# IVolatility US Historical Intraday Options/Stocks Data Guide

Intraday stock and options data enhances a variety of trading strategies, giving you deep access to the market's microstructure. Professionals use this data for high-frequency-trading (ALGO trading), and traders and quants engaging in intraday option strategies use it for developing new models for more accurate volatility forecasting or enhancing their current options pricing models. The list of applications for this data is immense… backtesting strategies, applying custom analytics, analyzing intraday market performance and more.
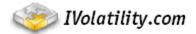
The IVolatility Historical Intraday Options Data consists of 1 minute data snapshots for all US options (900,000+ as of now) and indexes & equities (5000+). Our database includes history since August 2011 and comes with updates for each new trading day.

Intraday data includes:
- US OPRA options prices with volume & OI for all strikes and expirations (with IV&Greeks as a choice);
- US *non-standard* OPRA options prices with volume & OI for all strikes and expirations (with IV&Greeks as a choice);
- Implied Volatility Surface by Moneyness, IVIndex;
- Data frequency of snapshots: 1, 5, 15, 30, 60 minutes or any custom intervals/specific time snapshots during the day;
- Extra data such as dividends and corporate actions like splits and symbol changes can be included as well;
- Daily update service is available **intraday** or the same day after the close.

Our Intraday Options Database is built by the same team and based on the same methodology that created our award-winning End-Of-the-Day database currently deployed globally by leading firms.

To order the data, contact us at sales@ivolatility.com or call +1-201-275-1111.
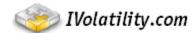
# Population and cleansing

Based on 20 years' of experience building and supporting the best known end-of-day Options Implied Volatility database, we developed the technology and methodology to capture, clean, and calculate derived data intraday.

To achieve our goal of providing accurate and reliable data, we do the following:

- We use multiple well-regarded market data sources. This is the first step to get accurate market information like price, dividends, volume, etc...

- Our dedicated team tracks all corporate events such as splits, mergers, spin-offs, distributions, etc applying any ticker changes to maintain equity history continuity.

- Our analysts manually verify the data for accuracy of dividend and prices based on our own proprietary filters.

- When calculating implied volatilities, proprietary algorithms automatically filter bad data and replacing with interpolated volatilities, avoiding occasional spikes.

- Use a combination of Black&Scholes and Binomial Tree 100 steps, providing accuracy for the implied volatilities and Greeks.

- Various algorithms allow us to control data capturing in real time.

- After markets close, we perform additional reviews to verify the data integrity and apply corrections if necessary.

- We register all found gaps in a special table for future reference, ensuring accurate version control and helping you identify sources for data misalignment between your vendors.

- Our data quality has been tested by our clients over 20 years, powering 100s of billions of dollars of activity.

- We deliver the final product - completely verified with corrected data.

# Data Delivery of Intraday Options Data

## Compressed CSV file delivery

Historical intraday data are delivered either via FTP, FTPS/HTTPS, REST API or via media device (HDD).

### 1 minute files delivery via FTP

By default, when intraday data is purchased in full format (full format stands for 1 min frequency including IV&Greeks calculations), the data is delivered in the following file structure hierarchy split by ticker/day, archived in gzip (*for options and stocks datasets*):

**<table>/dt=<yyyy-mm-dd>/<file_name>.csv.gz**

where <table> - the name of the dataset (options, stocks),

<yyyy-mm-dd> - trading date,

<file_name> - the file name in the format <table>_<current_stock_symbol>_<stock_id>_<date>

Intraday update data files are delivered via FTP, following choices are available for 1 minutely frequency:

- After 7pm EST, backup of whole day's 1 minute data in a structure similar to historical, split by ticker/day in GZIP is available via link on FTP.
- Intraday in a 20 minutes delayed or real-time mode, every 1 minute during market hours (9:30am EST to 4:19PM EST for real-time, and 9:50am EST to 4:39PM EST for delayed) GZIP file with all tickers data in it is published on FTP. These 1 minute files are available up until next day's opening and cleaned then. Additionally, after the 7PM EST, backup for the whole day's data in a format similar to historical split by ticker/day is available for download via link on FTP.

### FTPS/HTTPS delivery for clients requiring maximum security

In case of any combination of tickers or data frequency different from 1 min (it could be 5, 15, 30, 60 minutes or any custom intervals/specific time snapshots during the day) intraday historical and update data files can be delivered via FTPS/HTTPS after 10pm EST (through a link). The file structure is as follows:

- For historical files it can be represented as

**<table>/<file_name>.csv.gz**

where <table> - the name of the dataset (options, stocks, ivs[IV surface], ivx[IV index], nsoptions),

<file_name> - the archive name is built according to the following 4 possibilities (it depends on an estimated data size to be processed and our current server setup/source pools):

a) *<table>_xxx* – used for small orders. It's usually applied for 'stocks' dataset;
b) *<table>_<yyyy>_xxx*;
c) *<table>_<yyyy-mm>_xxx* – the most widely used data breakdown type;
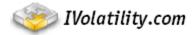d) *<table>_<yyyy-mm-dd>_xxx* – used when the total size of the data is quite large;

where *xxx* is an archive's sequential number (000, 001, …, 999). The last archive (chunk) could be empty (20 bytes) while our engine splits minutes data, but it's not a mistake, it means that the rest of the data fit into a previous chunk. See examples below:

stocks_2017_000.csv.gz,
options_2017-08_000.csv.gz, options_2017-08_001.csv.gz, … , options_2017-08_004.csv.gz
options_2018-05-01_000.csv.gz

- For daily files

**<table>/<file_name>.csv.gz**

where <table> - the name of the dataset (options, stocks, ivs[IV surface], ivx[IV index], nsoptions),

<file_name> = <table>_<yyyy-mm-dd>_xxx
*HTTPS mode*
A client receives the link going to the web user interface:
https://cloud.ivolatility.com/downloads/
Login = **login**
Password = **11 characters password** (special characters are also used)
It's easy to use and has clear folder hierarchy.


*FTPS mode*
A client receives credentials (or a link) which gives an access to the purchased data through the FTP with support for the Secure Sockets Layer (SSL). It's a more preferable way to download if there are a lot of files.
host name = **ftps://cloud.ivolatility.com**
Login = **login**
Password = **11 characters password** (special characters are also used)
Encryption = **Require implicit FTP over TLS** (through 990 port)
Via the link - ftps://login:password@cloud.ivolatility.com (*WARNING!* The link may not work properly, it depends on operating system is used, PC configuration and other related reasons)


In case of using the above link the client should have some kind of FTP-client application installed on their PC, we recommend FileZilla, the free FTP solution.


**Historical REST API For Around the Clock Delivery**

In case of any combination of trading days or data frequency intraday historical data files can be delivered via REST API round-the-clock.

To get access to historical REST API you need to register in IVolatility.com site and purchase IV Data Cloud service or get a free trial (web UI is included). Client's set of requests limit per month (intraday or EOD) may differ and is based on the agreement with support.

If your query contains less than 500 data rows, then response will have JSON format, otherwise you will get a csv file with gzip compression.
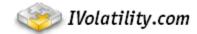
At the moment historical intraday REST API consists of following endpoints:

1) http://restapi.ivolatility.com/dd/intraday/equity/prices


This REST method returns equity quotes with volume.

List of input parameters is specified below


| username | string<br>User personal login |
|---|---|
| password | string<br>User personal password |
| token | string<br>REST API session token |

| symbol<br>required | string<br>Equity ticker |
|---|---|
| date<br>required | string \<date><br>Trading date, specified in yyyy-MM-dd format |
| minuteType | string<br>You can specify here on of the following<br>options: "MINUTE_1" "MINUTE_5" "MINUTE_15" "MINUTE_30" "HOUR" "CUSTOM" |
| minutes | string<br>Comma separated list of required minutes. Use it, when minuteType is set to CUSTOM. |

2) http://restapi.ivolatility.com/dd/intraday/equity/options

This REST method returns intraday equity options quotes with iv, greeks, volume and open interest
List of input parameters is specified below

| username | string<br>User personal IVolatility.com login |
|---|---|
| password | string<br>User personal IVolatility.com password |
| token | string<br>REST API session token |
| symbol<br>required | string<br>Equity ticker |
| date<br>required | string \<date><br>Trading date, specified in yyyy-MM-dd format |
| expDate | string<br>Date of stock options expiration |
| strike | number \<float><br>Stock option's strike value |
| optType | string<br>Option type: "CALL", "PUT" or "ALL" |
| minuteType | string<br>You can specify here on of the following<br>options: "MINUTE_1" "MINUTE_5" "MINUTE_15" "MINUTE_30" "HOUR" "CUSTOM" |
| minutes | string<br>Comma separated list of required minutes. Use it, when minuteType is set to CUSTOM. |

For example, you need to download all AAPL options with strike 140 for trading date 2021-02-08. Corresponding rest query will look like http://restapi.ivolatility.com/dd/intraday/equity/options?username=XXX&password=XXX&symbol=AAPL&date=2021-02-08&strike=140

You can find more information, including response data fields in the link https://redocly.github.io/redoc/?url=https://restapi.ivolatility.com/api-docs

## Data size examples

The size of data grows every day and the market structure becomes wider. Data increasing is basically monotonic.

Full size for all US market per day with 1-minute data in archive is:
- 8/22/2011 (start date): Raw IV (Options prices + IV&Greeks) – 3.9 Gb, Underlying Prices – 38Mb.
- 2/14/2017: Raw IV (Options prices + IV&Greeks) – 9.5 Gb, Underlying Prices – 47Mb.
- 11/05/2019: Raw IV (Options prices + IV&Greeks) – 13 Gb, Underlying Prices – 48Mb.

The approximate size of US market data in archive per 1 year is:
- 8/22/2011-12/31/2011: Raw IV (Options prices + IV&Greeks) – 0.4 Tb, Underlying Prices – 3.5 Gb.
- Whole 2012: Raw IV (Options prices + IV&Greeks) – 1.2 Tb, Underlying Prices – 8.7 Gb.
- 2013: Raw IV (Options prices + IV&Greeks) – 1.4 Tb, Underlying Prices – 9.2 Gb.
- 2014: Raw IV (Options prices + IV&Greeks) – 2.2 Tb, Underlying Prices – 11 Gb.
- 2015: Raw IV (Options prices + IV&Greeks) – 2.5 Tb, Underlying Prices – 12 Gb.
- 2016: Raw IV (Options prices + IV&Greeks) – 2.6 Tb, Underlying Prices – 11.8 Gb.
- 2017: Raw IV (Options prices + IV&Greeks) – 2.5 Tb, Underlying Prices – 11.5 Gb.
- 2018: Raw IV (Options prices + IV&Greeks) – 2.9 Tb, Underlying Prices – 12 Gb.

The size per certain stock per day with 1-minute data in archive is:
- 8/22/2011: Raw IV (Options prices + IV&Greeks): for SPX Index – 25.16 Mb, for SPY – 34.97 Mb, for AAPL – 15.56 Mb. Stock prices: SPX – 8.5 Kb, SPY – 10.14 Kb, AAPL – 10.06 Kb.
- 2/14/2017: Raw IV (Options prices + IV&Greeks): for SPX Index – 127.8 Mb, for SPY – 81.8 Mb, for AAPL – 20.98 Mb. Stock prices: SPX – 9.9 Kb, SPY – 12.43 Kb, AAPL – 12.23 Kb.

Full size for SPX index data in archive is:
Raw IV – 100 Gb, stock prices – 14 Mb.

Uncompressed data is 6-7 times larger.

# Intraday Data files description

The intraday historical database contains snapshot with given frequency (1, 5, 15, or other interval) of Underlying Prices & Raw IV data types beginning 08/22/2011. For IV Surface by Moneyness history starts since 03/08/2019, for IV Index – from 05/05/2017, for non-standard Raw IV – from 08/29/2018.

There are 410 records (minutes) during each trading date (9:30 AM – 16:19 PM EST).

Data are divided into two groups: historical intraday tables and EOD (end of the day) tables.
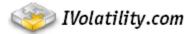
Intraday historical tables: Stocks, Options, IVS, IVX, NSOptions. These tables and files are captured during each trading day with 1-minute frequency. The process of taking market data for all US equities and options, further calculations of IV, Greeks and placing these data into the database and files takes exactly 1 minute. The process is organized so stock and options prices used for calculations are taken simultaneously.

End of the day tables are: Dividends, Split, Yield, Interest Rate, etc.

Below is a description of all tables. Depending on the dataset choice, the set of tables will correspond to the selected dataset.

The stock ID in many tables is an internal IVolatility equity identifier used as a key to link the data/tables. This field allows tracking corporate actions like stock renaming – the stock ID remains the same while the stock symbol could change.
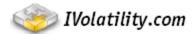
## Intraday data tables/files

These are high frequency intraday data containing a market snapshot with the required frequency and available in the intraday update service during the trading day.

### *Stock Price (stocks)*

This table includes intraday historical prices of stocks, indexes and ETFs for the requested frequency. Prices are not adjusted for splits and dividends. Information about all corporate actions is available in a separate end of the day tables (Splits, CorpActions).

| Column | Type | Comment | Example |
|---|---|---|---|
| t_date | timestamp | t_date as is in the names of files and folders | 2015-01-29 15:26:00 |
| stock_id | int | Internal stock identifier. | 18155 |
| symbol | string | Symbol of the security | VIX |
| type | string | Type of the security(S – stock, F – ETF, I/X – index) | I |
| currency | string | Currency of trading | USD |
| price_bid | float | Bid price | 0 |
| price_ask | float | Ask price | 0 |
| price_last | float | Last trade price | 18.97 |
| date_bid | timestamp | Time of bid quote | 2015-01-29 00:00:00 |
| date_ask | timestamp | Time of ask quote | 2015-01-29 00:00:00 |
| date_last | timestamp | Time of last trade | 2015-01-29 15:24:31 |
| size_bid | int | Bid size | 0 |
| size_ask | int | Ask size | 0 |
| size_last | int | Last trade size | 0 |
| exchange_bid | string | Bid exchange | * |
| exchange_ask | string | Ask exchange | * |
| exchange_last | string | Last exchange | * |
| volume | int | Volume | 0 |
| calc_date | timestamp | Date and time of the last changes made to the row | 1/29/2015 15:24:57 |
| dump_time | timestamp | Date and time of data snapshot | 1/29/2015 15:26:00 |

*Note*: column "calc_date" is filled only since 2/21/2014.

## *Raw IV (options)*

Individual option contract data (bid/ask, volume) along with implied volatility and Greeks. This table includes all traded expirations and strikes: regular options expired on 3<sup>rd</sup> Friday/Saturday, weeklies, quarterlies, and leaps, except non-standard options issued after corporate actions.

If only options price data is requested then the IV & Greeks columns marked (*) will be excluded.

| Column | Type | Comment | Example |
|---|---|---|---|
| t_date | timestamp | t_date as is in the names of files and folders | 2015-01-29 12:13:00 |
| stock_id | int | Internal stock identifier. | 9327 |
| stock_symbol | string | Underlying symbol | SPX |
| expiration_date | timestamp | Expiration date. | 2015-03-13 |
| strike | float | Strike price | 2275 |
| call_put | string | Type(C – Call, P – Put) | P |
| style | string | Option style(A – American, E – European) | E |
| symbol | string | Option symbol | SPXW 150313P02275000 |
| price_bid | float | Bid price | 275 |
| price_ask | float | Ask price | 278.7 |
| date_bid | timestamp | Bid time | 2015-01-29 12:11:31 |
| date_ask | timestamp | Ask time | 2015-01-29 12:11:31 |
| size_bid | int | Bid size | 100 |
| size_ask | int | Ask size | 101 |
| exchange_bid | string | Bid exchange | W |
| exchange_ask | string | Ask exchange | W |
| volume | int | Option Volume | 0 |
| iv* | float | Implied volatility is equal to pre_iv (see below) in cases where it was calculated or interpolated linearly between strikes and linearly by variance between expirations for missing points based on pre_iv | 0.2085 |
| price_opt | float | Underlying price used in calculations, this price is synchronized with options bid/ask prices. | 2004.6 |
| delta* | float | Delta | -0.95853 |
| gamma* | float | Gamma | 0.000589 |
| theta* | float | Theta | -0.235246 |
| vega* | float | Vega | 0.58266 |
| rho* | float | Rho | -2.59741 |
| pre_iv* | float | implied volatility calculated directly from option price, if volatility is not calculated it is set to "-1" | 0.2085 |
| implied_yield* | float | Implied yield calculated during the trading day. All ETFs are calculated by implied yield from 1/2/2014. | |
| calc_date | timestamp | Date and time of the last changes made to the row | 2015-01-29 12:12:46 |
| dump_time | timestamp | Date and time of data snapshots | 2015-01-29 12:13:00 |

*Note*: columns "price_opt" and "calc_date" are filled only since 2/21/2014. Column" implied_yield" is filled since 8/29/2018.

## NS Raw IV (nsoptions)

Individual non-standard option contract data (bid/ask, volume) along with implied volatility and Greeks.

If only ns options price data is requested then the IV & Greeks columns marked (*) will be excluded.

| Column | Type | Comment | Example |
|---|---|---|---|
| t_date | timestamp | t_date as is in the names of files and folders | 2019-11-04 15:00:00 |
| stock_id | int | Internal stock identifier. | 22498 |
| stock_symbol | string | Underlying symbol | UVXY |
| expiration_date | timestamp | Expiration date. | 1/17/2020 |
| strike | float | Strike price | 6 |
| call_put | string | Type(C – Call, P – Put) | P |
| style | string | Option style(A – American, E – European) | A |
| symbol | string | Option symbol | UVXY2 200117P00006000 |
| price_bid | float | Bid price | 2.400000095 |
| price_ask | float | Ask price | 2.619999886 |
| date_bid | timestamp | Bid time | 2019-11-04 14:55:11 |
| date_ask | timestamp | Ask time | 2019-11-04 14:59:33 |
| size_bid | int | Bid size | 824 |
| size_ask | int | Ask size | 21 |
| exchange_bid | string | Bid exchange | W |
| exchange_ask | string | Ask exchange | Y2 |
| volume | int | Option Volume | 0 |
| iv* | float | Implied volatility is equal to pre_iv (see below) in cases where it was calculated or interpolated linearly between strikes and linearly by variance between expirations for missing points based on pre_iv | 1.070500016 |
| price_opt | float | Underlying price used in calculations, this price is synchronized with options bid/ask prices. | 3.648999929 |
| delta* | float | Delta | -0.786840022 |
| gamma* | float | Gamma | 0.169578001 |
| theta* | float | Theta | -0.003268 |
| vega* | float | Vega | 0.00469 |
| rho* | float | Rho | -0.00712 |
| pre_iv* | float | implied volatility calculated directly from option price, if volatility is not calculated it is set to "-1" | 1.070500016 |
| implied_yield* | float | Implied yield calculated during the trading day. All ETFs are calculated by implied yield from 1/2/2014. | |
| calc_date | timestamp | Date and time of the last changes made to the row | 2019-11-04 14:59:48 |

## IV Surface (ivs)

Implied Volatility Surface (normalized by maturities and moneyness).

| Column | Type | Comment | Example |
|--------|------|---------|---------|
| t_date | timestamp | t_date as is in the names of files and folders | 2019-11-04 12:00:00 |
| stock_id | int | Internal stock identifier. | 627 |
| stock_symbol | string | Underlying symbol | SPY |
| otm | int | Out-of-the-moneyness | 5 |
| period | int | Virtual maturity in calendar days (7, 14, 21, 30, 60, 90, 120, 150, 180, 270, 360, 720, 1080) – see note below | 21 |
| call_put | string | Option type (call or put) | P |
| iv | float | Implied volatility of a virtual contract | 0.161899999 |
| delta | float | Delta greek | -0.085869998 |
| strike | float | Virtual strike price | 292.0490112 |
| calc_date | timestamp | Date and time of last changing of the particular row. It is used to track changes (recalculations) in data over time (technical field) | 2019-11-04 12:00:00 |

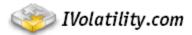*Note*: 7, 14, 21 and 270 days maturities start 10/10/2019

## IV Index (ivx)

Implied Volatility Index (averaged implied volatility).

| Column | Type | Comment | Example |
|--------|------|---------|---------|
| t_date | timestamp | t_date as is in the names of files and folders | 2019-11-04 12:00:00 |
| stock_id | int | Internal stock identifier. | 799 |
| stock_symbol | string | Underlying symbol | AAPL |
| period | int | Virtual maturity in calendar days (7, 14, 21, 30, 60, 90, 120, 150, 180, 270, 360, 720, 1080) – see note below | 21 |
| ivx_call | float | IV Index Call | 0.209000006 |
| ivx_put | float | IV Index Put | 0.207399994 |
| calc_date | timestamp | Date and time of last changing of the particular row. It is used to track changes (recalculations) in data over time (technical field) | 2019-11-04 11:59:36 |

*Note*: 7, 14, 21, 270, 360, 720, 1080 days maturities start 10/10/2019

Column "calc_date" is a column which contains an exact time when an entry had been changed/recalculated, there are situations when "t_date" time (and times of bid and ask prices for an option) differs from "calc_date" one. It's not an error, such behavior occurs due to the calculation time needed to process the whole market and post results. So "t_date" can be greater than "calc_date" even by one or two minutes (especially for old data).

# End of the day data/files

End of the tables are updated in the mornings before market is open. All of the tables are rewritten daily except of InterestRate, OptionsEOD and StockPricesEOD tables, which are only updated with new data daily.

## *Dividends*

We keep regular dividend data in this table.

For US stocks and ETFs before 1/28/2014, we use periodical dividends in the form of date, amount and frequency for implied volatility calculations. After 1/28/2014, we use implied yield for all US ETFs. Vendors provide the data from the exchanges, or it comes directly from the companies. As for the dividend date and amount data we use either data from the last paid dividend or information about the next declared dividend.

| Column | Type | Comment |
|---|---|---|
| stock_id | int | internal stock identifier |
| t_date | timestamp | start date of the period where this dividend record is valid |
| term_date | timestamp | end date of the period where this dividend record is valid |
| last_dividend_amount | float | dividend amount (in currency of underlyings) |
| last_dividend _date | timestamp | dividend ex-date |
| dividend_frequency | int | times per year (1 - annually, 2 - semiannually, 4 - quarterly, 12 - monthly) |
| calc_date | timestamp | Date and time of last changing of the particular row. It is used to track changes (recalculations) in data over time. |

## *Splits*

Splits and irregular dividends data.

| column | Type | comment |
|---|---|---|
| t_date | timestamp | split ex-date |
| stock_id | int | internal stock identifier |
| cause | int | 0 - split, 1 - irregular cash dividend, 2 - stock dividend |
| factor | float | split factor (1.5 for 3:2 split etc.) |
| amount | float | dividend amount in $ per share (for cause = 1 only) |
| status | int | Status of data (0 – Not adjusted yet, 1- Adjusted, -1 - Suspected price, not adjusted, -2 - Invalid amount or factor, not adjusted) |
| calc_date | timestamp | Date and time of last changing of the particular row. It is used to track changes (recalculations) in data over time. |

## Yield

Stock indexes yield are the Average 12 month dividend and used in implied volatility calculations for the indexes.

| Column | Type | Comment |
|---|---|---|
| t_date | timestamp | trading date the data is as of |
| stock_id | int | internal stock identifier |
| yield | float | yield |
| calc_date | timestamp | Date and time of last changing of the particular row. It is used to track changes (recalculations) in data over time. (calc_date>t_date for records containing fixes in history) |

## Interest Rates

We use interpolated interbank offered rates such as LIBORs with 1 day delay.

| Column | Type | Comment |
|---|---|---|
| dt | string | Trade date in format yyyy-mm-dd |
| currency | string | currency code |
| period | int | period in trading days. Standard periods are 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330, 360, 720,1080, 1440,1800. Rates for other periods are interpolated |
| rate | float | interest rate % value |
| calc_date | timestamp | Date and time of last changing of the particular row. It is used to track changes (recalculations) in data over time. |

## Contract Specifications

The table information content for open, close time, time at expiration is used to calculate last trading time together with Shift in OptioinsEOD table.

| Column | Type | Comment |
|---|---|---|
| contractspecid | int | internal identifier |
| OpenTime | timestamp | open time on common trading day |
| CloseTime | timestamp | close time on common trading day |
| SettlementTimeAtExpiration | timestamp | close time at expiration |
| Description | string | Description |

## Stock

Base underlying instrument (stock, ETF, index ) and Corporate Actions information (IPO, delisting).

| Column | Type | Comment |
|---|---|---|
| stock_id | int | internal stock identifier |
| region_id | int | region identifier (currently only 1-USA) |
| currency | string | currency code |
| type | string | 'S' - stock, 'I' - index, 'F' – ETF, 'X' – FX Index |
| create_date | timestamp | IPO date (the date we've "opened" the stock in our database - might not be the same as the actual IPO) |
| term_date | timestamp | instrument delist date (or date when we've "closed" the stock in our database) |
| ca_date | timestamp | last corporate action date |

## Stock Symbol

Instrument information (ticker, company name) and change history.

| Column | Type | Comment |
|---|---|---|
| stock_id | int | internal stock identifier |
| t_date | timestamp | start date of the period where this record is valid |
| symbol | string | stock symbol |
| name | string | company name |
| exchange_id | int | internal exchange identifier |
| actiontype | string | corporate action type |
| term_date | timestamp | end date of the period where this record is valid |
| calc_date | timestamp | calculation date – technical field |

## CorpActions

Corporate actions information.

| Column | Type | Comment |
|---|---|---|
| ex_date | timestamp | date when corporate action happened |
| stock_id | int | internal identifier of stock |
| actiontype | string | internal corporate action identifier |

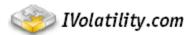## CorpActionType

Corporate action code/description information.

| Column | Type | Comment |
|---|---|---|
| actiontype | string | internal corporate action identifier |
| description | string | corporate action description (split, merger, stock dividend, etc…) |

## RootProperty

Option classes (roots) description data.

| column | Type | comment |
|---|---|---|
| root_id | Int | internal root identifier |
| t_date | timestamp | start date of the period where this record is valid |
| stock_id | int | internal stock identifier |
| symbol | string | root symbol |
| exchange_id | int | internal exchange identifier |
| actionType | string | internal corporate action identifier |
| IsEnabled | int | whether a root is standard (IsEnabled=0) or non-standard IsEnable=0) |
| term_date | timestamp | end date of the period where this record is valid |
| contractspecid | int | internal identifier (reference to the table "ContractSpec") |
| spc | float | shares per contract |
| multiplier | int | multiplier |
| cash | float | cash |
| calc_date | timestamp | calculation date – technical field |

## Exchanges

Exchange code/name data (reference table).

| column | Type | comment |
|--------|------|---------|
| exchange_id | int | internal exchange identifier |
| code | string | exchange code |
| name | string | exchange name |

## Expirations

Information about expirations.

| column | Type | comment |
|--------|------|---------|
| expiration_id | int | Internal expiration identifier |
| e_date | timestamp | real expiration date as it is in option dataset |
| exp_row | int | internal identifier of the expiration type. 1 – standard expiration (the 3rd Friday), 7 – VIX expirations, 8- quarterly expirations, 9 - weekly options and so on. |
| contract | string | symbol of the expiration |
| region_id | int | region identifier (currently only 1-USA) |

## Expiration Rules

Information about expiration types.
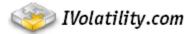
| column | Type | comment |
|--------|------|---------|
| exp_row | int | internal identifier of the expiration type. 1 – standard expiration (the 3rd Friday), 7 – VIX expirations, 8- quarterly expirations, 9 - weekly options and so on. |
| name | string | Expiration type (standard, weekly,quaterly etc.) |

## OptionsEOD

Information about option volumes, open interest and other EOD option parameters.

| column | Type | comment |
|--------|------|---------|
| dt | string | Trade date in format yyyy-mm-dd |
| stock_id | int | internal stock identifier (PARTITIONING) |
| symbol | string | Option symbol |
| expiration_date | timestamp | Expiration_date |
| expirations_id | int | Internal expirations identifier (reference to the table "Expirations"). Useful to filter out different types of expirations. |
| strike | float | Strike price |
| call_put | string | Type(C – Call, P – Put) |
| shift | int | shift of expiration date in days |
| openinterest | int | Open interest value |
| volumes | int | EOD options Volumes |
| calc_date | timestamp | calculation date (calc_date>t_date for records containing fixes in history) |

## StockPricesEOD

Information about EOD stock prices.

| column | Type | comment |
|---|---|---|
| dt | string | Trade date in format yyyy-mm-dd |
| stock_id | int | internal stock identifier (PARTITIONING) |
| symbol | string | stock symbol |
| name | string | stock name |
| price_open | float | open price |
| price_high | float | high price |
| price_low | float | low price |
| price | float | official close price |
| volume | int | EOD stock volume |

## QuoteExchanges

Contains information about data provider exchanges codes referring to exchange symbols in the StockPrice and Options tables.

| column | Type | comment |
|---|---|---|
| exchange_symbol | string | Symbol of the exchange |
| name | string | Name of the exchange |
| mic | string | MIC code of the exchange |

# Our clients

20 years working and constantly developing data resulted in more than 70,000 clients from all over the world using **IVolatility.com** trading and risk management systems for US, European and Asian market data and analytics.

**IVolatility.com** clients represent all segments of the global derivatives market.  More than half of the top 30 options market makers and US options brokers use **IVolatility.com** financial data services.  In addition, **IVolatility.com** clients include 3 out of 5 of the largest US banking institutions and more than half of the top 50 investment banks.  Other important clients include the CBOE, the NYSE - along with the Options Clearing Corporation, as well as hundreds of investment and hedge funds.