifier	string	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)
Retransmission Requester	RetransmissionRequester	string	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. 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 *Specific Vendor ID* – To be assigned on vendor-by-vendor basis.
Message Sequence Number	MessageSequenceNumber	string	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

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema

```
{
	"type": "record",
	"name": "ControlEndOfSummarySpin",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
```

```
                "name": "SessionIdentifier",
                "type": "string"
            },
            {
                "name": "RetransmissionRequester",
                "type": "string"
            },
            {
                "name": "MessageSequenceNumber",
                "type": "string"
            },
            {
                "name": "OriginatorId",
                "type": "string"
            },
            {
                "name": "MessageDateTime",
                "type": "string"
            },
            {
                "name": "TestSymbolFlag",
                "type": "string"
            }
        ]
}
```


Sample


```
{
  "ControlEndOfSummarySpin": {
    "MessageCategory": "C",
    "MessageType": "S",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000001",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6710580-04:00",
    "TestSymbolFlag": " "
  }
}
```


Control Message – End of Transmission

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.

Category C – Type Z

Field	Name	Type	Description
Message Category	MessageCategory	string	The message category for this table is Category “C”
Message Type	MessageType	string	“Z” Combined with Message Category “C” provides the messages in this table

<table>
<tr>
<td>Session Identifier</td>
<td>SessionIdentifier</td>
<td>string</td>
<td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td>
</tr>
<tr>
<td>Retransmission Requester</td>
<td>RetransmissionRequester</td>
<td>string</td>
<td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table>
</td>
</tr>
<tr>
<td>Message Sequence Number</td>
<td>MessageSequenceNumber</td>
<td>string</td>
<td>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.

</td>
</tr>
</table>

<table>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr>
<tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr>
</table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>T</td><td>NFN Test Symbol</td></tr>
<tr><td><space></td><td>NFN Live / Production Symbol</td></tr>
</table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlEndOfTransmission",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
			"name": "MessageSequenceNumber",
			"type": "string"
		},
		{
			"name": "OriginatorId",
			"type": "string"
		},
		{
			"name": "MessageDateTime",
			"type": "string"
		},
		{
			"name": "TestSymbolFlag",
			"type": "string"
		}
```

```
        ]
}
```

Sample

```
{
  "ControlEndOfTransmission": {
    "MessageCategory": "C",
    "MessageType": "Z",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000001",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6789518-04:00",
    "TestSymbolFlag": " "
  }
}
```

Control Message – Line Integrity

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.

Category C – Type T

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“T” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>A</td><td>Session Independent</td></tr><tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr></table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlLineIntegrity",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
			"name": "MessageSequenceNumber",
```

```
                        "type": "string"
                },
                {
                        "name": "OriginatorId",
                        "type": "string"
                },
                {
                        "name": "MessageDateTime",
                        "type": "string"
                },
                {
                        "name": "TestSymbolFlag",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
   "ControlLineIntegrity": {
      "MessageCategory": "C",
      "MessageType": "T",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000001",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6748079-04:00",
      "TestSymbolFlag": " "
   }
}
```

Control Message – Message Sequence Number Reset

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.

Category C – Type L

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“L” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table>
</td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlMessageSequenceNumberReset",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
```

```
                {
                        "name": "MessageSequenceNumber",
                        "type": "string"
                },
                {
                        "name": "OriginatorId",
                        "type": "string"
                },
                {
                        "name": "MessageDateTime",
                        "type": "string"
                },
                {
                        "name": "TestSymbolFlag",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
   "ControlMessageSequenceNumberReset": {
      "MessageCategory": "C",
      "MessageType": "L",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000001",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6633700-04:00",
      "TestSymbolFlag": " "
   }
}
```

Control Message – Session Close

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.

Category C – Type E

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“E” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlSessionClose",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
```

```
                {
                        "name": "MessageSequenceNumber",
                        "type": "string"
                },
                {
                        "name": "OriginatorId",
                        "type": "string"
                },
                {
                        "name": "MessageDateTime",
                        "type": "string"
                },
                {
                        "name": "TestSymbolFlag",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
   "ControlSessionClose": {
      "MessageCategory": "C",
      "MessageType": "E",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000001",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6365914-04:00",
      "TestSymbolFlag": " "
   }
}
```

Control Message – Session Open

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.

Category C – Type F

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“F” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlSessionOpen",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
```

```
                {
                        "name": "MessageSequenceNumber",
                        "type": "string"
                },
                {
                        "name": "OriginatorId",
                        "type": "string"
                },
                {
                        "name": "MessageDateTime",
                        "type": "string"
                },
                {
                        "name": "TestSymbolFlag",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
   "ControlSessionOpen": {
      "MessageCategory": "C",
      "MessageType": "F",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000001",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6410635-04:00",
      "TestSymbolFlag": " "
   }
}
```

Control Message – Start of Day

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.

Category C – Type I

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“I” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>A</td><td>Session Independent</td></tr><tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr></table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema

```
{
	"type": "record",
	"name": "ControlStartOfDay",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
			"name": "MessageSequenceNumber",
```

```
                        "type": "string"
                },
                {
                        "name": "OriginatorId",
                        "type": "string"
                },
                {
                        "name": "MessageDateTime",
                        "type": "string"
                },
                {
                        "name": "TestSymbolFlag",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
   "ControlStartOfDay": {
      "MessageCategory": "C",
      "MessageType": "I",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000001",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6451143-04:00",
      "TestSymbolFlag": " "
   }
}
```


Control Message – Start of Summary Spin

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.

Category C – Type P

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “C”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“P” Combined with Message Category “C” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table>
</td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ControlStartOfSummarySpin",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
		},
		{
			"name": "RetransmissionRequester",
			"type": "string"
		},
		{
			"name": "MessageSequenceNumber",
			"type": "string"
		},
		{
			"name": "OriginatorId",
			"type": "string"
		},
```

```
                {
                        "name": "MessageDateTime",
                        "type": "string"
                },
                {
                        "name": "TestSymbolFlag",
                        "type": "string"
                }
        ]
}
```

Sample

```
{
  "ControlStartOfSummarySpin": {
    "MessageCategory": "C",
    "MessageType": "P",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000001",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6670749-04:00",
    "TestSymbolFlag": " "
  }
}
```

NFN Valuation Message Format - Mutual Funds, UITs, Annuities, Structured Products, AIPs, NextShares, Collective Investment Trusts, Managed Accounts, Separate Accounts, Hedge Funds, Demand Deposit Accounts

This 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.

Category F – Type G

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “F”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“G” Combined with Message Category “F” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:<table><tr><th>Code</th><th>Description</th></tr><tr><td>O (space)</td><td>Original Transmission to All</td></tr><tr><td>R (space)</td><td>Retransmission to All</td></tr><tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr></table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
</table>

<table>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
<tr><td>Instrument Type Tier</td><td>InstrumentTypeTier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
<tr><td>Symbol</td><td>Symbol</td><td>string</td><td>This field indicates the NFN ticker symbol as assigned by NFN to instrument.
To download the current NFN symbol directory without CUSIPs, please visit the Nasdaq Trader web site.</td></tr>
<tr><td>Reporting Type</td><td>ReportingType</td><td>string</td><td>This field indicates the dissemination type and frequency for the NFN instrument. The allowable values will be:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
<tr><td>Footnotes</td><td>Footnotes</td><td>string</td><td>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:<table><tr><th>Code</th><th>Footnote Value</th><th>Instrument Type</th></tr><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></table></td></tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td></td>
<td>
<table>
<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>
<tr><td>F</td><td>Fund always prices using a previous day’s quotation</td><td>All</td></tr>
<tr><td>H</td><td>Deferred sales charge</td><td>UIT</td></tr>
<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>
<tr><td>N</td><td>No front-end load or contingent deferred sales load</td><td>Mutual Fund</td></tr>
<tr><td>O</td><td>Primary offering. Portfolio that is currently available to investors</td><td>UIT</td></tr>
<tr><td>P</td><td>12(b)(1) plan – fund assets are used to pay for distribution costs</td><td>Mutual Fund</td></tr>
<tr><td>R</td><td>Redemption fee or contingent deferred sales load may apply</td><td>Mutual Fund</td></tr>
<tr><td>S</td><td>Stock split/dividend</td><td>All, excluding Demand Deposit Account</td></tr>
<tr><td>W</td><td>NRO or “Brown-out” indicator. Trust will not re-offer</td><td>UIT</td></tr>
<tr><td>X</td><td>Ex-dividend</td><td>All, excluding Demand Deposit Account</td></tr>
<tr><td>Y</td><td>Secondary offering; past portfolio that is in the secondary offering period</td><td>UIT</td></tr>
</table>
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.
</td>
</tr>
<tr>
<td>Net Asset Value (NAV)</td>
<td>NAV</td>
<td>string</td>
<td>This field indicates the net asset value for a NFN instrument. The field format is as follows:
• 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).</td>
</tr>
<tr>
<td>Offer Price</td>
<td>OfferPrice</td>
<td>string</td>
<td>This field reflects the price at which a NFN instrument’s shares can be purchased from the issuer or distributor. The</td>
</tr>
</table>

			offer price includes the current net asset value per share plus any sales charges. The field format is as follows: • If an offer price is entered, the amount will be stated in the following numeric format: **$$$$$$.dddddd**. The field will be zero filled as necessary. • If an offer price is not entered, the field will contain the value "NA" (right justified, space filled).
Market Price	MarketPrice	string	This field represents the closing price from the primary market for a NFN instrument that trades on an exchange. The field format is as follows: • If market price is entered, the value will be stated in the following numeric format: **$$$$$$.dddddd.** The field will be zero filled as necessary. • If no market price is entered, the field will contain the value "NA" (right justified, space filled).
Redemption Price	RedemptionPrice	string	This field denotes the price that an investor would receive if he were to redeem units with the NFN instrument's issuer or distributor. The field format is as follows: • If Redemption NAV is entered, the amount will be stated in the following numeric format: **$$$$$$.dddddd**. The field will be zero filled as necessary. • If no Redemption NAV is entered, the field will contain the value "NA" (right justified, space filled). Note: Only UITs currently use the Redemption Price field.
Wrap Price	WrapPrice	string	This field denotes the price that an investor would pay to purchase units if the NFN instrument is held in an account that is managed by a financial representative for a fee. The field format is as follows: • If wrap price is entered, the amount will be stated in the following numeric format: **$$$$$$.dddddd.** The field will be zero filled as necessary. • If no wrap price is entered, the field will contain the value "NA" (right justified, space filled).
Total Net Assets	TotalNetAssets	string	This field indicates the total net assets, <u>in actual dollars</u>) for the NFN instrument. The field format is as follows: • If assets are entered, the amount will be stated in the following numeric format: **$$$$$$$$$$$$$$**. The asset amount will be zero filled as necessary. • Example: If a fund holds $25,500,000 in assets, the field value would be "000000025500000". • If no asset amount is entered, the field will contain the value "NA" (right justified, space filled).
Current Yield	CurrentYield	string	This field indicates the current yield (annual rate of return on investment) for a NFN instrument. • If current yield is entered, the amount will be stated in the following numeric format: **$$$$.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).

<table>
<tr><td>Current Yield Direction</td><td>CurrentYieldDirection</td><td>string</td><td>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><tr><th>Code</th><th>Value</th></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></table></td></tr>
<tr><td>Estimated Long Term Return (ELTR)</td><td>EstimatedLongTermReturn</td><td>string</td><td>Estimated return (yield) over the life of the portfolio of a UIT or other NFN instrument.
If ELTR is entered, the amount will be stated in the following numeric format: $$$$.dddd format. The ELTR will be zero filled as necessary. This field is expressed as a percentage. [Example, a 5.75% ELTR would be stated as “0005.7500”.]
If no ELTR is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>ELTR Direction</td><td>EstimatedLongTermReturnDirection</td><td>string</td><td>This field indicates if the estimated long term return (ELTR) should be stated as a positive or negative number for the NFN instrument. Allowable values will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>- <dash></td><td>Negative yield or return; ELTR is less than 0.00% so it should be displayed with negative sign.</td></tr><tr><td><space></td><td>Positive or zero ELTR (Default)</td></tr></table></td></tr>
<tr><td>Accrued Interest</td><td>AccruedInterest</td><td>string</td><td>This field denotes the interest accrued for a NFN instrument since the last interest payment was made to investors. The field format is:
If accrued interest is entered into NFN, the amount will be stated in the following numeric format: $$$$$$.dddddd. The accrued interest value will be zero filled as necessary.
If no accrued interest is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Daily Dividend Factor</td><td>DailyDividendFactor</td><td>string</td><td>This field indicates the dividend factor for a NFN instrument that declares a daily dividend. Please refer to the Daily Dividend Adjustment Indicator to determine if the NFN pricing agent made adjustments for weekends and holidays.
If Daily Dividend is entered, the amount will be stated in the following numeric format: $$.dddddd format.
If Daily Dividend is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Daily Dividend Adjustment Indicator</td><td>DailyDividendAdjustmentIndicator</td><td>string</td><td>This field indicates if the Daily Dividend Adjustment Factor was fattened to reflect weekend, holiday or other non-reported period. Allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Y</td><td>Fat adjustment reflected in Daily Dividend Factor</td></tr><tr><td>N</td><td>No fat adjustment for Daily Dividend Factor</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td><table><tr><td><space></td><td>Not applicable; no Daily Dividend Factor provided</td></tr></table></td></tr>
<tr><td>Currency</td><td>Currency</td><td>string</td><td>This field indicates the ISO currency code associated with the NFN price-related fields. Default value will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>USD</td><td>US Dollars</td></tr></table></td></tr>
<tr><td>Entry Date</td><td>EntryDate</td><td>string</td><td>This field denotes the date associated with the price information in the NFN Valuation message.
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.</td></tr>
</table>

Schema


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	"namespace": "com.nasdaq.ncds.nfn",
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		{
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                },
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                },
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                {
                        "name": "DailyDividendAdjustmentIndicator",
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                        "name": "EntryDate",
                        "type": "string"
                }
        ]
}
```


Sample


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      "TestSymbolFlag": " ",
      "InstrumentTypeTier": "MF",
      "Symbol": "ZZZZX",
      "ReportingType": "R",
      "Footnotes": "",
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      "OfferPrice": "000001.000000",
      "MarketPrice": "000001.000000",
      "RedemptionPrice": "000001.000000",
      "WrapPrice": "000001.000000",
      "TotalNetAssets": "000023000000000",
      "CurrentYield": "0001.0000",
      "CurrentYieldDirection": "-",
      "EstimatedLongTermReturn": "0001.0000",
      "EstimatedLongTermReturnDirection": " ",
      "AccruedInterest": "000000.023450",
      "DailyDividendFactor": "00.600000",
      "DailyDividendAdjustmentIndicator": "N",
```

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        "EntryDate": "08312020"
    }
}
```

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.

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “F”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“I” Combined with Message Category “F” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table>
</td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>

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.

</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr>
<tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr>
</table>
</td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.

"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"

</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>T</td><td>NFN Test Symbol</td></tr>
<tr><td><space></td><td>NFN Live / Production Symbol</td></tr>
</table>
</td></tr>
<tr><td>Instrument Type Tier</td><td>InstrumentTypeTier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Value</th></tr>
<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>
</table>
</td></tr>
<tr><td>Symbol</td><td>Symbol</td><td>string</td><td>This field indicates the NFN ticker symbol as assigned by NFN to instrument.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>To download the current NFN symbol directory without CUSIPs, please visit the Nasdaq Trader web site.</td></tr>
<tr><td>Reporting Type</td><td>ReportingType</td><td>string</td><td>This field indicates the dissemination type and frequency for the NFN instrument. The allowable values will be:
<table>
<tr><th>Code</th><th>Value</th></tr>
<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>
</table></td></tr>
<tr><td>Footnotes</td><td>Footnotes</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Footnote Value</th><th>Instrument Type</th></tr>
<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>
<tr><td>F</td><td>Fund always prices using a previous day’s quotation</td><td>All</td></tr>
<tr><td>H</td><td>Deferred sales charge</td><td>UIT</td></tr>
<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>
<tr><td>N</td><td>No front-end load or contingent deferred sales load</td><td>Mutual Fund</td></tr>
<tr><td>O</td><td>Primary offering. Portfolio that is currently available to investors</td><td>UIT</td></tr>
<tr><td>P</td><td>12(b)(1) plan – fund assets are used to pay for distribution costs</td><td>Mutual Fund</td></tr>
<tr><td>R</td><td>Redemption fee or contingent deferred sales load may apply</td><td>Mutual Fund</td></tr>
<tr><td>S</td><td>Stock split/dividend</td><td>All, excluding Demand Deposit Account</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>W</td><td>NRO or “Brown-out” indicator. Trust will not re-offer</td><td>UIT</td></tr>
<tr><td>X</td><td>Ex-dividend</td><td>All, excluding Demand Deposit Account</td></tr>
<tr><td>Y</td><td>Secondary offering; past portfolio that is in the secondary offering period</td><td>UIT</td></tr>
</table>

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.
</td></tr>
<tr><td>Average Maturity</td><td>AverageMaturity</td><td>string</td><td>This field indicates the average time to maturity (stated in days) of the securities held by the fund. The field format is as follows:
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).</td></tr>
<tr><td>Average Life</td><td>AverageLife</td><td>string</td><td>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:
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).</td></tr>
<tr><td>NAV</td><td>NAV</td><td>string</td><td>This field indicates the net asset value for a NFN instrument. The field format is as follows:
If a NAV is entered, the field will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as needed.
If no NAV is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Gross 7 Day Yield</td><td>YieldGross7Day</td><td>string</td><td>This field indicates the gross 7 day yield for a money market fund. This yield is based on average net income earned by the securities in the fund’s portfolio during the past 7 days. In accordance with the SEC definition, gross 7 day yield should exclude capital changes and income other than investment income. In addition, the gross 7 day yield should not reflect a deduction of shareholders fees and fund operating expenses.
If gross 7 day yield is entered, the amount will be stated in the following numeric format: $$$$.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).</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>Please see the following yield direction field to determine if the gross 7 day yield should be stated as a positive or negative number.</td></tr>
<tr><td>Gross 7 Day Yield Direction</td><td>YieldGross7DayDirection</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
<tr><td>Subsidized 7 Day Yield</td><td>YieldSubsidized7Day</td><td>string</td><td>The subsidized yield (also known as simple yield) reflects the yield calculation with expense limitation currently in effect.
If subsidized 7 day yield is entered, the amount will be stated in the following numeric format: $$$$.dddd. This field is expressed as a percentage. [Example, a 5.75% gross 7 day yield would be stated as “0005.7500”.]
If no subsidized 7 day yield is entered, the field will contain the value “NA” (right justified, space filled).
Please see the following yield direction field to determine if the subsidized 7 day yield should be stated as a positive or negative number.</td></tr>
<tr><td>Subsidized 7 Day Yield Direction</td><td>YieldSubsidized7DayDirection</td><td>string</td><td>This field indicates if the subsidized 7 day yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>- <dash></td><td>Negative yield; subsidized 7 day yield is less than 0.00% so it should be displayed with negative sign.</td></tr><tr><td><space></td><td>Positive or zero yield (Default)</td></tr></table></td></tr>
<tr><td>Effective Annualized 7 Day Yield</td><td>YieldEffectiveAnnualized7Day</td><td>string</td><td>This field indicates the effective yield for a money market fund. In calculating the effective annualized yield, most money markets assume that any income earned is reinvested. The field format is as follows:
If effective annualized yield is entered, the amount will be stated in the following numeric format: $$$$.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.</td></tr>
<tr><td>Effective Annualized 7 Day Yield Direction</td><td>YieldEffectiveAnnualized7DayDirection</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><tr><td>- <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><space></td><td>Positive or zero yield (Default)</td></tr></table></td></tr>
</table>

<table>
<tr><td>30 Day Yield</td><td>Yield30Day</td><td>string</td><td>Indicates the 30 day yield value based on the SEC calculation methodology with expense limitation currently in effect.
If 30 day yield is entered, the amount will be stated in the following numeric format: $$$$.dddd. This field is expressed as a percentage. [Example, a 5.75% 30 day yield would be stated as “0005.7500”.]
If no 30 day yield is entered, the field will contain the value “NA” (right justified, space filled).
Please see the following yield direction field to determine if the 30 day yield should be stated as a positive or negative number. Please see the following date field to determine the end date for the 30 day yield calculation.</td></tr>
<tr><td>30 Day Yield Direction</td><td>Yield30DayDirection</td><td>string</td><td>This field indicates if the 30 day yield should be stated as a positive or negative number for the NFN instrument. Allowable values will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>- <dash></td><td>Negative yield; 30 day yield is less than 0.00% so it should be displayed with negative sign.</td></tr><tr><td><space></td><td>Positive or zero yield (Default)</td></tr></table></td></tr>
<tr><td>30 Day Yield Date</td><td>Yield30DayDate</td><td>string</td><td>This field indicates the period end date for which the 30 day yield was calculated.
If a 30 day yield date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes represent the month (01-12), the next two bytes represent the day of the month (01-31), and the last four bytes represent the year of the date.
If NFN pricing agent enters “NA” in the date field, firms should show the date field as blank.
If no 30 day yield date is entered, the value will be “NA”.</td></tr>
<tr><td>Total Net Assets</td><td>TotalNetAssets</td><td>string</td><td>This field indicates the total net assets, (<u>in actual dollars</u>) for the NFN instrument. The field format is as follows:
If assets are entered, the amount will be stated in the following numeric format: $$$$$$$$$$$$$$$. The asset amount will be zero filled as necessary.
Example: If a fund holds $25,500,000 in assets, the field value would be “000000025500000”.
If no asset amount is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Daily Dividend Factor</td><td>DailyDividendFactor</td><td>string</td><td>This field indicates the dividend factor for a NFN instrument that declares a daily dividend. Please refer to the Daily Dividend Adjustment Indicator to determine if the NFN pricing agent made adjustments for weekends and holidays.
If Daily Dividend is entered, the amount will be stated in the following numeric format: $$.dddddd format.
If Daily Dividend is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
</table>

<table>
<tr><td>Daily Dividend Adjustment Indicator</td><td>DailyDividendAdjustmentIndicator</td><td>string</td><td>This field indicates if the Daily Dividend Adjustment Factor was fattened to reflect weekend, holiday or other non-reported period. Allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Y</td><td>Fat adjustment reflected in Daily Dividend Factor</td></tr><tr><td>N</td><td>No fat adjustment for Daily Dividend Factor</td></tr><tr><td><space></td><td>Not applicable; no Daily Dividend Factor provided</td></tr></table></td></tr>
<tr><td>Currency</td><td>Currency</td><td>string</td><td>This field indicates the ISO currency code associated with the NFN price-related fields. Default value will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>USD</td><td>US Dollars</td></tr></table></td></tr>
<tr><td>Entry Date</td><td>EntryDate</td><td>string</td><td>This field denotes the date associated with the price information in the NFN Valuation message.
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.</td></tr>
<tr><td>Calculation Time</td><td>CalculationTime</td><td>string</td><td>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.

Examples:
110000 => 11:00 a.m., ET
160000 => 4:00 p.m., ET
If no time is provided in the inbound NFN message format, the field will be populated as “NA”.</td></tr>
</table>

Schema


```
{
	"type": "record",
	"name": "ValuationMessageMoneyMarkets",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
```

```
},
{
        "name": "SessionIdentifier",
        "type": "string"
},
{
        "name": "RetransmissionRequester",
        "type": "string"
},
{
        "name": "MessageSequenceNumber",
        "type": "string"
},
{
        "name": "OriginatorId",
        "type": "string"
},
{
        "name": "MessageDateTime",
        "type": "string"
},
{
        "name": "TestSymbolFlag",
        "type": "string"
},
{
        "name": "InstrumentTypeTier",
        "type": "string"
},
{
        "name": "Symbol",
        "type": "string"
},
{
        "name": "ReportingType",
        "type": "string"
},
{
        "name": "Footnotes",
        "type": "string"
},
{
        "name": "AverageMaturity",
        "type": "string"
},
{
        "name": "AverageLife",
        "type": "string"
},
{
        "name": "NAV",
        "type": "string"
},
{
        "name": "YieldGross7Day",
        "type": "string"
},
{
        "name": "YieldGross7DayDirection",
```

```
                "type": "string"
            },
            {
                "name": "YieldSubsidized7Day",
                "type": "string"
            },
            {
                "name": "YieldSubsidized7DayDirection",
                "type": "string"
            },
            {
                "name": "YieldEffectiveAnnualized7Day",
                "type": "string"
            },
            {
                "name": "YieldEffectiveAnnualized7DayDirection",
                "type": "string"
            },
            {
                "name": "Yield30Day",
                "type": "string"
            },
            {
                "name": "Yield30DayDirection",
                "type": "string"
            },
            {
                "name": "Yield30DayDate",
                "type": "string"
            },
            {
                "name": "TotalNetAssets",
                "type": "string"
            },
            {
                "name": "DailyDividendFactor",
                "type": "string"
            },
            {
                "name": "DailyDividendAdjustmentIndicator",
                "type": "string"
            },
            {
                "name": "Currency",
                "type": "string"
            },
            {
                "name": "EntryDate",
                "type": "string"
            },
            {
                "name": "CalculationTime",
                "type": "string"
            }
        ]
}
```


Sample

Version: 2024-1

```
{
  "ValuationMessageMoneyMarkets": {
    "MessageCategory": "F",
    "MessageType": "I",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000000",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6889625-04:00",
    "TestSymbolFlag": " ",
    "InstrumentTypeTier": "$S",
    "Symbol": "ZZYXX",
    "ReportingType": "R",
    "Footnotes": "",
    "AverageMaturity": "034",
    "AverageLife": " NA",
    "NAV": "000001.000000",
    "YieldGross7Day": "0001.0000",
    "YieldGross7DayDirection": " ",
    "YieldSubsidized7Day": "0000.0000",
    "YieldSubsidized7DayDirection": " ",
    "YieldEffectiveAnnualized7Day": "0000.0000",
    "YieldEffectiveAnnualized7DayDirection": " ",
    "Yield30Day": "0000.0000",
    "Yield30DayDirection": " ",
    "Yield30DayDate": "08312020",
    "TotalNetAssets": "000002500000000",
    "DailyDividendFactor": "      NA",
    "DailyDividendAdjustmentIndicator": " ",
    "Currency": "USD",
    "EntryDate": "08312020",
    "CalculationTime": "NA"
  }
}
```


NFN Dividends / Income Distributions

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.

Category F – Type W

Field	Name	Type	Description
Message Category	MessageCategory	string	The message category for this table is Category “F”
Message Type	MessageType	string	“W” Combined with Message Category “F” provides the messages in this table

<table>
<tr>
<td>Session Identifier</td>
<td>SessionIdentifier</td>
<td>string</td>
<td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table>
</td>
</tr>
<tr>
<td>Retransmission Requester</td>
<td>RetransmissionRequester</td>
<td>string</td>
<td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table>
</td>
</tr>
<tr>
<td>Message Sequence Number</td>
<td>MessageSequenceNumber</td>
<td>string</td>
<td>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.

</td>
</tr>
</table>

<table>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
<tr><td>Instrument Type Tier</td><td>InstrumentTypeTier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
<tr><td>Symbol</td><td>Symbol</td><td>string</td><td>This field indicates the NFN ticker symbol as assigned by NFN to instrument.

To download the current NFN symbol directory without CUSIPs, please visit the Nasdaq Trader web site.</td></tr>
<tr><td>Action</td><td>Action</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><tr><td>N</td><td>New record: Add corporate action record for stated symbol, cash distribution type and ex-date.</td></tr><tr><td>C</td><td>Corrected record: Update corporate action record for stated symbol, cash distribution type and ex-date with new field values.</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>X</td><td>Cancelled record: Remove corporate action record for stated symbol, cash distribution type and ex-date.</td></tr>
<tr><td>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>
</table>
</td></tr>
<tr><td>Cash Distribution Type</td><td>CashDistributionType</td><td>string</td><td>This field indicates the type of cash distribution being reported in the following cash distribution fields. The allowable values will be:
<table>
<tr><th>Code</th><th>Value</th></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>
</td></tr>
<tr><td>Total Cash Distribution</td><td>CashDistributionTotal</td><td>string</td><td>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:
If total cash distribution is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no total cash distribution is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Non-Qualified Cash Distribution</td><td>CashDistributionNonQualified</td><td>string</td><td>This field reflects the portion of the cash dividend or interest income that is taxed as ordinary income to the shareholder. Please note that this value should be entered as a dollar amount (not a percentage).
If a non-qualified cash distribution is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If a non-qualified cash distribution is not entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Qualified Cash Distribution</td><td>CashDistributionQualified</td><td>string</td><td>This field reflects the portion of the cash dividend or interest that is taxed as a qualified dividend to shareholder. Please note that this value should be entered as a dollar amount (not a percentage).
If qualified cash distribution is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no qualified cash distribution is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Tax-Free Cash Distribution</td><td>CashDistributionTaxFree</td><td>string</td><td>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).</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>If tax free cash distribution is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no tax free cash distribution is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Ordinary Foreign Tax Credit</td><td>TaxCreditOrdinaryForeign</td><td>string</td><td>Reflects the portion of the cash dividend or interest from a foreign corporation that is not “qualified” by the IRS. Please note that this value should be entered as a dollar amount (not a percentage). The field format is as follows:
If ordinary foreign tax credit is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no ordinary foreign tax credit is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Qualified Foreign Tax Credit</td><td>TaxCreditQualifiedForeign</td><td>string</td><td>This field reflects the portion of the cash dividend or interest attributable to qualified foreign corporation as defined by the IRS. Please note that this value should be entered as a dollar amount (not a percentage).
If qualified foreign tax credit is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no qualified foreign tax credit is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Stock Dividend Ratio</td><td>StockDividendRatio</td><td>string</td><td>This field indicates the stock split/dividend ratio for a NFN instrument. The field format is as follows:
If a stock split/dividend is entered, the amount will be stated in the following numeric format: $$$$.dddddd. The field will be zero filled as necessary.
Examples:
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).</td></tr>
<tr><td>Currency</td><td>Currency</td><td>string</td><td>This field indicates the ISO currency code associated with the NFN price-related fields. Default value will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>USD</td><td>US Dollars</td></tr></table></td></tr>
<tr><td>Payment Date</td><td>DivPaymentDate</td><td>string</td><td>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:
If a payment date is entered, the value will be stated in the following numeric format: MMDDYYYY. In this value, the first two bytes</td></tr>
</table>

			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”.
Record Date	DivRecordDate	string	This field denotes the date on which shareholders must hold fund shares to receive dividend, interest or distributions. The field format is as follows: • 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”.
Ex Date	DivExDate	string	This field indicates the ex date for the dividend or distribution. This is the date that NAV should be adjusted. • 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.
Reinvest Date	DivReinvestDate	string	This field indicates the reinvestment date for the dividend or distribution. • 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”.

Schema

```
{
	"type": "record",
	"name": "ValuationMessageDividends",
	"namespace": "com.nasdaq.ncds.nfn",
	"fields": [
		{
			"name": "MessageCategory",
			"type": "string"
		},
		{
			"name": "MessageType",
			"type": "string"
		},
		{
			"name": "SessionIdentifier",
			"type": "string"
```

```
},
{
        "name": "RetransmissionRequester",
        "type": "string"
},
{
        "name": "MessageSequenceNumber",
        "type": "string"
},
{
        "name": "OriginatorId",
        "type": "string"
},
{
        "name": "MessageDateTime",
        "type": "string"
},
{
        "name": "TestSymbolFlag",
        "type": "string"
},
{
        "name": "InstrumentTypeTier",
        "type": "string"
},
{
        "name": "Symbol",
        "type": "string"
},
{
        "name": "Action",
        "type": "string"
},
{
        "name": "CashDistributionType",
        "type": "string"
},
{
        "name": "CashDistributionTotal",
        "type": "string"
},
{
        "name": "CashDistributionNonQualified",
        "type": "string"
},
{
        "name": "CashDistributionQualified",
        "type": "string"
},
{
        "name": "CashDistributionTaxFree",
        "type": "string"
},
{
        "name": "TaxCreditOrdinaryForeign",
        "type": "string"
},
{
        "name": "TaxCreditQualifiedForeign",
```

```
                        "type": "string"
                },
                {
                        "name": "StockDividendRatio",
                        "type": "string"
                },
                {
                        "name": "Currency",
                        "type": "string"
                },
                {
                        "name": "DivPaymentDate",
                        "type": "string"
                },
                {
                        "name": "DivRecordDate",
                        "type": "string"
                },
                {
                        "name": "DivExDate",
                        "type": "string"
                },
                {
                        "name": "DivReinvestDate",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
   "ValuationMessageDividends": {
      "MessageCategory": "F",
      "MessageType": "W",
      "SessionIdentifier": "P",
      "RetransmissionRequester": "O ",
      "MessageSequenceNumber": "00000000",
      "OriginatorId": "F",
      "MessageDateTime": "2020-08-31T15:24:02.6938064-04:00",
      "TestSymbolFlag": " ",
      "InstrumentTypeTier": "MF",
      "Symbol": "ZZZZX",
      "Action": "N",
      "CashDistributionType": "D",
      "CashDistributionTotal": "000001.000000",
      "CashDistributionNonQualified": "NA          ",
      "CashDistributionQualified": "NA          ",
      "CashDistributionTaxFree": "NA          ",
      "TaxCreditOrdinaryForeign": "NA          ",
      "TaxCreditQualifiedForeign": "NA          ",
      "StockDividendRatio": "NA          ",
      "Currency": "USD",
      "DivPaymentDate": "08312020",
      "DivRecordDate": "08312020",
      "DivExDate": "08312020",
      "DivReinvestDate": "08312020"
   }
```

}

NFN Capital Distributions

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.

Category F – Type X

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Message Category</td><td>MessageCategory</td><td>string</td><td>The message category for this table is Category “F”</td></tr>
<tr><td>Message Type</td><td>MessageType</td><td>string</td><td>“X” Combined with Message Category “F” provides the messages in this table</td></tr>
<tr><td>Session Identifier</td><td>SessionIdentifier</td><td>string</td><td>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:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>A</td><td>Session Independent</td></tr>
<tr><td>P</td><td>NFN - U.S. Session
(8:00 a.m. – 8:00 p.m., ET)</td></tr>
</table></td></tr>
<tr><td>Retransmission Requester</td><td>RetransmissionRequester</td><td>string</td><td>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.

All NFN Data Service recipients must code their systems to process the following values:
<table>
<tr><th>Code</th><th>Description</th></tr>
<tr><td>O (space)</td><td>Original Transmission to All</td></tr>
<tr><td>R (space)</td><td>Retransmission to All</td></tr>
<tr><td>Specific Vendor ID</td><td>To be assigned on vendor-by-vendor basis.</td></tr>
</table></td></tr>
<tr><td>Message Sequence Number</td><td>MessageSequenceNumber</td><td>string</td><td>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.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>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.</td></tr>
<tr><td>Originator Id</td><td>OriginatorId</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>E</td><td>NFN Data Service Data Feed Handler</td></tr><tr><td>F</td><td>Nasdaq Fund Network (NFN) host system</td></tr></table></td></tr>
<tr><td>Message Date Time</td><td>MessageDateTime</td><td>string</td><td>This fields denotes the date and time that the message was generated.
"yyyy'-'MM'-'dd'T'HH':'mm':'ss'.'fffffffK"</td></tr>
<tr><td>Test Symbol Flag</td><td>TestSymbolFlag</td><td>string</td><td>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:<table><tr><th>Code</th><th>Description</th></tr><tr><td>T</td><td>NFN Test Symbol</td></tr><tr><td><space></td><td>NFN Live / Production Symbol</td></tr></table></td></tr>
<tr><td>Instrument Type Tier</td><td>InstrumentTypeTier</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><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></table></td></tr>
<tr><td>Symbol</td><td>Symbol</td><td>string</td><td>This field indicates the NFN ticker symbol as assigned by NFN to instrument.

To download the current NFN symbol directory without CUSIPs, please visit the Nasdaq Trader web site.</td></tr>
</table>

<table>
<tr><td>Action</td><td>Action</td><td>string</td><td>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:<table><tr><th>Code</th><th>Value</th></tr><tr><td>N</td><td>New record: Add corporate action record for stated symbol, cash distribution type and ex-date.</td></tr><tr><td>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>X</td><td>Cancelled record: Remove corporate action record for stated symbol, cash distribution type and ex-date.</td></tr><tr><td>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></table></td></tr>
<tr><td>Short-Term Capital Gain</td><td>ShortTermCapitalGain</td><td>string</td><td>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.
If short-term capital gain is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no short-term capital gain is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Long-Term Capital Gain</td><td>LongTermCapitalGain</td><td>string</td><td>This field indicates the portion of the total capital gain for the NFN instrument that is taxed to the shareholder at the long-term capital gains rate.
If long-term capital gain is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no long-term capital gain is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>UnAllocated Distribution</td><td>UnAllocatedDistributions</td><td>string</td><td>This field reflects the amount of unassigned term gains being reported for the NFN instrument. The field format is as follows:
If unallocated distribution is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.
If no unallocated distribution is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Return of Capital (ROC)</td><td>ROC</td><td>string</td><td>This field reflects amount of return of capital to the NFN instrument’s shareholders. Please note that this value should be entered as a dollar amount (not a percentage).
If return of capital is entered, the amount will be stated in the following numeric format: $$$$$$.dddddd. The field will be zero filled as necessary.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>If no return of capital is entered, the field will contain the value “NA” (right justified, space filled).</td></tr>
<tr><td>Currency</td><td>Currency</td><td>string</td><td>This field indicates the ISO currency code associated with the NFN price-related fields. Default value will be:<table><tr><th>Code</th><th>Value</th></tr><tr><td>USD</td><td>US Dollars</td></tr></table></td></tr>
<tr><td>Payment Date</td><td>DstPaymentDate</td><td>string</td><td>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:
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”.</td></tr>
<tr><td>Record Date</td><td>DstRecordDate</td><td>string</td><td>This field denotes the date on which shareholders must hold fund shares to receive dividend, interest or distributions. The field format is as follows:
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”.</td></tr>
<tr><td>Ex Date</td><td>DstExDate</td><td>string</td><td>This field indicates the ex date for the dividend or distribution. This is the date that NAV should be adjusted.
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.</td></tr>
<tr><td>Reinvest Date</td><td>DstReinvestDate</td><td>string</td><td>This field indicates the reinvestment date for the dividend or distribution.
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”.</td></tr>
</table>

Schema

{

```
"type": "record",
"name": "ValuationMessageDistributions",
"namespace": "com.nasdaq.ncds.nfn",
"fields": [
	{
		"name": "MessageCategory",
		"type": "string"
	},
	{
		"name": "MessageType",
		"type": "string"
	},
	{
		"name": "SessionIdentifier",
		"type": "string"
	},
	{
		"name": "RetransmissionRequester",
		"type": "string"
	},
	{
		"name": "MessageSequenceNumber",
		"type": "string"
	},
	{
		"name": "OriginatorId",
		"type": "string"
	},
	{
		"name": "MessageDateTime",
		"type": "string"
	},
	{
		"name": "TestSymbolFlag",
		"type": "string"
	},
	{
		"name": "InstrumentTypeTier",
		"type": "string"
	},
	{
		"name": "Symbol",
		"type": "string"
	},
	{
		"name": "Action",
		"type": "string"
	},
	{
		"name": "ShortTermCapitalGain",
		"type": "string"
	},
	{
		"name": "LongTermCapitalGain",
		"type": "string"
	},
	{
		"name": "UnAllocatedDistributions",
		"type": "string"
```

```
                },
                {
                        "name": "ROC",
                        "type": "string"
                },
                {
                        "name": "Currency",
                        "type": "string"
                },
                {
                        "name": "DstPaymentDate",
                        "type": "string"
                },
                {
                        "name": "DstRecordDate",
                        "type": "string"
                },
                {
                        "name": "DstExDate",
                        "type": "string"
                },
                {
                        "name": "DstReinvestDate",
                        "type": "string"
                }
        ]
}
```


Sample


```
{
  "ValuationMessageDistributions": {
    "MessageCategory": "F",
    "MessageType": "X",
    "SessionIdentifier": "P",
    "RetransmissionRequester": "O ",
    "MessageSequenceNumber": "00000000",
    "OriginatorId": "F",
    "MessageDateTime": "2020-08-31T15:24:02.6984998-04:00",
    "TestSymbolFlag": " ",
    "InstrumentTypeTier": "MF",
    "Symbol": "ZZZZX",
    "Action": "N",
    "ShortTermCapitalGain": "NA          ",
    "LongTermCapitalGain": "000001.000000",
    "UnAllocatedDistributions": "NA          ",
    "ROC": "NA          ",
    "Currency": "USD",
    "DstPaymentDate": "08312020",
    "DstRecordDate": "08312020",
    "DstExDate": "08312020",
    "DstReinvestDate": "08312020"
  }
}
```

NFN Heartbeat Message

Nasdaq will produce this message every 10 minutes, 24 hours a day, Monday through Friday.

Heartbeat

Field	Name	Type	Description
Time Stamp	TimeStamp	Long	Represents unix epoch timestamp in seconds.

Schema

```
{
        "type": "record",
        "name": "Heartbeat",
        "namespace": "com.nasdaq.ncds.nfn",
        "fields": [
                {
                        "name": "TimeStamp",
                        "type": "long"
                }
        ]
}
```

Sample

```
{
   "Heartbeat": {
      "TimeStamp": "1600700196",
      }
}
```

Version Control Log

<table>
<tr><th>Version</th><th>Date</th><th>Description of Documentation Change(s)</th></tr>
<tr><td>2021-1</td><td>Dec 9, 2021</td><td>• Updated Instrument Registration to include UCITS (Code: U)</td></tr>
<tr><td>2022-1</td><td>August 3, 2022</td><td>• Updated Instrument Codes for Structured Products
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>R</td><td>Growth</td></tr>
<tr><td>S</td><td>Income</td></tr>
<tr><td>T</td><td>Digital</td></tr>
<tr><td>U</td><td>Growth and Income</td></tr>
</table></td></tr>
<tr><td>2022-2</td><td>Oct 25, 2022</td><td>• NFNDS via NCDS rebranded to NFNDS via Nasdaq Data Link Streaming API</td></tr>
<tr><td>2024-1</td><td>May 3, 2024</td><td>• Updated Instrument Registration to include: Canadian Securities Administration (Code: A)</td></tr>
</table>