# Nasdaq Data On Demand (Normalized SIP)

## Product Overview

Nasdaq Data-On-Demand provides easy and flexible access to high quality and reliable historical Level 1 data for Nasdaq, New York Stock Exchange (NYSE), NYSE American, OTCBB, OTC and other US regional exchange listed securities—all through the cloud.

---

## Publisher

Nasdaq Investment Intelligence is a leading source of market data, global indexes, and investment data and analytics. Powering price discovery and decisions around the globe, our data is distributed to millions of people daily, providing them with innovative real-time and historical information, as well as analytic solutions designed for investors of all sizes and at every stage of the investment lifecycle. To learn more about the company, technology solutions and career opportunities, visit us on LinkedIn, on Twitter @Nasdaq, or at www.nasdaq.com.

---

## 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

---

# Table of Contents

# Message Formats

## Authenticate

Nasdaq Data on Demand uses API tokens to allow access, so you'll need to authenticate first before making API calls.

**HTTP Request – Async**
POST https://dataondemand.nasdaq.com/api/v1/authenticate

**Header Request Parameters – Async**

| Parameter | Required | Value |
| --- | --- | --- |
| Content-Type | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
| --- | --- | --- |
| client_key | true | Your issued client key. |
| client_secret | true | Your issued client secret. |

The Authenticate endpoint returns a Bearer token to be included in all subseqent API requests that looks like the following:
Authorization: Header __token__

## Quotes

Returns all quotes for the specified parameters.

### Details

Maximum of 50 symbols can be queried over maximum one year interval. Jobs are processed at 44th minute past every hour.

**HTTP Request – Async**
POST https://dataondemand.nasdaq.com/api/v1/quotes/async

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| start | true | Start Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| end | true | End Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |
| next_cursor | true | Pagination Count |

**Response Columns**

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Symbol</td><td>symbol</td><td>string</td><td>Denotes the issue symbol of the security for which the quote report is being generated.</td></tr>
<tr><td>Market Center</td><td>market_center</td><td>string</td><td>Indicates the market center code that originated the message.<br><table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>The NASDAQ Stock Market, LLC</td></tr><tr><td>T</td><td>The NASDAQ Stock Market, LLC</td></tr><tr><td>N</td><td>New York Stock Exchange, LLC</td></tr><tr><td>B</td><td>NASDAQ BX, Inc.</td></tr><tr><td>E</td><td>Market Independent</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>D</td><td>FINRA Alternative Display Facility</td></tr>
<tr><td>Z</td><td>Cboe BZX Exchange, Inc</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc</td></tr>
<tr><td>S</td><td>Consolidated Quotation System</td></tr>
<tr><td>I</td><td>International Securities Exchange</td></tr>
<tr><td>W</td><td>Cboe Stock Exchange</td></tr>
<tr><td>J</td><td>Cboe EDGA Exchange, Inc.</td></tr>
<tr><td>M</td><td>Chicago Stock Exchange</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc.</td></tr>
<tr><td>C</td><td>NYSE National, Inc.</td></tr>
<tr><td>X</td><td>NASDAQ PSX, Inc.</td></tr>
<tr><td>A</td><td>NYSE American, LLC</td></tr>
<tr><td>K</td><td>Cboe EDGX Exchange, Inc.</td></tr>
<tr><td>P</td><td>NYSE Arca, Inc</td></tr>
<tr><td>L</td><td>Long-term Stock Exchange</td></tr>
<tr><td>H</td><td>MIAX Exchange</td></tr>
<tr><td>V</td><td>Investors Exchange, LLC</td></tr>
<tr><td>U</td><td>MEMX LLC</td></tr>
<tr><td>u</td><td>OTC Markets Group</td></tr>
</table>
</td></tr>
<tr><td>Quote Condition</td><td>quote_conditions</td><td>string</td><td>For more information on Quote Condition codes, see:<br>• Section 7.5.1 of the UTP Trade Data Feed Specification for NASDAQ-listed securities<br>• Section 7.0 of the Consolidated Tape System Specification for NYSE and AMEX-listed securities</td></tr>
<tr><td>Bid Price</td><td>bid_price</td><td>float</td><td>The highest price at the market center that someone is willing to buy a security at the given time.</td></tr>
<tr><td>Bid Quantity</td><td>bid_quantity</td><td>int</td><td>Number of shares available at the Market Center's bid price in a given security.</td></tr>
<tr><td>Ask Price</td><td>ask_price</td><td>float</td><td>The lowest price at the market center that someone is willing to sell a security at a given time.</td></tr>
<tr><td>Ask Quantity</td><td>ask_quantity</td><td>int</td><td>The lowest price at the market center that someone is willing to sell a security at a given time.</td></tr>
</table>

| | | | |
|---|---|---|---|
| StartTime | start_time | string | Actual start time of the Quote. |
| EndTime | end_time | string | Actual end time of the Quote. |
| SIP Feed | sipfeed | string | SIP tape name. |
| SIP Feed Sequence | sipfeed_seq | long | Quote |

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip".

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/quotes/recurring

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |

## Sample


```
{
    "symbol": "ZVZZT",
    "market_center": "Q",
    "bid_price": 100.22,
    "bid_quantity": 500,
    "ask_price": 100.11,
    "ask_quantity": 500,
    "quote_conditions": "R",
    "start_time": "2019-01-02T10:00:00.000Z"
    "end_time": "2019-01-02T10:00:00.000Z"
    "sipfeed": "UTPA",
    "sipfeed_seq": 32978342,
}
```


# Trades

Returns all trades for the specified parameters.

## Details

Maximum of 50 symbols can be queried over maximum one year interval. Jobs are processed at 44th minute past every hour.

**HTTP Request – Async**

POST https://dataondemand.nasdaq.com/api/v1/trades/async

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| start | true | Start Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| end | true | End Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| sub_market_centers | false | Sub Market Centers for fetching Trades |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |
| next_cursor | true | Pagination Count |

**Response Columns**

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Symbol</td><td>symbol</td><td>string</td><td>Denotes the issue symbol of the security for which the quote report is being generated.</td></tr>
<tr><td>Listing Venue</td><td>listing_venue</td><td>string</td><td>Indicates the primary listing market for the issue. Allowable values are:<br><table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq</td></tr><tr><td>N</td><td>NYSE</td></tr><tr><td>A</td><td>NYSE American</td></tr><tr><td>P</td><td>NYSE Arca</td></tr><tr><td>Z</td><td>BATS</td></tr><tr><td>V</td><td>Investors’ Exchange LLC</td></tr></table></td></tr>
<tr><td>Market Center</td><td>market_center</td><td>string</td><td>Indicates the market center code that originated the message.<br><table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>The NASDAQ Stock Market, LLC</td></tr><tr><td>T</td><td>The NASDAQ Stock Market, LLC</td></tr><tr><td>N</td><td>New York Stock Exchange, LLC</td></tr><tr><td>B</td><td>NASDAQ BX, Inc.</td></tr><tr><td>E</td><td>Market Independent</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>D</td><td>FINRA Alternative Display Facility</td></tr>
<tr><td>Z</td><td>Cboe BZX Exchange, Inc</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc</td></tr>
<tr><td>S</td><td>Consolidated Quotation System</td></tr>
<tr><td>I</td><td>International Securities Exchange</td></tr>
<tr><td>W</td><td>Cboe Stock Exchange</td></tr>
<tr><td>J</td><td>Cboe EDGA Exchange, Inc.</td></tr>
<tr><td>M</td><td>Chicago Stock Exchange</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc.</td></tr>
<tr><td>C</td><td>NYSE National, Inc.</td></tr>
<tr><td>X</td><td>NASDAQ PSX, Inc.</td></tr>
<tr><td>A</td><td>NYSE American, LLC</td></tr>
<tr><td>K</td><td>Cboe EDGX Exchange, Inc.</td></tr>
<tr><td>P</td><td>NYSE Arca, Inc</td></tr>
<tr><td>L</td><td>Long-term Stock Exchange</td></tr>
<tr><td>H</td><td>MIAX Exchange</td></tr>
<tr><td>V</td><td>Investors Exchange, LLC</td></tr>
<tr><td>U</td><td>MEMX LLC</td></tr>
<tr><td>u</td><td>OTC Market Group</td></tr>
</table>
</td></tr>
<tr><td>Sub Market Center</td><td>sub_market_center</td><td>string</td><td>
Indicates the sub-market where the execution occurred. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>D</td><td>Trade originates from FINRA Alternative Display Facility</td></tr>
<tr><td>N</td><td>FINRA / NYSE Trade Reporting Facility</td></tr>
<tr><td>Q</td><td>FINRA / Nasdaq Trade Reporting Facility Carteret</td></tr>
<tr><td>B</td><td>FINRA / Nasdaq TRF Chicago</td></tr>
</table>
</td></tr>
<tr><td>Sales Condition</td><td>sales_conditions</td><td>string</td><td>
For more information on Sales Condition codes, please refer to:
<ul>
<li>Section 7.5.1 of the UTP Trade Data Feed Specification for NASDAQ-listed securities</li>
<li>Section 7.0 of the Consolidated Tape System</li>
</ul>
</td></tr>
</table>

| | | | |
|---|---|---|---|
| | | | Specification for *NYSE and AMEX-listed securities* |
| Trade Date | trade_date | string | Timestamp of the trade. |
| Price | price | int | Trade execution price. |
| Quantity | quantity | int | Trade execution quantity. |
| DOTT | dott | string | Indicates whether trade occurred during pre-market, regular market or post market hours. Allowable values are:<br>• F = Regular Hours<br>• T = Pre/Post Market Hours |
| MSN | msn | int | Message Sequence Number from the UTDF level 1 data feed used as a trade identifier. |
| OMSN | omsn | int | Applicable to correction and cancel records and identifies the original trade to which the cancel/correction applies. |
| Canceled Indicator | canceled_indicator | boolean | Indicates that the record was cancelled (null if not cancelled). |

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip".

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/trades/recurring

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| sub_market_centers | false | Sub Market Centers for fetching Trades |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are |

| | | |
|---|---|---|
| | | required |

### Sample


```
{
  "symbol": "ZVZZT",
  "price": 100.11,
  "quantity": 500,
  "canceled_indicator": null,
  "dott": "F",
  "listing_venue": "Q",
  "market_center": "N",
  "sub_market_center": "D",
  "msn": 123,
  "omsn": 0,
  "sales_conditions": "@",
  "trade_date": "2019-01-02T10:00:00.000Z"
}
```


## First Trades

Returns first trade of a certain date for the specified parameters.

### Details

Jobs are processed at 44th minute past every hour

**HTTP Request – Async**
POST https://dataondemand.nasdaq.com/api/v1/trades/async/first

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| trade_date | true | Trade Date in format: yyyy-MM-dd |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |

**Response Columns**

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Symbol</td><td>symbol</td><td>string</td><td>Denotes the issue symbol of the security for which the quote report is being generated.</td></tr>
<tr><td>Listing Venue</td><td>listing_venue</td><td>string</td><td>Indicates the primary listing market for the issue. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>Q</td><td>Nasdaq</td></tr>
<tr><td>N</td><td>NYSE</td></tr>
<tr><td>A</td><td>NYSE American</td></tr>
<tr><td>P</td><td>NYSE Arca</td></tr>
<tr><td>Z</td><td>BATS</td></tr>
<tr><td>V</td><td>Investors’ Exchange LLC</td></tr>
</table></td></tr>
<tr><td>Market Center</td><td>market_center</td><td>string</td><td>Indicates the market center code that originated the message.
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>Q</td><td>The NASDAQ Stock Market, LLC</td></tr>
<tr><td>T</td><td>The NASDAQ Stock Market, LLC</td></tr>
<tr><td>N</td><td>New York Stock Exchange, LLC</td></tr>
<tr><td>B</td><td>NASDAQ BX, Inc.</td></tr>
<tr><td>E</td><td>Market Independent</td></tr>
<tr><td>D</td><td>FINRA Alternative Display Facility</td></tr>
<tr><td>Z</td><td>Cboe BZX Exchange, Inc</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc</td></tr>
<tr><td>S</td><td>Consolidated Quotation System</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>I</td><td>International Securities Exchange</td></tr>
<tr><td>W</td><td>Cboe Stock Exchange</td></tr>
<tr><td>J</td><td>Cboe EDGA Exchange, Inc.</td></tr>
<tr><td>M</td><td>Chicago Stock Exchange</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc.</td></tr>
<tr><td>C</td><td>NYSE National, Inc.</td></tr>
<tr><td>X</td><td>NASDAQ PSX, Inc.</td></tr>
<tr><td>A</td><td>NYSE American, LLC</td></tr>
<tr><td>K</td><td>Cboe EDGX Exchange, Inc.</td></tr>
<tr><td>P</td><td>NYSE Arca, Inc</td></tr>
<tr><td>L</td><td>Long-term Stock Exchange</td></tr>
<tr><td>H</td><td>MIAX Exchange</td></tr>
<tr><td>V</td><td>Investors Exchange, LLC</td></tr>
<tr><td>U</td><td>MEMX LLC</td></tr>
<tr><td>u</td><td>OTC Market Group</td></tr>
</table>
</td></tr>
<tr><td>Sub Market Center</td><td>sub_market_center</td><td>string</td><td>Indicates the sub-market where the execution occurred. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>D</td><td>Trade originates from FINRA Alternative Display Facility</td></tr>
<tr><td>N</td><td>FINRA / NYSE Trade Reporting Facility</td></tr>
<tr><td>Q</td><td>FINRA / Nasdaq Trade Reporting Facility Carteret</td></tr>
<tr><td>B</td><td>FINRA / Nasdaq TRF Chicago</td></tr>
</table>
</td></tr>
<tr><td>Sales Condition</td><td>sales_conditions</td><td>string</td><td>For more information on Sales Condition codes, please refer to:<br>• Section 7.5.1 of the UTP Trade Data Feed Specification for NASDAQ-listed securities<br>• Section 7.0 of the Consolidated Tape System Specification for NYSE and AMEX-listed securities</td></tr>
<tr><td>Trade Date</td><td>trade_date</td><td>string</td><td>Timestamp of the trade.</td></tr>
<tr><td>Price</td><td>price</td><td>int</td><td>Trade execution price.</td></tr>
<tr><td>Quantity</td><td>quantity</td><td>int</td><td>Trade execution quantity.</td></tr>
</table>

| | | | |
|---|---|---|---|
| DOTT | dott | string | Indicates whether trade occurred during pre-market, regular market or post market hours. Allowable values are:<br>• F = Regular Hours<br>• T = Pre/Post Market Hours |
| MSN | msn | int | Message Sequence Number from the UTDF level 1 data feed used as a trade identifier. |
| OMSN | omsn | int | Applicable to correction and cancel records and identifies the original trade to which the cancel/correction applies. |
| Canceled Indicator | canceled_indicator | boolean | Indicates that the record was cancelled (null if not cancelled). |

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip"

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/trades/recurring/first

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |

## Sample


```
{
  "symbol": "ZVZZT",
  "price": 100.11,
  "quantity": 500,
  "canceled_indicator": null,
```

"dott": "F",
"listing_venue": "Q",
"market_center": "N",
"sub_market_center": "D",
"msn": 123,
"omsn": 0,
"sales_conditions": "@",
"trade_date": "2019-01-02T10:00:00.000Z"
}

## Last Trades

Returns last trade of a certain date for the specified parameters.

### Details

Jobs are processed at 44th minute past every hour

**HTTP Request – Async**
POST https://dataondemand.nasdaq.com/api/v1/trades/async/last

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| trade_date | true | Trade Date in format: yyyy-MM-dd |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |

**Response Columns**

<table>
<tr><th>Field</th><th>Name</th><th>Type</th><th>Description</th></tr>
<tr><td>Symbol</td><td>symbol</td><td>string</td><td>Denotes the issue symbol of the security for which the quote report is being generated.</td></tr>
<tr><td>Listing Venue</td><td>listing_venue</td><td>string</td><td>Indicates the primary listing market for the issue. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>Q</td><td>Nasdaq</td></tr>
<tr><td>N</td><td>NYSE</td></tr>
<tr><td>A</td><td>NYSE American</td></tr>
<tr><td>P</td><td>NYSE Arca</td></tr>
<tr><td>Z</td><td>BATS</td></tr>
<tr><td>V</td><td>Investors’ Exchange LLC</td></tr>
</table></td></tr>
<tr><td>Market Center</td><td>market_center</td><td>string</td><td>
<table>
<tr><td>Q</td><td>The NASDAQ Stock Market, LLC</td></tr>
<tr><td>T</td><td>The NASDAQ Stock Market, LLC</td></tr>
<tr><td>N</td><td>New York Stock Exchange, LLC</td></tr>
<tr><td>B</td><td>NASDAQ BX, Inc.</td></tr>
<tr><td>E</td><td>Market Independent</td></tr>
<tr><td>D</td><td>FINRA Alternative Display Facility</td></tr>
<tr><td>Z</td><td>Cboe BZX Exchange, Inc</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc</td></tr>
<tr><td>S</td><td>Consolidated Quotation System</td></tr>
<tr><td>I</td><td>International Securities Exchange</td></tr>
<tr><td>W</td><td>Cboe Stock Exchange</td></tr>
<tr><td>J</td><td>Cboe EDGA Exchange, Inc.</td></tr>
<tr><td>M</td><td>Chicago Stock Exchange</td></tr>
<tr><td>Y</td><td>Cboe BYX Exchange, Inc.</td></tr>
<tr><td>C</td><td>NYSE National, Inc.</td></tr>
<tr><td>X</td><td>NASDAQ PSX, Inc.</td></tr>
<tr><td>A</td><td>NYSE American, LLC</td></tr>
<tr><td>K</td><td>Cboe EDGX Exchange, Inc.</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td><table>
<tr><td>P</td><td>NYSE Arca, Inc</td></tr>
<tr><td>L</td><td>Long-term Stock Exchange</td></tr>
<tr><td>H</td><td>MIAX Exchange</td></tr>
<tr><td>V</td><td>Investors Exchange, LLC</td></tr>
<tr><td>U</td><td>MEMX LLC</td></tr>
<tr><td>u</td><td>OTC Markets Group</td></tr>
</table></td></tr>
<tr><td>Sub Market Center</td><td>sub_market_center</td><td>string</td><td>Indicates the sub-market where the execution occurred. Allowable values are:<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>D</td><td>Trade originates from FINRA Alternative Display Facility</td></tr>
<tr><td>N</td><td>FINRA / NYSE Trade Reporting Facility</td></tr>
<tr><td>Q</td><td>FINRA / Nasdaq Trade Reporting Facility Carteret</td></tr>
<tr><td>B</td><td>FINRA / Nasdaq TRF Chicago</td></tr>
</table></td></tr>
<tr><td>Sales Condition</td><td>sales_conditions</td><td>string</td><td>For more information on Sales Condition codes, please refer to:<ul><li>Section 7.5.1 of the UTP Trade Data Feed Specification for NASDAQ-listed securities</li><li>Section 7.0 of the Consolidated Tape System Specification for NYSE and AMEX-listed securities</li></ul></td></tr>
<tr><td>Trade Date</td><td>trade_date</td><td>string</td><td>Timestamp of the trade.</td></tr>
<tr><td>Price</td><td>price</td><td>int</td><td>Trade execution price.</td></tr>
<tr><td>Quantity</td><td>quantity</td><td>int</td><td>Trade execution quantity.</td></tr>
<tr><td>DOTT</td><td>dott</td><td>string</td><td>Indicates whether trade occurred during pre-market, regular market or post market hours. Allowable values are:<ul><li>F = Regular Hours</li><li>T = Pre/Post Market Hours</li></ul></td></tr>
<tr><td>MSN</td><td>msn</td><td>int</td><td>Message Sequence Number from the UTDF level 1 data feed used as a trade identifier.</td></tr>
<tr><td>OMSN</td><td>omsn</td><td>int</td><td>Applicable to correction and cancel records and identifies the original trade to which the cancel/correction applies.</td></tr>
<tr><td>Canceled Indicator</td><td>canceled_indicator</td><td>boolean</td><td>Indicates that the record was cancelled (null if not cancelled).</td></tr>
</table>

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip".

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/trades/recurring/last

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |

## Sample


```
{
  "symbol": "ZVZZT",
  "price": 100.11,
  "quantity": 500,
  "canceled_indicator": null,
  "dott": "F",
  "listing_venue": "Q",
  "market_center": "N",
  "sub_market_center": "D",
  "msn": 123,
  "omsn": 0,
  "sales_conditions": "@",
  "trade_date": "2019-01-02T10:00:00.000Z"
}
```


# End of Day

Returns aggregated analytic values across all trades for each day for the specified parameters including the range of dates. End of day query follows a logical interpretation of processing guidelines for sale conditions when calculating each aggregated value. For Nasdaq and OTC symbols UTP Trade Data Feed Specification is followed. For NYSE symbols Consolidated Tape System

Specification
In this query, if no market center is specified as an input parameter then consolidated rules are incorporated otherwise the unconsolidated rules.

| Modifier | Condition | Consolidated Processing Guidelines | | Market Center Processing Guidelines | | Update Volume |
|---|---|---|---|---|---|---|
| | | Update High/Low | Update Last | Update High/Low | Update Last | |
| @ | Regular Sale | Yes | Yes | Yes | Yes | Yes |
| A | Acquisition | Yes | Yes | Yes | Yes | Yes |
| B | Bunched Trade | Yes | Yes | Yes | Yes | Yes |
| C | Cash Sale | No | No | No | No | Yes |
| D | Distribution | Yes | Yes | Yes | Yes | Yes |
| E | Placeholder | TBD | TBD | TBD | TBD | TBD |
| F | Intermarket Sweep | Yes | Yes | Yes | Yes | Yes |
| G | Bunched Sold Trade | Yes | No1 | Yes | No1 | Yes |
| H | Price Variation Trade | No | No | No | No | Yes |
| I | Odd Lot Trade | No | No | No | No | Yes |
| K | Rule 155 Trade (AMEX) | Yes | Yes | Yes | Yes | Yes |
| L | Sold Last | Yes | Yes2 | Yes | Yes | Yes |
| M | Market Center Official Close | No | No | Yes | Yes | No |
| N | Next Day | No | No | No | No | Yes |
| O | Opening Prints | Yes | Yes | Yes | Yes | Yes |
| P | Prior Reference Price | Yes | No1 | Yes | No1 | Yes |
| Q | Market Center Official Open3 | No | No | Yes | No | No |
| R | Seller | No | No | No | No | Yes |
| S | Split Trade | Yes | Yes | Yes | Yes | Yes |
| T | Form T | No | No | No | No | Yes |
| U | Extended trading hours (Sold Out of Sequence) | No | No | No | No | Yes |
| V | Contingent Trade | No | No | No | No | Yes |

| | | | | | | |
|---|---|---|---|---|---|---|
| W | Average Price Trade | No | No | No | No | Yes |
| X | Cross Trade | Yes | Yes | Yes | Yes | Yes |
| Y | Yellow Flag Regular Trade | Yes | Yes | Yes | Yes | Yes |
| Z | Sold (Out of Sequence) | Yes | No1 | Yes | No1 | Yes |
| 1 | Stopped Stock (Regular Trade) | Yes | Yes | Yes | Yes | Yes |
| 4 | Derivatively Priced | Yes | No1 | Yes | No1 | Yes |
| 5 | Re - Opening Prints | Yes | Yes | Yes | Yes | Yes |
| 6 | Closing Prints | Yes | Yes | Yes | Yes | Yes |
| 7 | Qualified Contingent Trade ("QCT") | No | No | No | No | Yes |
| 8 | Placeholder For 611 Exempt | TBD | TBD | TBD | TBD | TBD |
| 9 | Correct Consolidated Close (per listing market) | Yes | Yes | No | No | No |

Note:

- UTDF Subscribers should only update the field values if the trade is the first or only last sale eligible trade transaction of the business day from any UTP participant.
- UTDF subscribers should update consolidated last sale field if received prior to the End of Last Sale Eligibility Control Message (16:00:10). After End of Last Sale Eligibility Control Message is received the transaction would only update the market center-specific last sale value but not the consolidated last sale value.
- Please note that direct data recipients, which maintain individual market center open values, should use the “Q” value as the official market center opening value and populate data displays accordingly.

## Details

Maximum of 50 symbols can be queried over maximum one year interval. Jobs are processed at 44th minute past every hour.

**HTTP Request – Async**
POST https://dataondemand.nasdaq.com/api/v1/analytics/async/endOfDayData

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |

| | | |
|---|---|---|
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| start | true | Start Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| end | true | End Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| symbols | true | Symbols whose trades are required |
| market_centers | false | Market Centers for fetching Trades |

**Response Columns**

| Field | Name | Type | Description |
|---|---|---|---|
| Symbol | symbol | string | Issue symbol of the security. |
| Close | close | Number | Closing price. For close price, the trade records compatible with the following criteria are included for calculation:<br>○ If trade symbol is Nasdaq or OTC enlisted, then the sale conditions field must contain at least one the following sale conditions:<br>1. @, A, B, D, F, G, K, L, M, O, P, S, X, Y, Z, 1, 4, 5, 6, 9 (For consolidated close price)<br>2. @, A, B, D, F, G, K, L, M, O, P, S, X, Y, Z, 1, 4, 5, 6 (For unconsolidated close price) And, sale conditions field must not contain any of:<br>3. C, H, I, N, Q, R, T, U, V, W, 7 (for consolidate close price)<br>4. C, H, I, N, Q, R, T, U, V, W, 7, 9 (for unconsolidated close price)<br>○ If trade symbol is NYSE enlisted, then the sale conditions field must contain at least one the following sale conditions: |

| | | | |
|---|---|---|---|
| | | | 1. @, A, B, D, F, G, K, L, M, O, P, S, X, Y, Z, 1, 4, 5, 6, 9 (For consolidated close price)<br>2. @, A, B, D, F, G, K, L, M, O, P, S, X, Y, Z, 1, 4, 5, 6 (For unconsolidated close price) And, sale conditions field must not contain any of:<br>3. B, C, H, I, N, R, T, U, V, 7, 8, Q (for consolidate close price)<br>4. B, C, H, I, N, R, T, U, V, 7, 8, Q, 9 (for unconsolidated close price)<br>o After filtering the trade records according to the above conditions, records are ranked according to the following criteria and the latest highest ranking trade record is going to be determinant of the open price:<br>1. If trade symbol is Nasdaq or OTC enlisted, then sale conditions that indicate trade ranking from high to low are:<br>1. 9: Corrected consolidated close price (only applied when consolidate close price is requested)<br>2. M: Market center official close<br>3. 6: Re-opening<br>4. Any trade record belonging to the set of eligible trades according to above conditions for Nasdaq or OTC 5. G, P, Z, or 4 conditionally eligible trades for calculating close<br>2. If trade symbol is NYSE enlisted, then sale conditions that indicate trade ranking from high to low are:<br>1. 9: Corrected consolidated close price (only applied when consolidate close price is requested)<br>2. M: Market center official close<br>3. 6: Market center closing trade<br>4. Any trade record belonging to the set of eligible trades according to above conditions for NYSE |

| | | | |
|---|---|---|---|
| | | | 5. O, P, Z, 4 (or L when consolidated close price is requested) conditionally eligible trades for calculating close<br><br>Last price follows sale conditions criteria for close price. The only difference is that ranking is not considered when finding the last price. Therefore, the latest record among all eligible trades is used for last price. |
| High | high | Number | High price. |
| Last Sale | last_sale | Number | Price of last eligible trade. |
| Low | low | Number | Low Price. |
| Open | open | Number | Opening Price. For open price, the trade records compatible with the following criteria are included for calculation:<br><br>• If trade symbol is Nasdaq or OTC enlisted, then the sale conditions field must contain at least one the following sale conditions @, A, B, D, F, G, K, L, O, P, S, X, Y, Z, 1, 4, 5, 6, Q and it must not contain any of C, H, I, N, R, T, U, V, W, 7, M, 9 sale conditions.<br><br>• If trade symbol is NYSE enlisted, then the sale conditions field must contain at least one the following sale conditions @, E, F, K, L, O, P, Q, X, Z, 4, 5, 6 and it must not contain any of B, C, H, I, M, N, R, T, U, V, 7, 8, 9 sale conditions.<br><br>• After filtering the trade records according to the above conditions, records are ranked according to the following criteria and the earliest highest ranking trade record is going to be determinant of the open price:<br><br>○ If trade symbol is Nasdaq or OTC enlisted, then sale conditions that indicate trade ranking from high to low are:<br><br>▪ Q: Market center official open<br>▪ O: Opening prints<br>▪ 5: Re-opening<br>▪ Any trade record belonging |

| | | | |
|---|---|---|---|
| | | | to the set of eligible trades according to above conditions for Nasdaq or OTC<br>▪ G, P, Z, or 4 conditionally eligible trades for calculating open<br>○ If trade symbol is NYSE enlisted, then sale conditions that indicate trade ranking from high to low are:<br>▪ Q: Market center official open<br>▪ O: market center opening trade<br>▪ 5: market center Re-opening trade<br>▪ Any trade record belonging to the set of eligible trades according to above conditions for NYSE |
| Volume | volume | Number | Volume of shares. |
| Date | date | string | Timestamp of the trade. |

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip".

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/analytics/recurring/endOfDayData

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| symbols | true | Symbols whose trades are required |
| market_centers | false | Market Centers for fetching Trades |

## Sample


```
{
  "date": "21/09/2021",
  "symbol": "AAPL",
  "volume": "75655885",
  "low": "142.78",
  "high": "144.6",
  "open": "143.93",
  "close": "143.43",
  "last": "143.43"
}
```


## Vwap Data

Returns aggregated Vwap, Twap, trade count, trade volume across all trades for each for user defined interval and other parameters.
Vwap query follows a logical interpretation of processing guidelines for sale conditions when calculating each aggregated value. For Nasdaq and OTC symbols UTP Trade Data Feed Specification is followed. For NYSE symbols Consolidated Tape System Specification

| Modifier | Condition | Consolidated Processing Guidelines | | Market Center Processing Guidelines | | Update Volume |
|---|---|---|---|---|---|---|
| | | Update High/Low | Update Last | Update High/Low | Update Last | |
| @ | Regular Sale | Yes | Yes | Yes | Yes | Yes |
| A | Acquisition | Yes | Yes | Yes | Yes | Yes |
| B | Bunched Trade | Yes | Yes | Yes | Yes | Yes |
| C | Cash Sale | No | No | No | No | Yes |
| D | Distribution | Yes | Yes | Yes | Yes | Yes |
| E | Placeholder | TBD | TBD | TBD | TBD | TBD |

| | | | | | | |
|---|---|---|---|---|---|---|
| F | Intermarket Sweep | Yes | Yes | Yes | Yes | Yes |
| G | Bunched Sold Trade | Yes | No1 | Yes | No1 | Yes |
| H | Price Variation Trade | No | No | No | No | Yes |
| I | Odd Lot Trade | No | No | No | No | Yes |
| K | Rule 155 Trade (AMEX) | Yes | Yes | Yes | Yes | Yes |
| L | Sold Last | Yes | Yes2 | Yes | Yes | Yes |
| M | Market Center Official Close | No | No | Yes | Yes | No |
| N | Next Day | No | No | No | No | Yes |
| O | Opening Prints | Yes | Yes | Yes | Yes | Yes |
| P | Prior Reference Price | Yes | No1 | Yes | No1 | Yes |
| Q | Market Center Official Open3 | No | No | Yes | No | No |
| R | Seller | No | No | No | No | Yes |
| S | Split Trade | Yes | Yes | Yes | Yes | Yes |
| T | Form T | No | No | No | No | Yes |
| U | Extended trading hours (Sold Out of Sequence) | No | No | No | No | Yes |
| V | Contingent Trade | No | No | No | No | Yes |
| W | Average Price Trade | No | No | No | No | Yes |
| X | Cross Trade | Yes | Yes | Yes | Yes | Yes |
| Y | Yellow Flag Regular Trade | Yes | Yes | Yes | Yes | Yes |
| Z | Sold (Out of Sequence) | Yes | No1 | Yes | No1 | Yes |
| 1 | Stopped Stock (Regular Trade) | Yes | Yes | Yes | Yes | Yes |
| 4 | Derivatively Priced | Yes | No1 | Yes | No1 | Yes |
| 5 | Re - Opening Prints | Yes | Yes | Yes | Yes | Yes |
| 6 | Closing Prints | Yes | Yes | Yes | Yes | Yes |
| 7 | Qualified Contingent Trade ("QCT") | No | No | No | No | Yes |
| 8 | Placeholder For 611 | TBD | TBD | TBD | TBD | TBD |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Exempt | | | | | |
| 9 | Correct Consolidated Close (per listing market) | Yes | Yes | No | No | No |

Note:

- UTDF Subscribers should only update the field values if the trade is the first or only last sale eligible trade transaction of the business day from any UTP participant.
- UTDF subscribers should update consolidated last sale field if received prior to the End of Last Sale Eligibility Control Message (16:00:10). After End of Last Sale Eligibility Control Message is received the transaction would only update the market center-specific last sale value but not the consolidated last sale value.
- Please note that direct data recipients, which maintain individual market center open values, should use the “Q” value as the official market center opening value and populate data displays accordingly.

## Details

Maximum of 50 symbols can be queried over maximum one year interval. Jobs are processed at 44th minute past every hour.

**HTTP Request – Async**

POST https://dataondemand.nasdaq.com/api/v1/analytics/async/vwap

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| start | true | Start Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| end | true | End Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |

| | | |
|---|---|---|
| sales_conditions | false | Conditions of Sales |

**Response Columns**

| Field | Name | Type | Description |
|---|---|---|---|
| Symbol | symbol | string | Issue symbol of the security. |
| Trades | trades | number | Number of Trades. |
| TWAP | twap | number | Time weighted average price of interval. TWAP is (first price + last price + high + low) / 4. Therefore, to calculate TWAP first, last, high, and low prices are needed. |
| Volume | volume | number | Volume of shares in interval. |
| VWAP | vwap | number | Volume weighted average price of interval. Vwap is SUM(trade_price * trade_quantity)/SUM(trade_quantity). To find the eligible trades for this formula we used elgibility conditions from trade volume. |

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip".

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/analytics/recurring/vwap

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| market_centers | false | Market Centers for fetching Trades |

| | | |
|---|---|---|
| symbols | true | Symbols whose trades are required |
| sales_conditions | false | Conditions of Sales |

### Sample


```
{
   "symbol": "AAPL",
   "trades": "825806",
   "volume": "98234781",
   "low": "138.27",
   "high": "142.21",
   "first": "141.76",
   "last": "139.14",
   "vwap": "139.2888",
   "twap": "140.345",
}
```


## Summarized Trades

Returns aggregated Vwap, Twap, trade count, trade volume, low, high, first trade price and last trade price on user defined sub-intervals. Sub-intervals are defined by trade_period and trade_precision e.g. trade_period=5 and trade_precision=SECOND results in sub-intevals of 5 second length.
This query follows a logical interpretation of processing guidelines for sale conditions when calculating each aggregated value. For Nasdaq and OTC symbols [UTP Trade Data Feed Specification ]() is followed. For NYSE symbols [Consolidated Tape System Specification]()

| **Modifier** | **Condition** | **Consolidated Processing Guidelines** | | **Market Center Processing Guidelines** | | **Update Volume** |
|---|---|---|---|---|---|---|
| | | **Update High/Low** | **Update Last** | **Update High/Low** | **Update Last** | |
| @ | Regular Sale | Yes | Yes | Yes | Yes | Yes |
| A | Acquisition | Yes | Yes | Yes | Yes | Yes |
| B | Bunched Trade | Yes | Yes | Yes | Yes | Yes |
| C | Cash Sale | No | No | No | No | Yes |
| D | Distribution | Yes | Yes | Yes | Yes | Yes |
| E | Placeholder | TBD | TBD | TBD | TBD | TBD |
| F | Intermarket Sweep | Yes | Yes | Yes | Yes | Yes |
| G | Bunched Sold Trade | Yes | No1 | Yes | No1 | Yes |

| | | | | | | |
|---|---|---|---|---|---|---|
| H | Price Variation Trade | No | No | No | No | Yes |
| I | Odd Lot Trade | No | No | No | No | Yes |
| K | Rule 155 Trade (AMEX) | Yes | Yes | Yes | Yes | Yes |
| L | Sold Last | Yes | Yes2 | Yes | Yes | Yes |
| M | Market Center Official Close | No | No | Yes | Yes | No |
| N | Next Day | No | No | No | No | Yes |
| O | Opening Prints | Yes | Yes | Yes | Yes | Yes |
| P | Prior Reference Price | Yes | No1 | Yes | No1 | Yes |
| Q | Market Center Official Open3 | No | No | Yes | No | No |
| R | Seller | No | No | No | No | Yes |
| S | Split Trade | Yes | Yes | Yes | Yes | Yes |
| T | Form T | No | No | No | No | Yes |
| U | Extended trading hours (Sold Out of Sequence) | No | No | No | No | Yes |
| V | Contingent Trade | No | No | No | No | Yes |
| W | Average Price Trade | No | No | No | No | Yes |
| X | Cross Trade | Yes | Yes | Yes | Yes | Yes |
| Y | Yellow Flag Regular Trade | Yes | Yes | Yes | Yes | Yes |
| Z | Sold (Out of Sequence) | Yes | No1 | Yes | No1 | Yes |
| 1 | Stopped Stock (Regular Trade) | Yes | Yes | Yes | Yes | Yes |
| 4 | Derivatively Priced | Yes | No1 | Yes | No1 | Yes |
| 5 | Re - Opening Prints | Yes | Yes | Yes | Yes | Yes |
| 6 | Closing Prints | Yes | Yes | Yes | Yes | Yes |
| 7 | Qualified Contingent Trade ("QCT") | No | No | No | No | Yes |
| 8 | Placeholder For 611 Exempt | TBD | TBD | TBD | TBD | TBD |
| 9 | Correct Consolidated Close (per listing market) | Yes | Yes | No | No | No |

Note:

- UTDF Subscribers should only update the field values if the trade is the first or only last sale eligible trade transaction of the business day from any UTP participant.
- UTDF subscribers should update consolidated last sale field if received prior to the End of Last Sale Eligibility Control Message (16:00:10). After End of Last Sale Eligibility Control Message is received the transaction would only update the market center-specific last sale value but not the consolidated last sale value.
- Please note that direct data recipients, which maintain individual market center open values, should use the "Q" value as the official market center opening value and populate data displays accordingly.

## Details

Maximum of 50 symbols can be queried over maximum one year interval. Jobs are processed at 44th minute past every hour.

**HTTP Request – Async**

POST https://dataondemand.nasdaq.com/api/v1/analytics/async/summarizedTrades

**Header Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Async**

| Parameter | Required | Value |
|---|---|---|
| start | true | Start Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| end | true | End Date in format: yyyy-MM-dd'T'HH:mm:ss.SSS'Z' |
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |
| trade_period | true | Duration of Trade |
| trade_precision | true | Precision Unit (SECOND, MINUTE or HOUR) |

**Response Columns**

| Field | Name | Type | Description |
|---|---|---|---|
| Symbol | symbol | string | Issue symbol of the security. |
| First Trade | first | | First Trade of Interval. First trade of interval. the trade records compatible with the following criteria are included for calculation:<br>• If trade symbol is Nasdaq or OTC enlisted, then the sale conditions field must contain at least one the following sale conditions @, A, B, D, F, G, K, L, O, P, S, X, Y, Z, 1, 4, 5, 6, Q and it must not contain any of C, H, I, N, R, T, U, V, W, 7, M, 9 sale conditions.<br>• If trade symbol is NYSE enlisted, then the sale conditions field must contain at least one the following sale conditions @, E, F, K, L, O, P, Q, X, Z, 4, 5, 6 and it must not contain any of B, C, H, I, M, N, R, T, U, V, 7, 8, 9 sale conditions.<br>After filtering the trade records according to the above conditions, the earliest trade record is going to be determinant of the first price. |
| High | high | | High price of interval. |
| Last Trade | last | | Last trade of interval. |
| Low | low | | Low price of interval. |
| Timestamp | time_interval | | Start timestamp of time interval. |
| Trades | trades | | Number of trades in interval. |
| TWAP | twap | | Time weighted average price of interval. TWAP is (first price + last price + high + low) / 4. Therefore, to calculate TWAP first, last, high, and low prices are needed. |
| Volume | volume | | Volume of shares in interval. |
| VWAP | vwap | | Volume weighted average price of interval. Vwap is SUM(trade_price * trade_quantity)/SUM(trade_quantity). To find the eligible trades for this formula we used elgibility conditions from trade volume. |

To query all symbols use %. The file generated are files chunked in 2 gb pieces in a zip file. The zip file name is of the format "JobType-RequestId/JobType_StartDate_EndDate.zip".

**HTTP Request – Recurring**
POST https://dataondemand.nasdaq.com/api/v1/analytics/recurring/summarizedTrades

**Header Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| Content-Type | true | application/json |
| Authorization | true | Bearer __token__ |
| Accept | true | application/json |

**Body Request Parameters – Recurring**

| Parameter | Required | Value |
|---|---|---|
| market_centers | false | Market Centers for fetching Trades |
| symbols | true | Symbols whose trades are required |
| trade_period | true | Duration of Trade |
| trade_precision | true | Precision Unit (SECOND, MINUTE or HOUR) |

## Sample


```
{
   "time_interval": "4/10/2021  6:55:00 AM",
   "symbol": "AAPL",
   "trades": "2",
   "volume": "2",
   "low": "0",
   "high": "0",
   "first": "0",
   "last": "0",
   "vwap": "0",
   "twap": "141.425",
}
```