ib_insync

Release 0.9.73

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ONE

INTRODUCTION

The goal of the IB-insync library is to make working with the Trader Workstation API from Interactive Brokers as easy as possible.

The main features are:

- An easy to use linear style of programming;
- An IB component that automatically keeps in sync with the TWS or IB Gateway application;
- A fully asynchonous framework based on asyncio and eventkit for advanced users;
- Interactive operation with live data in Jupyter notebooks.

Be sure to take a look at the notebooks, the recipes and the API docs.

1.1 Installation

```
pip install ib_insync
```

For Python 3.6 install the `dataclasses` package as well (newer Python versions already have it):

```
pip install dataclasses
```

Requirements:

- Python 3.6 or higher;
- A running TWS or IB Gateway application (version 972 or higher). Make sure the API port is enabled and 'Download open orders on connection' is checked.

The ibapi package from IB is not needed.

1.2 Example

This is a complete script to download historical data:

```
from ib_insync import *
# util.startLoop()  # uncomment this line when in a notebook

ib = IB()
ib.connect('127.0.0.1', 7497, clientId=1)
```

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```
contract = Forex('EURUSD')
bars = ib.reqHistoricalData(
    contract, endDateTime='', durationStr='30 D',
    barSizeSetting='1 hour', whatToShow='MIDPOINT', useRTH=True)

# convert to pandas dataframe:
df = util.df(bars)
print(df)
```

Output:

```
                  date      open      high       low     close  volume  \
0   2019-11-19 23:15:00  1.107875  1.108050  1.107725  1.107825      -1
1   2019-11-20 00:00:00  1.107825  1.107925  1.107675  1.107825      -1
2   2019-11-20 01:00:00  1.107825  1.107975  1.107675  1.107875      -1
3   2019-11-20 02:00:00  1.107875  1.107975  1.107025  1.107225      -1
4   2019-11-20 03:00:00  1.107225  1.107725  1.107025  1.107525      -1
..                  ...       ...       ...       ...       ...     ...
705 2020-01-02 14:00:00  1.119325  1.119675  1.119075  1.119225      -1
```

1.3 Documentation

The complete API documentation.

Changelog.

1.4 Discussion

The insync user group is the place to discuss IB-insync and anything related to it.

1.5 Consultancy & Development

IB-insync offers an easy entry into building automated trading systems for both individual traders and fintech companies. However, to get the most out of it is not a trivial matter and is beyond the reach of most developers.

If you need expert help, you can contact me. This can be for a small project, such as fixing something in your own code, or it can be creating an entire new trading infrastructure. Please provide enough details so that I can assess both the feasibility and the scope. Many folks worry about having to provide their 'secret sauce', but that is never necessary (although you're perfectly welcome to send that as well!)

1.6 Disclaimer

The software is provided on the conditions of the simplified BSD license.

This project is not affiliated with Interactive Brokers Group, Inc.'s.

Good luck and enjoy,

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CHAPTER

TWO

API DOCS

Release 0.9.73.

Also see the official Python API documentation from IB.

2.1 IB

High-level interface to Interactive Brokers.

class ib_insync.ib.**IB**

Provides both a blocking and an asynchronous interface to the IB API, using asyncio networking and event loop.

The IB class offers direct access to the current state, such as orders, executions, positions, tickers etc. This state is automatically kept in sync with the TWS/IBG application.

This class has most request methods of EClient, with the same names and parameters (except for the reqId parameter which is not needed anymore). Request methods that return a result come in two versions:

- Blocking: Will block until complete and return the result. The current state will be kept updated while the request is ongoing;
- Asynchronous: All methods that have the "Async" postfix. Implemented as coroutines or methods that return a Future and intended for advanced users.

The One Rule:

While some of the request methods are blocking from the perspective of the user, the framework will still keep spinning in the background and handle all messages received from TWS/IBG. It is important to not block the framework from doing its work. If, for example, the user code spends much time in a calculation, or uses time.sleep() with a long delay, the framework will stop spinning, messages accumulate and things may go awry.

The one rule when working with the IB class is therefore that

user code may not block for too long.

To be clear, the IB request methods are okay to use and do not count towards the user operation time, no matter how long the request takes to finish.

So what is "too long"? That depends on the situation. If, for example, the timestamp of tick data is to remain accurate within a millisecond, then the user code must not spend longer than a millisecond. If, on the other extreme, there is very little incoming data and there is no desire for accurate timestamps, then the user code can block for hours.

If a user operation takes a long time then it can be farmed out to a different process. Alternatively the operation can be made such that it periodically calls IB.sleep(0); This will let the framework handle any pending work and return when finished. The operation should be aware that the current state may have been updated during the sleep(0) call.

For introducing a delay, never use time.sleep() but use *sleep()* instead.

Parameters

- **RequestTimeout** (*float*) – Timeout (in seconds) to wait for a blocking request to finish before raising `asyncio.TimeoutError`. The default value of 0 will wait indefinitely. Note: This timeout is not used for the `*Async` methods.
- **RaiseRequestErrors** (*bool*) – Specifies the behaviour when certain API requests fail:
  - `False`: Silently return an empty result;
  - `True`: Raise a *RequestError*.
- **MaxSyncedSubAccounts** (*int*) – Do not use sub-account updates if the number of sub-accounts exceeds this number (50 by default).
- **TimezoneTWS** (*pytz.timezone*) – Specifies what timezone TWS (or gateway) is using. The default is to assume local system timezone.

Events:

- `connectedEvent` (): Is emitted after connecting and synchronzing with TWS/gateway.
- `disconnectedEvent` (): Is emitted after disconnecting from TWS/gateway.
- `updateEvent` (): Is emitted after a network packet has been handeled.
- `pendingTickersEvent` (tickers: Set[*Ticker*]): Emits the set of tickers that have been updated during the last update and for which there are new ticks, tickByTicks or domTicks.
- `barUpdateEvent` (bars: *BarDataList*, hasNewBar: bool): Emits the bar list that has been updated in real time. If a new bar has been added then hasNewBar is True, when the last bar has changed it is False.
- `newOrderEvent` (trade: *Trade*): Emits a newly placed trade.
- `orderModifyEvent` (trade: *Trade*): Emits when order is modified.
- `cancelOrderEvent` (trade: *Trade*): Emits a trade directly after requesting for it to be cancelled.
- `openOrderEvent` (trade: *Trade*): Emits the trade with open order.
- `orderStatusEvent` (trade: *Trade*): Emits the changed order status of the ongoing trade.
- `execDetailsEvent` (trade: *Trade*, fill: *Fill*): Emits the fill together with the ongoing trade it belongs to.
- `commissionReportEvent` (trade: *Trade*, fill: *Fill*, report: *CommissionReport*): The commission report is emitted after the fill that it belongs to.
- `updatePortfolioEvent` (item: *PortfolioItem*): A portfolio item has changed.
- `positionEvent` (position: *Position*): A position has changed.
- `accountValueEvent` (value: *AccountValue*): An account value has changed.
- `accountSummaryEvent` (value: *AccountValue*): An account value has changed.
- `pnlEvent` (entry: *PnL*): A profit- and loss entry is updated.
- `pnlSingleEvent` (entry: *PnLSingle*): A profit- and loss entry for a single position is updated.
- `tickNewsEvent` (news: *NewsTick*): Emit a new news headline.
- `newsBulletinEvent` (bulletin: *NewsBulletin*): Emit a new news bulletin.
- `scannerDataEvent` (data: *ScanDataList*): Emit data from a scanner subscription.

- `errorEvent` (reqId: int, errorCode: int, errorString: str, contract: *Contract*): Emits the reqId/orderId and TWS error code and string (see https://interactivebrokers.github.io/tws-api/message_codes.html) together with the contract the error applies to (or None if no contract applies).
- `timeoutEvent` (idlePeriod: float): Is emitted if no data is received for longer than the timeout period specified with *setTimeout()*. The value emitted is the period in seconds since the last update.

Note that it is not advisable to place new requests inside an event handler as it may lead to too much recursion.

events = ('connectedEvent', 'disconnectedEvent', 'updateEvent', 'pendingTickersEvent', 'barUpdateEvent', 'newOrderEvent', 'orderModifyEvent', 'cancelOrderEvent', 'openOrderEvent', 'orderStatusEvent', 'execDetailsEvent', 'commissionReportEvent', 'updatePortfolioEvent', 'positionEvent', 'accountValueEvent', 'accountSummaryEvent', 'pnlEvent', 'pnlSingleEvent', 'scannerDataEvent', 'tickNewsEvent', 'newsBulletinEvent', 'errorEvent', 'timeoutEvent')

RequestTimeout: float = 0

RaiseRequestErrors: bool = False

MaxSyncedSubAccounts: int = 50

TimezoneTWS = None

connect(*host='127.0.0.1'*, *port=7497*, *clientId=1*, *timeout=4*, *readonly=False*, *account=''*)

Connect to a running TWS or IB gateway application. After the connection is made the client is fully synchronized and ready to serve requests.

This method is blocking.

Parameters

- **host** (str) – Host name or IP address.
- **port** (int) – Port number.
- **clientId** (int) – ID number to use for this client; must be unique per connection. Setting clientId=0 will automatically merge manual TWS trading with this client.
- **timeout** (float) – If establishing the connection takes longer than `timeout` seconds then the `asyncio.TimeoutError` exception is raised. Set to 0 to disable timeout.
- **readonly** (bool) – Set to `True` when API is in read-only mode.
- **account** (str) – Main account to receive updates for.

disconnect()

Disconnect from a TWS or IB gateway application. This will clear all session state.

isConnected()

Is there an API connection to TWS or IB gateway?

Return type
bool

static run(*, *timeout=None*)

By default run the event loop forever.

When awaitables (like Tasks, Futures or coroutines) are given then run the event loop until each has completed and return their results.

An optional timeout (in seconds) can be given that will raise asyncio.TimeoutError if the awaitables are not ready within the timeout period.

static schedule(*callback*, **args*)

Schedule the callback to be run at the given time with the given arguments. This will return the Event Handle.

Parameters

- **time** (Union[time, datetime]) – Time to run callback. If given as datetime.time then use today as date.
- **callback** (Callable) – Callable scheduled to run.
- **args** – Arguments for to call callback with.

static sleep()

Wait for the given amount of seconds while everything still keeps processing in the background. Never use time.sleep().

Parameters
secs (*float*) – Time in seconds to wait.

Return type
bool

static timeRange(*end*, *step*)

Iterator that waits periodically until certain time points are reached while yielding those time points.

Parameters

- **start** (Union[time, datetime]) – Start time, can be specified as datetime.datetime, or as datetime.time in which case today is used as the date
- **end** (Union[time, datetime]) – End time, can be specified as datetime.datetime, or as datetime.time in which case today is used as the date
- **step** (*float*) – The number of seconds of each period

Return type
Iterator[datetime]

static timeRangeAsync(*end*, *step*)

Async version of *timeRange()*.

Return type
AsyncIterator[datetime]

static waitUntil()

Wait until the given time t is reached.

Parameters
t (Union[time, datetime]) – The time t can be specified as datetime.datetime, or as datetime.time in which case today is used as the date.

Return type
bool

waitOnUpdate(*timeout=0*)

Wait on any new update to arrive from the network.

Parameters
timeout (float) – Maximum time in seconds to wait. If 0 then no timeout is used.

Note: A loop with `waitOnUpdate` should not be used to harvest tick data from tickers, since some ticks can go missing. This happens when multiple updates occur almost simultaneously; The ticks from the first update are then cleared. Use events instead to prevent this.

Return type
bool

Returns
`True` if not timed-out, `False` otherwise.

loopUntil(*condition=None*, *timeout=0*)

Iterate until condition is met, with optional timeout in seconds. The yielded value is that of the condition or False when timed out.

Parameters

- **condition** – Predicate function that is tested after every network
- **update.** –
- **timeout** (float) – Maximum time in seconds to wait. If 0 then no timeout is used.

Return type
Iterator[object]

setTimeout(*timeout=60*)

Set a timeout for receiving messages from TWS/IBG, emitting `timeoutEvent` if there is no incoming data for too long.

The timeout fires once per connected session but can be set again after firing or after a reconnect.

Parameters
timeout (float) – Timeout in seconds.

managedAccounts()

List of account names.

Return type
List[str]

accountValues(*account=''*)

List of account values for the given account, or of all accounts if account is left blank.

Parameters
account (str) – If specified, filter for this account name.

Return type
List[*AccountValue*]

accountSummary(*account=''*)

List of account values for the given account, or of all accounts if account is left blank.

This method is blocking on first run, non-blocking after that.

Parameters
account (str) – If specified, filter for this account name.

Return type
List[*AccountValue*]

portfolio()

List of portfolio items of the default account.

Return type
List[*PortfolioItem*]

positions(*account=''*)

List of positions for the given account, or of all accounts if account is left blank.

Parameters
account (str) – If specified, filter for this account name.

Return type
List[*Position*]

pnl(*account=''*, *modelCode=''*)

List of subscribed *PnL* objects (profit and loss), optionally filtered by account and/or modelCode.

The *PnL* objects are kept live updated.

Parameters

- **account** – If specified, filter for this account name.
- **modelCode** – If specified, filter for this account model.

Return type
List[*PnL*]

pnlSingle(*account=''*, *modelCode=''*, *conId=0*)

List of subscribed *PnLSingle* objects (profit and loss for single positions).

The *PnLSingle* objects are kept live updated.

Parameters

- **account** (str) – If specified, filter for this account name.
- **modelCode** (str) – If specified, filter for this account model.
- **conId** (int) – If specified, filter for this contract ID.

Return type
List[*PnLSingle*]

trades()

List of all order trades from this session.

Return type
List[*Trade*]

openTrades()

List of all open order trades.

Return type
List[*Trade*]

orders()

List of all orders from this session.

Return type
List[*Order*]

openOrders()

List of all open orders.

Return type
List[*Order*]

fills()

List of all fills from this session.

Return type
List[*Fill*]

executions()

List of all executions from this session.

Return type
List[*Execution*]

ticker(*contract*)

Get ticker of the given contract. It must have been requested before with reqMktData with the same contract object. The ticker may not be ready yet if called directly after *reqMktData()*.

Parameters
contract (*Contract*) – Contract to get ticker for.

Return type
Ticker

tickers()

Get a list of all tickers.

Return type
List[*Ticker*]

pendingTickers()

Get a list of all tickers that have pending ticks or domTicks.

Return type
List[*Ticker*]

realtimeBars()

Get a list of all live updated bars. These can be 5 second realtime bars or live updated historical bars.

Return type
List[Union[*BarDataList*, *RealTimeBarList*]]

newsTicks()

List of ticks with headline news. The article itself can be retrieved with *reqNewsArticle()*.

Return type
List[*NewsTick*]

newsBulletins()

List of IB news bulletins.

Return type
List[*NewsBulletin*]

reqTickers(**contracts*, *regulatorySnapshot=False*)

Request and return a list of snapshot tickers. The list is returned when all tickers are ready.

This method is blocking.

Parameters

- **contracts** (*Contract*) – Contracts to get tickers for.
- **regulatorySnapshot** (bool) – Request NBBO snapshots (may incur a fee).

Return type
List[*Ticker*]

qualifyContracts(**contracts*)

Fully qualify the given contracts in-place. This will fill in the missing fields in the contract, especially the conId.

Returns a list of contracts that have been successfully qualified.

This method is blocking.

Parameters
contracts (*Contract*) – Contracts to qualify.

Return type
List[*Contract*]

bracketOrder(*action*, *quantity*, *limitPrice*, *takeProfitPrice*, *stopLossPrice*, ***kwargs*)

Create a limit order that is bracketed by a take-profit order and a stop-loss order. Submit the bracket like:

```
for o in bracket:
    ib.placeOrder(contract, o)
```

https://interactivebrokers.github.io/tws-api/bracket_order.html

Parameters

- **action** (str) – 'BUY' or 'SELL'.
- **quantity** (float) – Size of order.
- **limitPrice** (float) – Limit price of entry order.
- **takeProfitPrice** (float) – Limit price of profit order.
- **stopLossPrice** (float) – Stop price of loss order.

Return type
BracketOrder

static oneCancelsAll(*orders*, *ocaGroup*, *ocaType*)

Place the trades in the same One Cancels All (OCA) group.

https://interactivebrokers.github.io/tws-api/oca.html

Parameters
orders (List[*Order*]) – The orders that are to be placed together.

Return type
List[*Order*]

whatIfOrder(*contract*, *order*)

Retrieve commission and margin impact without actually placing the order. The given order will not be modified in any way.

This method is blocking.

Parameters

- **contract** (*Contract*) – Contract to test.
- **order** (*Order*) – Order to test.

Return type
OrderState

placeOrder(*contract*, *order*)

Place a new order or modify an existing order. Returns a Trade that is kept live updated with status changes, fills, etc.

Parameters

- **contract** (*Contract*) – Contract to use for order.
- **order** (*Order*) – The order to be placed.

Return type
Trade

cancelOrder(*order*, *manualCancelOrderTime=''*)

Cancel the order and return the Trade it belongs to.

Parameters

- **order** (*Order*) – The order to be canceled.
- **manualCancelOrderTime** (str) – For audit trail.

Return type
Trade

reqGlobalCancel()

Cancel all active trades including those placed by other clients or TWS/IB gateway.

reqCurrentTime()

Request TWS current time.

This method is blocking.

Return type
datetime

reqAccountUpdates(*account=''*)

This is called at startup - no need to call again.

Request account and portfolio values of the account and keep updated. Returns when both account values and portfolio are filled.

This method is blocking.

Parameters
account (str) – If specified, filter for this account name.

reqAccountUpdatesMulti(*account=''*, *modelCode=''*)

It is recommended to use *accountValues()* instead.

Request account values of multiple accounts and keep updated.

This method is blocking.

Parameters

- **account** (str) – If specified, filter for this account name.
- **modelCode** (str) – If specified, filter for this account model.

reqAccountSummary()

It is recommended to use *accountSummary()* instead.

Request account values for all accounts and keep them updated. Returns when account summary is filled.

This method is blocking.

reqAutoOpenOrders(*autoBind=True*)

Bind manual TWS orders so that they can be managed from this client. The clientId must be 0 and the TWS API setting "Use negative numbers to bind automatic orders" must be checked.

This request is automatically called when clientId=0.

https://interactivebrokers.github.io/tws-api/open_orders.html https://interactivebrokers.github.io/tws-api/modifying_orders.html

Parameters
autoBind (bool) – Set binding on or off.

reqOpenOrders()

Request and return a list of open orders.

This method can give stale information where a new open order is not reported or an already filled or cancelled order is reported as open. It is recommended to use the more reliable and much faster *openTrades()* or *openOrders()* methods instead.

This method is blocking.

Return type
List[*Order*]

reqAllOpenOrders()

Request and return a list of all open orders over all clients. Note that the orders of other clients will not be kept in sync, use the master clientId mechanism instead to see other client's orders that are kept in sync.

Return type
List[*Order*]

reqCompletedOrders(*apiOnly*)

Request and return a list of completed trades.

Parameters
apiOnly (bool) – Request only API orders (not manually placed TWS orders).

Return type
List[*Trade*]

reqExecutions(*execFilter=None*)

It is recommended to use *fills()* or *executions()* instead.

Request and return a list of fills.

This method is blocking.

Parameters
execFilter (Optional[*ExecutionFilter*]) – If specified, return executions that match the filter.

Return type
List[*Fill*]

reqPositions()

It is recommended to use *positions()* instead.

Request and return a list of positions for all accounts.

This method is blocking.

Return type
List[*Position*]

reqPnL(*account*, *modelCode=''*)

Start a subscription for profit and loss events.

Returns a *PnL* object that is kept live updated. The result can also be queried from *pnl()*.

https://interactivebrokers.github.io/tws-api/pnl.html

Parameters

- **account** (str) – Subscribe to this account.
- **modelCode** (str) – If specified, filter for this account model.

Return type
PnL

cancelPnL(*account*, *modelCode=''*)

Cancel PnL subscription.

Parameters

- **account** – Cancel for this account.
- **modelCode** (str) – If specified, cancel for this account model.

reqPnLSingle(*account*, *modelCode*, *conId*)

Start a subscription for profit and loss events for single positions.

Returns a *PnLSingle* object that is kept live updated. The result can also be queried from *pnlSingle()*.

https://interactivebrokers.github.io/tws-api/pnl.html

Parameters

- **account** (str) – Subscribe to this account.
- **modelCode** (str) – Filter for this account model.
- **conId** (int) – Filter for this contract ID.

Return type
PnLSingle

cancelPnLSingle(*account*, *modelCode*, *conId*)

Cancel PnLSingle subscription for the given account, modelCode and conId.

Parameters

- **account** (str) – Cancel for this account name.
- **modelCode** (str) – Cancel for this account model.
- **conId** (int) – Cancel for this contract ID.

reqContractDetails(*contract*)

Get a list of contract details that match the given contract. If the returned list is empty then the contract is not known; If the list has multiple values then the contract is ambiguous.

The fully qualified contract is available in the the ContractDetails.contract attribute.

This method is blocking.

https://interactivebrokers.github.io/tws-api/contract_details.html

Parameters
contract (*Contract*) – The contract to get details for.

Return type
List[*ContractDetails*]

reqMatchingSymbols(*pattern*)

Request contract descriptions of contracts that match a pattern.

This method is blocking.

https://interactivebrokers.github.io/tws-api/matching_symbols.html

Parameters
pattern (str) – The first few letters of the ticker symbol, or for longer strings a character sequence matching a word in the security name.

Return type
List[*ContractDescription*]

reqMarketRule(*marketRuleId*)

Request price increments rule.

https://interactivebrokers.github.io/tws-api/minimum_increment.html

Parameters
marketRuleId (int) – ID of market rule. The market rule IDs for a contract can be obtained via *reqContractDetails()* from *ContractDetails*.marketRuleIds, which contains a comma separated string of market rule IDs.

Return type
PriceIncrement

reqRealTimeBars(*contract*, *barSize*, *whatToShow*, *useRTH*, *realTimeBarsOptions=[]*)

Request realtime 5 second bars.

https://interactivebrokers.github.io/tws-api/realtime_bars.html

Parameters

- **contract** (*Contract*) – Contract of interest.
- **barSize** (int) – Must be 5.
- **whatToShow** (str) – Specifies the source for constructing bars. Can be 'TRADES', 'MIDPOINT', 'BID' or 'ASK'.
- **useRTH** (bool) – If True then only show data from within Regular Trading Hours, if False then show all data.
- **realTimeBarsOptions** (List[*TagValue*]) – Unknown.

Return type
RealTimeBarList

cancelRealTimeBars(*bars*)

Cancel the realtime bars subscription.

Parameters

bars (*RealTimeBarList*) – The bar list that was obtained from `reqRealTimeBars`.

reqHistoricalData(*contract*, *endDateTime*, *durationStr*, *barSizeSetting*, *whatToShow*, *useRTH*, *formatDate=1*, *keepUpToDate=False*, *chartOptions=[]*, *timeout=60*)

Request historical bar data.

This method is blocking.

https://interactivebrokers.github.io/tws-api/historical_bars.html

Parameters

- **contract** (*Contract*) – Contract of interest.
- **endDateTime** (Union[datetime, date, str, None]) – Can be set to '' to indicate the current time, or it can be given as a datetime.date or datetime.datetime, or it can be given as a string in 'yyyyMMdd HH:mm:ss' format. If no timezone is given then the TWS login timezone is used.
- **durationStr** (str) – Time span of all the bars. Examples: '60 S', '30 D', '13 W', '6 M', '10 Y'.
- **barSizeSetting** (str) – Time period of one bar. Must be one of: '1 secs', '5 secs', '10 secs' 15 secs', '30 secs', '1 min', '2 mins', '3 mins', '5 mins', '10 mins', '15 mins', '20 mins', '30 mins', '1 hour', '2 hours', '3 hours', '4 hours', '8 hours', '1 day', '1 week', '1 month'.
- **whatToShow** (str) – Specifies the source for constructing bars. Must be one of: 'TRADES', 'MIDPOINT', 'BID', 'ASK', 'BID_ASK', 'ADJUSTED_LAST', 'HISTORICAL_VOLATILITY', 'OPTION_IMPLIED_VOLATILITY', 'REBATE_RATE', 'FEE_RATE', 'YIELD_BID', 'YIELD_ASK', 'YIELD_BID_ASK', 'YIELD_LAST'. For 'SCHEDULE' use *reqHistoricalSchedule()*.
- **useRTH** (bool) – If True then only show data from within Regular Trading Hours, if False then show all data.
- **formatDate** (int) – For an intraday request setting to 2 will cause the returned date fields to be timezone-aware datetime.datetime with UTC timezone, instead of local timezone as used by TWS.
- **keepUpToDate** (bool) – If True then a realtime subscription is started to keep the bars updated; `endDateTime` must be set empty ('') then.
- **chartOptions** (List[*TagValue*]) – Unknown.
- **timeout** (float) – Timeout in seconds after which to cancel the request and return an empty bar series. Set to `0` to wait indefinitely.

Return type

BarDataList

cancelHistoricalData(*bars*)

Cancel the update subscription for the historical bars.

Parameters

bars (*BarDataList*) – The bar list that was obtained from `reqHistoricalData` with a keepUpToDate subscription.

reqHistoricalSchedule(*contract*, *numDays*, *endDateTime=''*, *useRTH=True*)

Request historical schedule.

This method is blocking.

Parameters

- **contract** (*Contract*) – Contract of interest.
- **numDays** (int) – Number of days.
- **endDateTime** (Union[datetime, date, str, None]) – Can be set to '' to indicate the current time, or it can be given as a datetime.date or datetime.datetime, or it can be given as a string in 'yyyyMMdd HH:mm:ss' format. If no timezone is given then the TWS login timezone is used.
- **useRTH** (bool) – If True then show schedule for Regular Trading Hours, if False then for extended hours.

Return type
HistoricalSchedule

reqHistoricalTicks(*contract*, *startDateTime*, *endDateTime*, *numberOfTicks*, *whatToShow*, *useRth*, *ignoreSize=False*, *miscOptions=[]*)

Request historical ticks. The time resolution of the ticks is one second.

This method is blocking.

https://interactivebrokers.github.io/tws-api/historical_time_and_sales.html

Parameters

- **contract** (*Contract*) – Contract to query.
- **startDateTime** (Union[str, date]) – Can be given as a datetime.date or datetime.datetime, or it can be given as a string in 'yyyyMMdd HH:mm:ss' format. If no timezone is given then the TWS login timezone is used.
- **endDateTime** (Union[str, date]) – One of startDateTime or endDateTime can be given, the other must be blank.
- **numberOfTicks** (int) – Number of ticks to request (1000 max). The actual result can contain a bit more to accommodate all ticks in the latest second.
- **whatToShow** (str) – One of 'Bid_Ask', 'Midpoint' or 'Trades'.
- **useRTH** – If True then only show data from within Regular Trading Hours, if False then show all data.
- **ignoreSize** (bool) – Ignore bid/ask ticks that only update the size.
- **miscOptions** (List[*TagValue*]) – Unknown.

Return type
List

reqMarketDataType(*marketDataType*)

Set the market data type used for *reqMktData()*.

Parameters
marketDataType (int) – One of:

- 1 = Live
- 2 = Frozen

- 3 = Delayed
- 4 = Delayed frozen

https://interactivebrokers.github.io/tws-api/market_data_type.html

reqHeadTimeStamp(*contract*, *whatToShow*, *useRTH*, *formatDate=1*)

Get the datetime of earliest available historical data for the contract.

Parameters

- **contract** (*Contract*) – Contract of interest.
- **useRTH** (bool) – If True then only show data from within Regular Trading Hours, if False then show all data.
- **formatDate** (int) – If set to 2 then the result is returned as a timezone-aware datetime.datetime with UTC timezone.

Return type
datetime

reqMktData(*contract*, *genericTickList=''*, *snapshot=False*, *regulatorySnapshot=False*, *mktDataOptions=None*)

Subscribe to tick data or request a snapshot. Returns the Ticker that holds the market data. The ticker will initially be empty and gradually (after a couple of seconds) be filled.

https://interactivebrokers.github.io/tws-api/md_request.html

Parameters

- **contract** (*Contract*) – Contract of interest.
- **genericTickList** (str) – Comma separated IDs of desired generic ticks that will cause corresponding Ticker fields to be filled:

ID	Ticker fields
100	putVolume, callVolume (for options)
101	putOpenInterest, callOpenInterest (for options)
104	histVolatility (for options)
105	avOptionVolume (for options)
106	impliedVolatility (for options)
162	indexFuturePremium
165	low13week, high13week, low26week, high26week, low52week, high52week, avVolume
221	markPrice
225	auctionVolume, auctionPrice, auctionImbalance
233	last, lastSize, rtVolume, rtTime, vwap (Time & Sales)
236	shortableShares
258	fundamentalRatios (of type *ib_insync.objects.FundamentalRatios*)
293	tradeCount
294	tradeRate
295	volumeRate
375	rtTradeVolume
411	rtHistVolatility
456	dividends (of type *ib_insync.objects.Dividends*)
588	futuresOpenInterest

- **snapshot** (bool) – If True then request a one-time snapshot, otherwise subscribe to a stream of realtime tick data.
- **regulatorySnapshot** (bool) – Request NBBO snapshot (may incur a fee).
- **mktDataOptions** (Optional[List[*TagValue*]]) – Unknown

Return type
Ticker

cancelMktData(*contract*)

Unsubscribe from realtime streaming tick data.

Parameters
contract (*Contract*) – The exact contract object that was used to subscribe with.

reqTickByTickData(*contract*, *tickType*, *numberOfTicks=0*, *ignoreSize=False*)

Subscribe to tick-by-tick data and return the Ticker that holds the ticks in ticker.tickByTicks.

https://interactivebrokers.github.io/tws-api/tick_data.html

Parameters

- **contract** (*Contract*) – Contract of interest.
- **tickType** (str) – One of 'Last', 'AllLast', 'BidAsk' or 'MidPoint'.
- **numberOfTicks** (int) – Number of ticks or 0 for unlimited.
- **ignoreSize** (bool) – Ignore bid/ask ticks that only update the size.

Return type
Ticker

cancelTickByTickData(*contract*, *tickType*)

Unsubscribe from tick-by-tick data

Parameters
contract (*Contract*) – The exact contract object that was used to subscribe with.

reqSmartComponents(*bboExchange*)

Obtain mapping from single letter codes to exchange names.

Note: The exchanges must be open when using this request, otherwise an empty list is returned.

Return type
List[*SmartComponent*]

reqMktDepthExchanges()

Get those exchanges that have have multiple market makers (and have ticks returned with marketMaker info).

Return type
List[*DepthMktDataDescription*]

reqMktDepth(*contract*, *numRows=5*, *isSmartDepth=False*, *mktDepthOptions=None*)

Subscribe to market depth data (a.k.a. DOM, L2 or order book).

https://interactivebrokers.github.io/tws-api/market_depth.html

Parameters

- **contract** (*Contract*) – Contract of interest.
- **numRows** (int) – Number of depth level on each side of the order book (5 max).

- **isSmartDepth** (bool) – Consolidate the order book across exchanges.
- **mktDepthOptions** – Unknown.

Return type
Ticker

Returns
The Ticker that holds the market depth in `ticker.domBids` and `ticker.domAsks` and the list of MktDepthData in `ticker.domTicks`.

cancelMktDepth(*contract*, *isSmartDepth=False*)

Unsubscribe from market depth data.

Parameters
contract (*Contract*) – The exact contract object that was used to subscribe with.

reqHistogramData(*contract*, *useRTH*, *period*)

Request histogram data.

This method is blocking.

https://interactivebrokers.github.io/tws-api/histograms.html

Parameters

- **contract** (*Contract*) – Contract to query.
- **useRTH** (bool) – If True then only show data from within Regular Trading Hours, if False then show all data.
- **period** (str) – Period of which data is being requested, for example '3 days'.

Return type
List[*HistogramData*]

reqFundamentalData(*contract*, *reportType*, *fundamentalDataOptions=[]*)

Get fundamental data of a contract in XML format.

This method is blocking.

https://interactivebrokers.github.io/tws-api/fundamentals.html

Parameters

- **contract** (*Contract*) – Contract to query.
- **reportType** (str) –
  - 'ReportsFinSummary': Financial summary
  - 'ReportsOwnership': Company's ownership
  - 'ReportSnapshot': Company's financial overview
  - 'ReportsFinStatements': Financial Statements
  - 'RESC': Analyst Estimates
  - 'CalendarReport': Company's calendar
- **fundamentalDataOptions** (List[*TagValue*]) – Unknown

Return type
str

reqScannerData(*subscription*, *scannerSubscriptionOptions=[]*, *scannerSubscriptionFilterOptions=[]*)

Do a blocking market scan by starting a subscription and canceling it after the initial list of results are in.

This method is blocking.

https://interactivebrokers.github.io/tws-api/market_scanners.html

Parameters

- **subscription** (*ScannerSubscription*) – Basic filters.
- **scannerSubscriptionOptions** (List[*TagValue*]) – Unknown.
- **scannerSubscriptionFilterOptions** (List[*TagValue*]) – Advanced generic filters.

Return type
ScanDataList

reqScannerSubscription(*subscription*, *scannerSubscriptionOptions=[]*, *scannerSubscriptionFilterOptions=[]*)

Subscribe to market scan data.

https://interactivebrokers.github.io/tws-api/market_scanners.html

Parameters

- **subscription** (*ScannerSubscription*) – What to scan for.
- **scannerSubscriptionOptions** (List[*TagValue*]) – Unknown.
- **scannerSubscriptionFilterOptions** (List[*TagValue*]) – Unknown.

Return type
ScanDataList

cancelScannerSubscription(*dataList*)

Cancel market data subscription.

https://interactivebrokers.github.io/tws-api/market_scanners.html

Parameters
dataList (*ScanDataList*) – The scan data list that was obtained from *reqScannerSubscription()*.

reqScannerParameters()

Requests an XML list of scanner parameters.

This method is blocking.

Return type
str

calculateImpliedVolatility(*contract*, *optionPrice*, *underPrice*, *implVolOptions=[]*)

Calculate the volatility given the option price.

This method is blocking.

https://interactivebrokers.github.io/tws-api/option_computations.html

Parameters

- **contract** (*Contract*) – Option contract.
- **optionPrice** (float) – Option price to use in calculation.
- **underPrice** (float) – Price of the underlier to use in calculation

- **implVolOptions** (List[*TagValue*]) – Unknown

Return type
OptionComputation

calculateOptionPrice(*contract*, *volatility*, *underPrice*, *optPrcOptions=[]*)

Calculate the option price given the volatility.

This method is blocking.

https://interactivebrokers.github.io/tws-api/option_computations.html

Parameters

- **contract** (*Contract*) – Option contract.
- **volatility** (float) – Option volatility to use in calculation.
- **underPrice** (float) – Price of the underlier to use in calculation
- **implVolOptions** – Unknown

Return type
OptionComputation

reqSecDefOptParams(*underlyingSymbol*, *futFopExchange*, *underlyingSecType*, *underlyingConId*)

Get the option chain.

This method is blocking.

https://interactivebrokers.github.io/tws-api/options.html

Parameters

- **underlyingSymbol** (str) – Symbol of underlier contract.
- **futFopExchange** (str) – Exchange (only for FuturesOption, otherwise leave blank).
- **underlyingSecType** (str) – The type of the underlying security, like 'STK' or 'FUT'.
- **underlyingConId** (int) – conId of the underlying contract.

Return type
List[*OptionChain*]

exerciseOptions(*contract*, *exerciseAction*, *exerciseQuantity*, *account*, *override*)

Exercise an options contract.

https://interactivebrokers.github.io/tws-api/options.html

Parameters

- **contract** (*Contract*) – The option contract to be exercised.
- **exerciseAction** (int) –
  - 1 = exercise the option
  - 2 = let the option lapse
- **exerciseQuantity** (int) – Number of contracts to be exercised.
- **account** (str) – Destination account.
- **override** (int) –
  - 0 = no override
  - 1 = override the system's natural action

reqNewsProviders()

Get a list of news providers.

This method is blocking.

Return type
List[*NewsProvider*]

reqNewsArticle(*providerCode*, *articleId*, *newsArticleOptions=None*)

Get the body of a news article.

This method is blocking.

https://interactivebrokers.github.io/tws-api/news.html

Parameters

- **providerCode** (str) – Code indicating news provider, like 'BZ' or 'FLY'.
- **articleId** (str) – ID of the specific article.
- **newsArticleOptions** (Optional[List[*TagValue*]]) – Unknown.

Return type
NewsArticle

reqHistoricalNews(*conId*, *providerCodes*, *startDateTime*, *endDateTime*, *totalResults*, *historicalNewsOptions=None*)

Get historical news headline.

https://interactivebrokers.github.io/tws-api/news.html

This method is blocking.

Parameters

- **conId** (int) – Search news articles for contract with this conId.
- **providerCodes** (str) – A '+'-separated list of provider codes, like 'BZ+FLY'.
- **startDateTime** (Union[str, date]) – The (exclusive) start of the date range. Can be given as a datetime.date or datetime.datetime, or it can be given as a string in 'yyyyMMdd HH:mm:ss' format. If no timezone is given then the TWS login timezone is used.
- **endDateTime** (Union[str, date]) – The (inclusive) end of the date range. Can be given as a datetime.date or datetime.datetime, or it can be given as a string in 'yyyyMMdd HH:mm:ss' format. If no timezone is given then the TWS login timezone is used.
- **totalResults** (int) – Maximum number of headlines to fetch (300 max).
- **historicalNewsOptions** (Optional[List[*TagValue*]]) – Unknown.

Return type
HistoricalNews

reqNewsBulletins(*allMessages*)

Subscribe to IB news bulletins.

https://interactivebrokers.github.io/tws-api/news.html

Parameters
allMessages (bool) – If True then fetch all messages for the day.

cancelNewsBulletins()

Cancel subscription to IB news bulletins.

requestFA(*faDataType*)

Requests to change the FA configuration.

This method is blocking.

Parameters

faDataType (int) –

- 1 = Groups: Offer traders a way to create a group of accounts and apply a single allocation method to all accounts in the group.
- 2 = Profiles: Let you allocate shares on an account-by-account basis using a predefined calculation value.
- 3 = Account Aliases: Let you easily identify the accounts by meaningful names rather than account numbers.

replaceFA(*faDataType*, *xml*)

Replaces Financial Advisor's settings.

Parameters

- **faDataType** (int) – See *requestFA()*.
- **xml** (str) – The XML-formatted configuration string.

reqUserInfo()

Get the White Branding ID of the user.

Return type

str

async connectAsync(*host='127.0.0.1'*, *port=7497*, *clientId=1*, *timeout=4*, *readonly=False*, *account=''*)

async qualifyContractsAsync(**contracts*)

Return type

List[*Contract*]

async reqTickersAsync(**contracts*, *regulatorySnapshot=False*)

Return type

List[*Ticker*]

whatIfOrderAsync(*contract*, *order*)

Return type

Awaitable[*OrderState*]

reqCurrentTimeAsync()

Return type

Awaitable[datetime]

reqAccountUpdatesAsync(*account*)

Return type

Awaitable[None]

reqAccountUpdatesMultiAsync(*account*, *modelCode=''*)

Return type

Awaitable[None]

async **accountSummaryAsync**(*account=''*)

Return type
List[*AccountValue*]

reqAccountSummaryAsync()

Return type
Awaitable[None]

reqOpenOrdersAsync()

Return type
Awaitable[List[*Order*]]

reqAllOpenOrdersAsync()

Return type
Awaitable[List[*Order*]]

reqCompletedOrdersAsync(*apiOnly*)

Return type
Awaitable[List[*Trade*]]

reqExecutionsAsync(*execFilter=None*)

Return type
Awaitable[List[*Fill*]]

reqPositionsAsync()

Return type
Awaitable[List[*Position*]]

reqContractDetailsAsync(*contract*)

Return type
Awaitable[List[*ContractDetails*]]

async **reqMatchingSymbolsAsync**(*pattern*)

Return type
Optional[List[*ContractDescription*]]

async **reqMarketRuleAsync**(*marketRuleId*)

Return type
Optional[List[*PriceIncrement*]]

async **reqHistoricalDataAsync**(*contract*, *endDateTime*, *durationStr*, *barSizeSetting*, *whatToShow*, *useRTH*, *formatDate=1*, *keepUpToDate=False*, *chartOptions=[]*, *timeout=60*)

Return type
BarDataList

reqHistoricalScheduleAsync(*contract*, *numDays*, *endDateTime=''*, *useRTH=True*)

Return type
Awaitable[*HistoricalSchedule*]

reqHistoricalTicksAsync(*contract*, *startDateTime*, *endDateTime*, *numberOfTicks*, *whatToShow*, *useRth*, *ignoreSize=False*, *miscOptions=[]*)

Return type
Awaitable[List]

reqHeadTimeStampAsync(*contract*, *whatToShow*, *useRTH*, *formatDate*)

Return type
Awaitable[datetime]

reqSmartComponentsAsync(*bboExchange*)

reqMktDepthExchangesAsync()

Return type
Awaitable[List[*DepthMktDataDescription*]]

reqHistogramDataAsync(*contract*, *useRTH*, *period*)

Return type
Awaitable[List[*HistogramData*]]

reqFundamentalDataAsync(*contract*, *reportType*, *fundamentalDataOptions=[]*)

Return type
Awaitable[str]

async reqScannerDataAsync(*subscription*, *scannerSubscriptionOptions=[]*, *scannerSubscriptionFilterOptions=[]*)

Return type
ScanDataList

reqScannerParametersAsync()

Return type
Awaitable[str]

async calculateImpliedVolatilityAsync(*contract*, *optionPrice*, *underPrice*, *implVolOptions=[]*)

Return type
Optional[*OptionComputation*]

async calculateOptionPriceAsync(*contract*, *volatility*, *underPrice*, *optPrcOptions=[]*)

Return type
Optional[*OptionComputation*]

reqSecDefOptParamsAsync(*underlyingSymbol*, *futFopExchange*, *underlyingSecType*, *underlyingConId*)

Return type
Awaitable[List[*OptionChain*]]

reqNewsProvidersAsync()

Return type
Awaitable[List[*NewsProvider*]]

reqNewsArticleAsync(*providerCode*, *articleId*, *newsArticleOptions*)

Return type
Awaitable[*NewsArticle*]

async reqHistoricalNewsAsync(*conId*, *providerCodes*, *startDateTime*, *endDateTime*, *totalResults*, *historicalNewsOptions=None*)

Return type
Optional[*HistoricalNews*]

async requestFAAsync(*faDataType*)

reqUserInfoAsync()

2.2 Client

Socket client for communicating with Interactive Brokers.

class ib_insync.client.**Client**(*wrapper*)

Replacement for ibapi.client.EClient that uses asyncio.

The client is fully asynchronous and has its own event-driven networking code that replaces the networking code of the standard EClient. It also replaces the infinite loop of EClient.run() with the asyncio event loop. It can be used as a drop-in replacement for the standard EClient as provided by IBAPI.

Compared to the standard EClient this client has the following additional features:

- client.connect() will block until the client is ready to serve requests; It is not necessary to wait for nextValidId to start requests as the client has already done that. The reqId is directly available with *getReqId()*.
- client.connectAsync() is a coroutine for connecting asynchronously.
- When blocking, client.connect() can be made to time out with the timeout parameter (default 2 seconds).
- Optional wrapper.priceSizeTick(reqId, tickType, price, size) that combines price and size instead of the two wrapper methods priceTick and sizeTick.
- Automatic request throttling.
- Optional wrapper.tcpDataArrived() method; If the wrapper has this method it is invoked directly after a network packet has arrived. A possible use is to timestamp all data in the packet with the exact same time.
- Optional wrapper.tcpDataProcessed() method; If the wrapper has this method it is invoked after the network packet's data has been handled. A possible use is to write or evaluate the newly arrived data in one batch instead of item by item.

Parameters

- **MaxRequests** (*int*) – Throttle the number of requests to MaxRequests per RequestsInterval seconds. Set to 0 to disable throttling.
- **RequestsInterval** (*float*) – Time interval (in seconds) for request throttling.
- **MinClientVersion** (*int*) – Client protocol version.
- **MaxClientVersion** (*int*) – Client protocol version.

Events:

- apiStart ()
- apiEnd ()

- apiError (errorMsg: str)
- throttleStart ()
- throttleEnd ()

events = ('apiStart', 'apiEnd', 'apiError', 'throttleStart', 'throttleEnd')

MaxRequests = 45

RequestsInterval = 1

MinClientVersion = 157

MaxClientVersion = 176

DISCONNECTED = 0

CONNECTING = 1

CONNECTED = 2

reset()

serverVersion()

Return type
int

run()

isConnected()

isReady()

Is the API connection up and running?

Return type
bool

connectionStats()

Get statistics about the connection.

Return type
ConnectionStats

getReqId()

Get new request ID.

Return type
int

updateReqId(*minReqId*)

Update the next reqId to be at least minReqId.

getAccounts()

Get the list of account names that are under management.

Return type
List[str]

setConnectOptions(*connectOptions*)

Set additional connect options.

Parameters

connectOptions (str) – Use "+PACEAPI" to use request-pacing built into TWS/gateway 974+.

connect(*host*, *port*, *clientId*, *timeout=2.0*)

Connect to a running TWS or IB gateway application.

Parameters

- **host** (str) – Host name or IP address.
- **port** (int) – Port number.
- **clientId** (int) – ID number to use for this client; must be unique per connection.
- **timeout** (Optional[float]) – If establishing the connection takes longer than `timeout` seconds then the `asyncio.TimeoutError` exception is raised. Set to 0 to disable timeout.

async connectAsync(*host*, *port*, *clientId*, *timeout=2.0*)

disconnect()

Disconnect from IB connection.

send(**fields*)

Serialize and send the given fields using the IB socket protocol.

sendMsg(*msg*)

reqMktData(*reqId*, *contract*, *genericTickList*, *snapshot*, *regulatorySnapshot*, *mktDataOptions*)

cancelMktData(*reqId*)

placeOrder(*orderId*, *contract*, *order*)

cancelOrder(*orderId*, *manualCancelOrderTime=''*)

reqOpenOrders()

reqAccountUpdates(*subscribe*, *acctCode*)

reqExecutions(*reqId*, *execFilter*)

reqIds(*numIds*)

reqContractDetails(*reqId*, *contract*)

reqMktDepth(*reqId*, *contract*, *numRows*, *isSmartDepth*, *mktDepthOptions*)

cancelMktDepth(*reqId*, *isSmartDepth*)

reqNewsBulletins(*allMsgs*)

cancelNewsBulletins()

setServerLogLevel(*logLevel*)

reqAutoOpenOrders(*bAutoBind*)

reqAllOpenOrders()

reqManagedAccts()

requestFA(*faData*)

replaceFA(*reqId*, *faData*, *cxml*)

reqHistoricalData(*reqId*, *contract*, *endDateTime*, *durationStr*, *barSizeSetting*, *whatToShow*, *useRTH*, *formatDate*, *keepUpToDate*, *chartOptions*)

exerciseOptions(*reqId*, *contract*, *exerciseAction*, *exerciseQuantity*, *account*, *override*)

reqScannerSubscription(*reqId*, *subscription*, *scannerSubscriptionOptions*, *scannerSubscriptionFilterOptions*)

cancelScannerSubscription(*reqId*)

reqScannerParameters()

cancelHistoricalData(*reqId*)

reqCurrentTime()

reqRealTimeBars(*reqId*, *contract*, *barSize*, *whatToShow*, *useRTH*, *realTimeBarsOptions*)

cancelRealTimeBars(*reqId*)

reqFundamentalData(*reqId*, *contract*, *reportType*, *fundamentalDataOptions*)

cancelFundamentalData(*reqId*)

calculateImpliedVolatility(*reqId*, *contract*, *optionPrice*, *underPrice*, *implVolOptions*)

calculateOptionPrice(*reqId*, *contract*, *volatility*, *underPrice*, *optPrcOptions*)

cancelCalculateImpliedVolatility(*reqId*)

cancelCalculateOptionPrice(*reqId*)

reqGlobalCancel()

reqMarketDataType(*marketDataType*)

reqPositions()

reqAccountSummary(*reqId*, *groupName*, *tags*)

cancelAccountSummary(*reqId*)

cancelPositions()

verifyRequest(*apiName*, *apiVersion*)

verifyMessage(*apiData*)

queryDisplayGroups(*reqId*)

subscribeToGroupEvents(*reqId*, *groupId*)

updateDisplayGroup(*reqId*, *contractInfo*)

unsubscribeFromGroupEvents(*reqId*)

startApi()

verifyAndAuthRequest(*apiName*, *apiVersion*, *opaqueIsvKey*)

verifyAndAuthMessage(*apiData*, *xyzResponse*)

reqPositionsMulti(*reqId*, *account*, *modelCode*)

cancelPositionsMulti(*reqId*)

reqAccountUpdatesMulti(*reqId*, *account*, *modelCode*, *ledgerAndNLV*)

cancelAccountUpdatesMulti(*reqId*)

reqSecDefOptParams(*reqId*, *underlyingSymbol*, *futFopExchange*, *underlyingSecType*, *underlyingConId*)

reqSoftDollarTiers(*reqId*)

reqFamilyCodes()

reqMatchingSymbols(*reqId*, *pattern*)

reqMktDepthExchanges()

reqSmartComponents(*reqId*, *bboExchange*)

reqNewsArticle(*reqId*, *providerCode*, *articleId*, *newsArticleOptions*)

reqNewsProviders()

reqHistoricalNews(*reqId*, *conId*, *providerCodes*, *startDateTime*, *endDateTime*, *totalResults*, *historicalNewsOptions*)

reqHeadTimeStamp(*reqId*, *contract*, *whatToShow*, *useRTH*, *formatDate*)

reqHistogramData(*tickerId*, *contract*, *useRTH*, *timePeriod*)

cancelHistogramData(*tickerId*)

cancelHeadTimeStamp(*reqId*)

reqMarketRule(*marketRuleId*)

reqPnL(*reqId*, *account*, *modelCode*)

cancelPnL(*reqId*)

reqPnLSingle(*reqId*, *account*, *modelCode*, *conid*)

cancelPnLSingle(*reqId*)

reqHistoricalTicks(*reqId*, *contract*, *startDateTime*, *endDateTime*, *numberOfTicks*, *whatToShow*, *useRth*, *ignoreSize*, *miscOptions*)

reqTickByTickData(*reqId*, *contract*, *tickType*, *numberOfTicks*, *ignoreSize*)

cancelTickByTickData(*reqId*)

reqCompletedOrders(*apiOnly*)

reqWshMetaData(*reqId*)

cancelWshMetaData(*reqId*)

reqWshEventData(*reqId*, *data*)

cancelWshEventData(*reqId*)

reqUserInfo(*reqId*)

2.3 Order

Order types used by Interactive Brokers.

class ib_insync.order.**Order**(*orderId: int = 0*, *clientId: int = 0*, *permId: int = 0*, *action: str = ''*, *totalQuantity: float = 0.0*, *orderType: str = ''*, *lmtPrice: float = 1.7976931348623157e+308*, *auxPrice: float = 1.7976931348623157e+308*, *tif: str = ''*, *activeStartTime: str = ''*, *activeStopTime: str = ''*, *ocaGroup: str = ''*, *ocaType: int = 0*, *orderRef: str = ''*, *transmit: bool = True*, *parentId: int = 0*, *blockOrder: bool = False*, *sweepToFill: bool = False*, *displaySize: int = 0*, *triggerMethod: int = 0*, *outsideRth: bool = False*, *hidden: bool = False*, *goodAfterTime: str = ''*, *goodTillDate: str = ''*, *rule80A: str = ''*, *allOrNone: bool = False*, *minQty: int = 2147483647*, *percentOffset: float = 1.7976931348623157e+308*, *overridePercentageConstraints: bool = False*, *trailStopPrice: float = 1.7976931348623157e+308*, *trailingPercent: float = 1.7976931348623157e+308*, *faGroup: str = ''*, *faProfile: str = ''*, *faMethod: str = ''*, *faPercentage: str = ''*, *designatedLocation: str = ''*, *openClose: str = 'O'*, *origin: int = 0*, *shortSaleSlot: int = 0*, *exemptCode: int = -1*, *discretionaryAmt: float = 0.0*, *eTradeOnly: bool = False*, *firmQuoteOnly: bool = False*, *nbboPriceCap: float = 1.7976931348623157e+308*, *optOutSmartRouting: bool = False*, *auctionStrategy: int = 0*, *startingPrice: float = 1.7976931348623157e+308*, *stockRefPrice: float = 1.7976931348623157e+308*, *delta: float = 1.7976931348623157e+308*, *stockRangeLower: float = 1.7976931348623157e+308*, *stockRangeUpper: float = 1.7976931348623157e+308*, *randomizePrice: bool = False*, *randomizeSize: bool = False*, *volatility: float = 1.7976931348623157e+308*, *volatilityType: int = 2147483647*, *deltaNeutralOrderType: str = ''*, *deltaNeutralAuxPrice: float = 1.7976931348623157e+308*, *deltaNeutralConId: int = 0*, *deltaNeutralSettlingFirm: str = ''*, *deltaNeutralClearingAccount: str = ''*, *deltaNeutralClearingIntent: str = ''*, *deltaNeutralOpenClose: str = ''*, *deltaNeutralShortSale: bool = False*, *deltaNeutralShortSaleSlot: int = 0*, *deltaNeutralDesignatedLocation: str = ''*, *continuousUpdate: bool = False*, *referencePriceType: int = 2147483647*, *basisPoints: float = 1.7976931348623157e+308*, *basisPointsType: int = 2147483647*, *scaleInitLevelSize: int = 2147483647*, *scaleSubsLevelSize: int = 2147483647*, *scalePriceIncrement: float = 1.7976931348623157e+308*, *scalePriceAdjustValue: float = 1.7976931348623157e+308*, *scalePriceAdjustInterval: int = 2147483647*, *scaleProfitOffset: float = 1.7976931348623157e+308*, *scaleAutoReset: bool = False*, *scaleInitPosition: int = 2147483647*, *scaleInitFillQty: int = 2147483647*, *scaleRandomPercent: bool = False*, *scaleTable: str = ''*, *hedgeType: str = ''*, *hedgeParam: str = ''*, *account: str = ''*, *settlingFirm: str = ''*, *clearingAccount: str = ''*, *clearingIntent: str = ''*, *algoStrategy: str = ''*, *algoParams: ~typing.List[~ib_insync.contract.TagValue] = <factory>*, *smartComboRoutingParams: ~typing.List[~ib_insync.contract.TagValue] = <factory>*, *algoId: str = ''*, *whatIf: bool = False*, *notHeld: bool = False*, *solicited: bool = False*, *modelCode: str = ''*, *orderComboLegs: ~typing.List[~ib_insync.order.OrderComboLeg] = <factory>*, *orderMiscOptions: ~typing.List[~ib_insync.contract.TagValue] = <factory>*, *referenceContractId: int = 0*, *peggedChangeAmount: float = 0.0*, *isPeggedChangeAmountDecrease: bool = False*, *referenceChangeAmount: float = 0.0*, *referenceExchangeId: str = ''*, *adjustedOrderType: str = ''*, *triggerPrice: float = 1.7976931348623157e+308*, *adjustedStopPrice: float = 1.7976931348623157e+308*, *adjustedStopLimitPrice: float = 1.7976931348623157e+308*, *adjustedTrailingAmount: float = 1.7976931348623157e+308*, *adjustableTrailingUnit: int = 0*, *lmtPriceOffset: float = 1.7976931348623157e+308*, *conditions: ~typing.List[~ib_insync.order.OrderCondition] = <factory>*, *conditionsCancelOrder: bool = False*, *conditionsIgnoreRth: bool = False*, *extOperator: str = ''*, *softDollarTier: ~ib_insync.objects.SoftDollarTier = <factory>*, *cashQty: float = 1.7976931348623157e+308*, *mifid2DecisionMaker: str = ''*, *mifid2DecisionAlgo: str = ''*, *mifid2ExecutionTrader: str = ''*, *mifid2ExecutionAlgo: str = ''*, *dontUseAutoPriceForHedge: bool = False*, *isOmsContainer: bool = False*,

Order for trading contracts.

https://interactivebrokers.github.io/tws-api/available_orders.html

```
orderId: int = 0
clientId: int = 0
permId: int = 0
action: str = ''
totalQuantity: float = 0.0
orderType: str = ''
lmtPrice: float = 1.7976931348623157e+308
auxPrice: float = 1.7976931348623157e+308
tif: str = ''
activeStartTime: str = ''
activeStopTime: str = ''
ocaGroup: str = ''
ocaType: int = 0
orderRef: str = ''
transmit: bool = True
parentId: int = 0
blockOrder: bool = False
sweepToFill: bool = False
displaySize: int = 0
triggerMethod: int = 0
outsideRth: bool = False
hidden: bool = False
goodAfterTime: str = ''
goodTillDate: str = ''
rule80A: str = ''
allOrNone: bool = False
minQty: int = 2147483647
percentOffset: float = 1.7976931348623157e+308
```

```
overridePercentageConstraints: bool = False
trailStopPrice: float = 1.7976931348623157e+308
trailingPercent: float = 1.7976931348623157e+308
faGroup: str = ''
faProfile: str = ''
faMethod: str = ''
faPercentage: str = ''
designatedLocation: str = ''
openClose: str = 'O'
origin: int = 0
shortSaleSlot: int = 0
exemptCode: int = -1
discretionaryAmt: float = 0.0
eTradeOnly: bool = False
firmQuoteOnly: bool = False
nbboPriceCap: float = 1.7976931348623157e+308
optOutSmartRouting: bool = False
auctionStrategy: int = 0
startingPrice: float = 1.7976931348623157e+308
stockRefPrice: float = 1.7976931348623157e+308
delta: float = 1.7976931348623157e+308
stockRangeLower: float = 1.7976931348623157e+308
stockRangeUpper: float = 1.7976931348623157e+308
randomizePrice: bool = False
randomizeSize: bool = False
volatility: float = 1.7976931348623157e+308
volatilityType: int = 2147483647
deltaNeutralOrderType: str = ''
deltaNeutralAuxPrice: float = 1.7976931348623157e+308
deltaNeutralConId: int = 0
deltaNeutralSettlingFirm: str = ''
```

deltaNeutralClearingAccount: str = ''

deltaNeutralClearingIntent: str = ''

deltaNeutralOpenClose: str = ''

deltaNeutralShortSale: bool = False

deltaNeutralShortSaleSlot: int = 0

deltaNeutralDesignatedLocation: str = ''

continuousUpdate: bool = False

referencePriceType: int = 2147483647

basisPoints: float = 1.7976931348623157e+308

basisPointsType: int = 2147483647

scaleInitLevelSize: int = 2147483647

scaleSubsLevelSize: int = 2147483647

scalePriceIncrement: float = 1.7976931348623157e+308

scalePriceAdjustValue: float = 1.7976931348623157e+308

scalePriceAdjustInterval: int = 2147483647

scaleProfitOffset: float = 1.7976931348623157e+308

scaleAutoReset: bool = False

scaleInitPosition: int = 2147483647

scaleInitFillQty: int = 2147483647

scaleRandomPercent: bool = False

scaleTable: str = ''

hedgeType: str = ''

hedgeParam: str = ''

account: str = ''

settlingFirm: str = ''

clearingAccount: str = ''

clearingIntent: str = ''

algoStrategy: str = ''

algoParams: List[*TagValue*]

smartComboRoutingParams: List[*TagValue*]

algoId: str = ''

whatIf: bool = False

notHeld: bool = False

solicited: bool = False

modelCode: str = ''

orderComboLegs: List[*OrderComboLeg*]

orderMiscOptions: List[*TagValue*]

referenceContractId: int = 0

peggedChangeAmount: float = 0.0

isPeggedChangeAmountDecrease: bool = False

referenceChangeAmount: float = 0.0

referenceExchangeId: str = ''

adjustedOrderType: str = ''

triggerPrice: float = 1.7976931348623157e+308

adjustedStopPrice: float = 1.7976931348623157e+308

adjustedStopLimitPrice: float = 1.7976931348623157e+308

adjustedTrailingAmount: float = 1.7976931348623157e+308

adjustableTrailingUnit: int = 0

lmtPriceOffset: float = 1.7976931348623157e+308

conditions: List[*OrderCondition*]

conditionsCancelOrder: bool = False

conditionsIgnoreRth: bool = False

extOperator: str = ''

softDollarTier: *SoftDollarTier*

cashQty: float = 1.7976931348623157e+308

mifid2DecisionMaker: str = ''

mifid2DecisionAlgo: str = ''

mifid2ExecutionTrader: str = ''

mifid2ExecutionAlgo: str = ''

dontUseAutoPriceForHedge: bool = False

isOmsContainer: bool = False

discretionaryUpToLimitPrice: bool = False

autoCancelDate: *str* = ''

filledQuantity: *float* = 1.7976931348623157e+308

refFuturesConId: *int* = 0

autoCancelParent: *bool* = False

shareholder: *str* = ''

imbalanceOnly: *bool* = False

routeMarketableToBbo: *bool* = False

parentPermId: *int* = 0

usePriceMgmtAlgo: *bool* = False

duration: *int* = 2147483647

postToAts: *int* = 2147483647

advancedErrorOverride: *str* = ''

manualOrderTime: *str* = ''

minTradeQty: *int* = 2147483647

minCompeteSize: *int* = 2147483647

competeAgainstBestOffset: *float* = 1.7976931348623157e+308

midOffsetAtWhole: *float* = 1.7976931348623157e+308

midOffsetAtHalf: *float* = 1.7976931348623157e+308

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**LimitOrder**(*action*, *totalQuantity*, *lmtPrice*, ***kwargs*)

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

algoParams: List[*TagValue*]

smartComboRoutingParams: List[*TagValue*]

orderComboLegs: List[*OrderComboLeg*]

orderMiscOptions: List[*TagValue*]

conditions: List[*OrderCondition*]

softDollarTier: *SoftDollarTier*

class ib_insync.order.**MarketOrder**(*action*, *totalQuantity*, ***kwargs*)

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

algoParams: List[*TagValue*]

smartComboRoutingParams: List[*TagValue*]

orderComboLegs: List[*OrderComboLeg*]

orderMiscOptions: List[*TagValue*]

conditions: List[*OrderCondition*]

softDollarTier: *SoftDollarTier*

class ib_insync.order.**StopOrder**(*action*, *totalQuantity*, *stopPrice*, ***kwargs*)

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

algoParams: List[*TagValue*]

smartComboRoutingParams: List[*TagValue*]

orderComboLegs: List[*OrderComboLeg*]

orderMiscOptions: List[*TagValue*]

conditions: List[*OrderCondition*]

softDollarTier: *SoftDollarTier*

class ib_insync.order.**StopLimitOrder**(*action*, *totalQuantity*, *lmtPrice*, *stopPrice*, ***kwargs*)

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

algoParams: List[*TagValue*]

smartComboRoutingParams: List[*TagValue*]

orderComboLegs: List[*OrderComboLeg*]

orderMiscOptions: List[*TagValue*]

conditions: List[*OrderCondition*]

softDollarTier: *SoftDollarTier*

class ib_insync.order.**OrderStatus**(*orderId: int = 0*, *status: str = ''*, *filled: float = 0.0*, *remaining: float = 0.0*, *avgFillPrice: float = 0.0*, *permId: int = 0*, *parentId: int = 0*, *lastFillPrice: float = 0.0*, *clientId: int = 0*, *whyHeld: str = ''*, *mktCapPrice: float = 0.0*)

orderId: int = 0

status: str = ''

filled: float = 0.0

remaining: float = 0.0

avgFillPrice: float = 0.0

permId: int = 0

parentId: int = 0

lastFillPrice: float = 0.0

clientId: int = 0

whyHeld: str = ''

mktCapPrice: float = 0.0

PendingSubmit: ClassVar[str] = 'PendingSubmit'

PendingCancel: ClassVar[str] = 'PendingCancel'

PreSubmitted: ClassVar[str] = 'PreSubmitted'

Submitted: ClassVar[str] = 'Submitted'

ApiPending: ClassVar[str] = 'ApiPending'

ApiCancelled: ClassVar[str] = 'ApiCancelled'

Cancelled: ClassVar[str] = 'Cancelled'

Filled: ClassVar[str] = 'Filled'

Inactive: ClassVar[str] = 'Inactive'

DoneStates: ClassVar[Set[str]] = {'ApiCancelled', 'Cancelled', 'Filled'}

ActiveStates: ClassVar[Set[str]] = {'ApiPending', 'PendingSubmit', 'PreSubmitted', 'Submitted'}

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**OrderState**(*status: str = ''*, *initMarginBefore: str = ''*, *maintMarginBefore: str = ''*, *equityWithLoanBefore: str = ''*, *initMarginChange: str = ''*, *maintMarginChange: str = ''*, *equityWithLoanChange: str = ''*, *initMarginAfter: str = ''*, *maintMarginAfter: str = ''*, *equityWithLoanAfter: str = ''*, *commission: float = 1.7976931348623157e+308*, *minCommission: float = 1.7976931348623157e+308*, *maxCommission: float = 1.7976931348623157e+308*, *commissionCurrency: str = ''*, *warningText: str = ''*, *completedTime: str = ''*, *completedStatus: str = ''*)

status: str = ''

initMarginBefore: str = ''

maintMarginBefore: str = ''

equityWithLoanBefore: str = ''

initMarginChange: str = ''

maintMarginChange: str = ''

equityWithLoanChange: str = ''

initMarginAfter: str = ''

maintMarginAfter: str = ''

equityWithLoanAfter: str = ''

commission: float = 1.7976931348623157e+308

minCommission: float = 1.7976931348623157e+308

maxCommission: float = 1.7976931348623157e+308

commissionCurrency: str = ''

warningText: str = ''

completedTime: str = ''

completedStatus: str = ''

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**OrderComboLeg**(*price: float = 1.7976931348623157e+308*)

price: *float* = 1.7976931348623157e+308

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**Trade**(*contract: ~ib_insync.contract.Contract = <factory>*, *order: ~ib_insync.order.Order = <factory>*, *orderStatus: ~ib_insync.order.OrderStatus = <factory>*, *fills: ~typing.List[~ib_insync.objects.Fill] = <factory>*, *log: ~typing.List[~ib_insync.objects.TradeLogEntry] = <factory>*, *advancedError: str = ''*)

Trade keeps track of an order, its status and all its fills.

Events:

- `statusEvent` (trade: *Trade*)
- `modifyEvent` (trade: *Trade*)
- `fillEvent` (trade: *Trade*, fill: *Fill*)
- `commissionReportEvent` (trade: *Trade*, fill: *Fill*, commissionReport: *CommissionReport*)
- `filledEvent` (trade: *Trade*)
- `cancelEvent` (trade: *Trade*)
- `cancelledEvent` (trade: *Trade*)

events: *ClassVar* = ('statusEvent', 'modifyEvent', 'fillEvent', 'commissionReportEvent', 'filledEvent', 'cancelEvent', 'cancelledEvent')

contract: *Contract*

order: *Order*

orderStatus: *OrderStatus*

fills: *List*[*Fill*]

log: List[*TradeLogEntry*]

advancedError: str = ''

isActive()

True if eligible for execution, false otherwise.

isDone()

True if completely filled or cancelled, false otherwise.

filled()

Number of shares filled.

remaining()

Number of shares remaining to be filled.

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**BracketOrder**(*parent*, *takeProfit*, *stopLoss*)

Create new instance of BracketOrder(parent, takeProfit, stopLoss)

property parent

property takeProfit

property stopLoss

class ib_insync.order.**OrderCondition**

static createClass(*condType*)

And()

Or()

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**PriceCondition**(*condType: int = 1*, *conjunction: str = 'a'*, *isMore: bool = True*, *price: float = 0.0*, *conId: int = 0*, *exch: str = ''*, *triggerMethod: int = 0*)

condType: int = 1

conjunction: str = 'a'

isMore: bool = True

price: float = 0.0

conId: int = 0

exch: str = ''

triggerMethod: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

class ib_insync.order.**TimeCondition**(*condType: int = 3*, *conjunction: str = 'a'*, *isMore: bool = True*, *time: str = ''*)

condType: `int = 3`

conjunction: `str = 'a'`

isMore: `bool = True`

time: `str = ''`

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

class ib_insync.order.**MarginCondition**(*condType: int = 4*, *conjunction: str = 'a'*, *isMore: bool = True*, *percent: int = 0*)

condType: `int = 4`

conjunction: `str = 'a'`

isMore: `bool = True`

percent: `int = 0`

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**ExecutionCondition**(*condType: int = 5*, *conjunction: str = 'a'*, *secType: str = ''*, *exch: str = ''*, *symbol: str = ''*)

condType: int = 5

conjunction: str = 'a'

secType: str = ''

exch: str = ''

symbol: str = ''

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**VolumeCondition**(*condType: int = 6*, *conjunction: str = 'a'*, *isMore: bool = True*, *volume: int = 0*, *conId: int = 0*, *exch: str = ''*)

condType: int = 6

conjunction: str = 'a'

isMore: bool = True

volume: int = 0

conId: int = 0

exch: str = ''

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.order.**PercentChangeCondition**(*condType: int = 7*, *conjunction: str = 'a'*, *isMore: bool = True*, *changePercent: float = 0.0*, *conId: int = 0*, *exch: str = ''*)

condType: int = 7

conjunction: str = 'a'

isMore: bool = True

changePercent: float = 0.0

conId: int = 0

exch: str = ''

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

2.4 Contract

Financial instrument types used by Interactive Brokers.

class ib_insync.contract.**Contract**(*secType: str = ''*, *conId: int = 0*, *symbol: str = ''*, *lastTradeDateOrContractMonth: str = ''*, *strike: float = 0.0*, *right: str = ''*, *multiplier: str = ''*, *exchange: str = ''*, *primaryExchange: str = ''*, *currency: str = ''*, *localSymbol: str = ''*, *tradingClass: str = ''*, *includeExpired: bool = False*, *secIdType: str = ''*, *secId: str = ''*, *description: str = ''*, *issuerId: str = ''*, *comboLegsDescrip: str = ''*, *comboLegs: ~typing.List[~ib_insync.contract.ComboLeg] = <factory>*, *deltaNeutralContract: ~typing.Optional[~ib_insync.contract.DeltaNeutralContract] = None*)

`Contract(**kwargs)` can create any contract using keyword arguments. To simplify working with contracts, there are also more specialized contracts that take optional positional arguments. Some examples:

```
Contract(conId=270639)
Stock('AMD', 'SMART', 'USD')
Stock('INTC', 'SMART', 'USD', primaryExchange='NASDAQ')
Forex('EURUSD')
CFD('IBUS30')
Future('ES', '20180921', 'GLOBEX')
Option('SPY', '20170721', 240, 'C', 'SMART')
Bond(secIdType='ISIN', secId='US03076KAA60')
Crypto('BTC', 'PAXOS', 'USD')
```

Parameters

- **conId** (*int*) – The unique IB contract identifier.
- **symbol** (*str*) – The contract (or its underlying) symbol.
- **secType** (*str*) – The security type:
  - 'STK' = Stock (or ETF)
  - 'OPT' = Option

  - 'FUT' = Future
  - 'IND' = Index
  - 'FOP' = Futures option
  - 'CASH' = Forex pair
  - 'CFD' = CFD
  - 'BAG' = Combo
  - 'WAR' = Warrant
  - 'BOND' = Bond
  - 'CMDTY' = Commodity
  - 'NEWS' = News
  - 'FUND' = Mutual fund
  - 'CRYPTO' = Crypto currency
- **lastTradeDateOrContractMonth** (*str*) – The contract's last trading day or contract month (for Options and Futures). Strings with format YYYYMM will be interpreted as the Contract Month whereas YYYYMMDD will be interpreted as Last Trading Day.
- **strike** (*float*) – The option's strike price.
- **right** (*str*) – Put or Call. Valid values are 'P', 'PUT', 'C', 'CALL', or '' for non-options.
- **multiplier** (*str*) – he instrument's multiplier (i.e. options, futures).
- **exchange** (*str*) – The destination exchange.
- **currency** (*str*) – The underlying's currency.
- **localSymbol** (*str*) – The contract's symbol within its primary exchange. For options, this will be the OCC symbol.
- **primaryExchange** (*str*) – The contract's primary exchange. For smart routed contracts, used to define contract in case of ambiguity. Should be defined as native exchange of contract, e.g. ISLAND for MSFT. For exchanges which contain a period in name, will only be part of exchange name prior to period, i.e. ENEXT for ENEXT.BE.
- **tradingClass** (*str*) – The trading class name for this contract. Available in TWS contract description window as well. For example, GBL Dec '13 future's trading class is "FGBL".
- **includeExpired** (*bool*) – If set to true, contract details requests and historical data queries can be performed pertaining to expired futures contracts. Expired options or other instrument types are not available.
- **secIdType** (*str*) – Security identifier type. Examples for Apple:
  - secIdType='ISIN', secId='US0378331005'
  - secIdType='CUSIP', secId='037833100'
- **secId** (*str*) – Security identifier.
- **comboLegsDescription** (*str*) – Description of the combo legs.
- **comboLegs** (*List[ComboLeg]*) – The legs of a combined contract definition.
- **deltaNeutralContract** (DeltaNeutralContract) – Delta and underlying price for Delta-Neutral combo orders.

secType: str = ''

conId: int = 0

symbol: str = ''

lastTradeDateOrContractMonth: str = ''

strike: float = 0.0

right: str = ''

multiplier: str = ''

exchange: str = ''

primaryExchange: str = ''

currency: str = ''

localSymbol: str = ''

tradingClass: str = ''

includeExpired: bool = False

secIdType: str = ''

secId: str = ''

description: str = ''

issuerId: str = ''

comboLegsDescrip: str = ''

comboLegs: List[*ComboLeg*]

deltaNeutralContract: Optional[*DeltaNeutralContract*] = None

static create(***kwargs*)

Create and a return a specialized contract based on the given secType, or a general Contract if secType is not given.

Return type
Contract

isHashable()

See if this contract can be hashed by conId.

Note: Bag contracts always get conId=28812380, so they're not hashable.

Return type
bool

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.contract.**Stock**(*symbol=''*, *exchange=''*, *currency=''*, ***kwargs*)

Stock contract.

Parameters

- **symbol** (str) – Symbol name.
- **exchange** (str) – Destination exchange.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Option**(*symbol=''*, *lastTradeDateOrContractMonth=''*, *strike=0.0*, *right=''*, *exchange=''*, *multiplier=''*, *currency=''*, ***kwargs*)

Option contract.

Parameters

- **symbol** (str) – Symbol name.
- **lastTradeDateOrContractMonth** (str) – The option's last trading day or contract month.
  - YYYYMM format: To specify last month
  - YYYYMMDD format: To specify last trading day
- **strike** (float) – The option's strike price.
- **right** (str) – Put or call option. Valid values are 'P', 'PUT', 'C' or 'CALL'.
- **exchange** (str) – Destination exchange.
- **multiplier** (str) – The contract multiplier.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Future**(*symbol=''*, *lastTradeDateOrContractMonth=''*, *exchange=''*, *localSymbol=''*, *multiplier=''*, *currency=''*, ***kwargs*)

Future contract.

Parameters

- **symbol** (str) – Symbol name.
- **lastTradeDateOrContractMonth** (str) – The option's last trading day or contract month.
  - YYYYMM format: To specify last month
  - YYYYMMDD format: To specify last trading day
- **exchange** (str) – Destination exchange.
- **localSymbol** (str) – The contract's symbol within its primary exchange.
- **multiplier** (str) – The contract multiplier.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**ContFuture**(*symbol=''*, *exchange=''*, *localSymbol=''*, *multiplier=''*, *currency=''*, ***kwargs*)

Continuous future contract.

Parameters

- **symbol** (str) – Symbol name.
- **exchange** (str) – Destination exchange.
- **localSymbol** (str) – The contract's symbol within its primary exchange.
- **multiplier** (str) – The contract multiplier.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

comboLegs: `List[ComboLeg]`

class ib_insync.contract.**Forex**(*pair=''*, *exchange='IDEALPRO'*, *symbol=''*, *currency=''*, ***kwargs*)

Foreign exchange currency pair.

Parameters

- **pair** (`str`) – Shortcut for specifying symbol and currency, like 'EURUSD'.
- **exchange** (`str`) – Destination exchange.
- **symbol** (`str`) – Base currency.
- **currency** (`str`) – Quote currency.

pair()

Short name of pair.

Return type
`str`

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

comboLegs: `List[ComboLeg]`

class ib_insync.contract.**Index**(*symbol=''*, *exchange=''*, *currency=''*, ***kwargs*)

Index.

Parameters

- **symbol** (`str`) – Symbol name.
- **exchange** (`str`) – Destination exchange.

- **currency** (str) – Underlying currency.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**CFD**(*symbol=''*, *exchange=''*, *currency=''*, ***kwargs*)

Contract For Difference.

Parameters

- **symbol** (str) – Symbol name.
- **exchange** (str) – Destination exchange.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Commodity**(*symbol=''*, *exchange=''*, *currency=''*, ***kwargs*)

Commodity.

Parameters

- **symbol** (str) – Symbol name.
- **exchange** (str) – Destination exchange.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Bond**(***kwargs*)

Bond.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

comboLegs: `List[ComboLeg]`

class ib_insync.contract.**FuturesOption**(*symbol=''*, *lastTradeDateOrContractMonth=''*, *strike=0.0*, *right=''*, *exchange=''*, *multiplier=''*, *currency=''*, ***kwargs*)

Option on a futures contract.

Parameters

- **symbol** (`str`) – Symbol name.
- **lastTradeDateOrContractMonth** (`str`) – The option's last trading day or contract month.
  - YYYYMM format: To specify last month
  - YYYYMMDD format: To specify last trading day
- **strike** (`float`) – The option's strike price.
- **right** (`str`) – Put or call option. Valid values are 'P', 'PUT', 'C' or 'CALL'.
- **exchange** (`str`) – Destination exchange.
- **multiplier** (`str`) – The contract multiplier.
- **currency** (`str`) – Underlying currency.

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

comboLegs: `List[ComboLeg]`

class ib_insync.contract.**MutualFund**(***kwargs*)

Mutual fund.

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Warrant**(***kwargs*)

Warrant option.

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Bag**(***kwargs*)

Bag contract.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

comboLegs: List[*ComboLeg*]

class ib_insync.contract.**Crypto**(*symbol=''*, *exchange=''*, *currency=''*, ***kwargs*)

Crypto currency contract.

Parameters

- **symbol** (str) – Symbol name.
- **exchange** (str) – Destination exchange.
- **currency** (str) – Underlying currency.

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

comboLegs: List[ComboLeg]

class ib_insync.contract.TagValue(*tag*, *value*)

Create new instance of TagValue(tag, value)

property tag

property value

class ib_insync.contract.ComboLeg(*conId: int = 0*, *ratio: int = 0*, *action: str = ''*, *exchange: str = ''*, *openClose: int = 0*, *shortSaleSlot: int = 0*, *designatedLocation: str = ''*, *exemptCode: int = -1*)

conId: int = 0

ratio: int = 0

action: str = ''

exchange: str = ''

openClose: int = 0

shortSaleSlot: int = 0

designatedLocation: str = ''

exemptCode: int = -1

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.contract.DeltaNeutralContract(*conId: int = 0*, *delta: float = 0.0*, *price: float = 0.0*)

conId: int = 0

delta: float = 0.0

price: float = 0.0

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

class ib_insync.contract.**ContractDetails**(*contract: Union[ib_insync.contract.Contract, NoneType] = None*, *marketName: str = ''*, *minTick: float = 0.0*, *orderTypes: str = ''*, *validExchanges: str = ''*, *priceMagnifier: int = 0*, *underConId: int = 0*, *longName: str = ''*, *contractMonth: str = ''*, *industry: str = ''*, *category: str = ''*, *subcategory: str = ''*, *timeZoneId: str = ''*, *tradingHours: str = ''*, *liquidHours: str = ''*, *evRule: str = ''*, *evMultiplier: int = 0*, *mdSizeMultiplier: int = 1*, *aggGroup: int = 0*, *underSymbol: str = ''*, *underSecType: str = ''*, *marketRuleIds: str = ''*, *secIdList: List[ib_insync.contract.TagValue] = <factory>*, *realExpirationDate: str = ''*, *lastTradeTime: str = ''*, *stockType: str = ''*, *minSize: float = 0.0*, *sizeIncrement: float = 0.0*, *suggestedSizeIncrement: float = 0.0*, *cusip: str = ''*, *ratings: str = ''*, *descAppend: str = ''*, *bondType: str = ''*, *couponType: str = ''*, *callable: bool = False*, *putable: bool = False*, *coupon: float = 0*, *convertible: bool = False*, *maturity: str = ''*, *issueDate: str = ''*, *nextOptionDate: str = ''*, *nextOptionType: str = ''*, *nextOptionPartial: bool = False*, *notes: str = ''*)

contract: Optional[*Contract*] = None

marketName: str = ''

minTick: float = 0.0

orderTypes: str = ''

validExchanges: str = ''

priceMagnifier: int = 0

```
underConId: int = 0
longName: str = ''
contractMonth: str = ''
industry: str = ''
category: str = ''
subcategory: str = ''
timeZoneId: str = ''
tradingHours: str = ''
liquidHours: str = ''
evRule: str = ''
evMultiplier: int = 0
mdSizeMultiplier: int = 1
aggGroup: int = 0
underSymbol: str = ''
underSecType: str = ''
marketRuleIds: str = ''
secIdList: List[TagValue]
realExpirationDate: str = ''
lastTradeTime: str = ''
stockType: str = ''
minSize: float = 0.0
sizeIncrement: float = 0.0
suggestedSizeIncrement: float = 0.0
cusip: str = ''
ratings: str = ''
descAppend: str = ''
bondType: str = ''
couponType: str = ''
callable: bool = False
putable: bool = False
coupon: float = 0
```

convertible: bool = False

maturity: str = ''

issueDate: str = ''

nextOptionDate: str = ''

nextOptionType: str = ''

nextOptionPartial: bool = False

notes: str = ''

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

class ib_insync.contract.**ContractDescription**(*contract: Union[ib_insync.contract.Contract, NoneType] = None*, *derivativeSecTypes: List[str] = <factory>*)

contract: Optional[*Contract*] = None

derivativeSecTypes: List[str]

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.contract.**ScanData**(*rank: int*, *contractDetails:* ib_insync.contract.ContractDetails, *distance: str*, *benchmark: str*, *projection: str*, *legsStr: str*)

rank: *int*

contractDetails: *ContractDetails*

distance: *str*

benchmark: *str*

projection: *str*

legsStr: *str*

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

2.5 Ticker

Access to realtime market information.

class ib_insync.ticker.**Ticker**(*contract: ~typing.Optional[~ib_insync.contract.Contract] = None*, *time: ~typing.Optional[~datetime.datetime] = None*, *marketDataType: int = 1*, *minTick: float = nan*, *bid: float = nan*, *bidSize: float = nan*, *bidExchange: str = ''*, *ask: float = nan*, *askSize: float = nan*, *askExchange: str = ''*, *last: float = nan*, *lastSize: float = nan*, *lastExchange: str = ''*, *prevBid: float = nan*, *prevBidSize: float = nan*, *prevAsk: float = nan*, *prevAskSize: float = nan*, *prevLast: float = nan*, *prevLastSize: float = nan*, *volume: float = nan*, *open: float = nan*, *high: float = nan*, *low: float = nan*, *close: float = nan*, *vwap: float = nan*, *low13week: float = nan*, *high13week: float = nan*, *low26week: float = nan*, *high26week: float = nan*, *low52week: float = nan*, *high52week: float = nan*, *bidYield: float = nan*, *askYield: float = nan*, *lastYield: float = nan*, *markPrice: float = nan*, *halted: float = nan*, *rtHistVolatility: float = nan*, *rtVolume: float = nan*, *rtTradeVolume: float = nan*, *rtTime: ~typing.Optional[~datetime.datetime] = None*, *avVolume: float = nan*, *tradeCount: float = nan*, *tradeRate: float = nan*, *volumeRate: float = nan*, *shortableShares: float = nan*, *indexFuturePremium: float = nan*, *futuresOpenInterest: float = nan*, *putOpenInterest: float = nan*, *callOpenInterest: float = nan*, *putVolume: float = nan*, *callVolume: float = nan*, *avOptionVolume: float = nan*, *histVolatility: float = nan*, *impliedVolatility: float = nan*, *dividends: ~typing.Optional[~ib_insync.objects.Dividends] = None*, *fundamentalRatios: ~typing.Optional[~ib_insync.objects.FundamentalRatios] = None*, *ticks: ~typing.List[~ib_insync.objects.TickData] = <factory>*, *tickByTicks: ~typing.List[~typing.Union[~ib_insync.objects.TickByTickAllLast, ~ib_insync.objects.TickByTickBidAsk, ~ib_insync.objects.TickByTickMidPoint]] = <factory>*, *domBids: ~typing.List[~ib_insync.objects.DOMLevel] = <factory>*, *domAsks: ~typing.List[~ib_insync.objects.DOMLevel] = <factory>*, *domTicks: ~typing.List[~ib_insync.objects.MktDepthData] = <factory>*, *bidGreeks: ~typing.Optional[~ib_insync.objects.OptionComputation] = None*, *askGreeks: ~typing.Optional[~ib_insync.objects.OptionComputation] = None*, *lastGreeks: ~typing.Optional[~ib_insync.objects.OptionComputation] = None*, *modelGreeks: ~typing.Optional[~ib_insync.objects.OptionComputation] = None*, *auctionVolume: float = nan*, *auctionPrice: float = nan*, *auctionImbalance: float = nan*, *regulatoryImbalance: float = nan*, *bboExchange: str = ''*, *snapshotPermissions: int = 0*)

Current market data such as bid, ask, last price, etc. for a contract.

Streaming level-1 ticks of type *TickData* are stored in the `ticks` list.

Streaming level-2 ticks of type *MktDepthData* are stored in the `domTicks` list. The order book (DOM) is available as lists of *DOMLevel* in `domBids` and `domAsks`.

Streaming tick-by-tick ticks are stored in `tickByTicks`.

For options the *OptionComputation* values for the bid, ask, resp. last price are stored in the `bidGreeks`, `askGreeks` resp. `lastGreeks` attributes. There is also `modelGreeks` that conveys the greeks as calculated by Interactive Brokers' option model.

Events:

- updateEvent (ticker: *Ticker*)

```
events: ClassVar = ('updateEvent',)
contract: Optional[Contract] = None
time: Optional[datetime] = None
marketDataType: int = 1
minTick: float = nan
bid: float = nan
bidSize: float = nan
bidExchange: str = ''
ask: float = nan
askSize: float = nan
askExchange: str = ''
last: float = nan
lastSize: float = nan
lastExchange: str = ''
prevBid: float = nan
prevBidSize: float = nan
prevAsk: float = nan
prevAskSize: float = nan
prevLast: float = nan
prevLastSize: float = nan
volume: float = nan
open: float = nan
high: float = nan
low: float = nan
close: float = nan
vwap: float = nan
low13week: float = nan
high13week: float = nan
low26week: float = nan
high26week: float = nan
```

```
    low52week: float = nan
    high52week: float = nan
    bidYield: float = nan
    askYield: float = nan
    lastYield: float = nan
    markPrice: float = nan
    halted: float = nan
    rtHistVolatility: float = nan
    rtVolume: float = nan
    rtTradeVolume: float = nan
    rtTime: Optional[datetime] = None
    avVolume: float = nan
    tradeCount: float = nan
    tradeRate: float = nan
    volumeRate: float = nan
    shortableShares: float = nan
    indexFuturePremium: float = nan
    futuresOpenInterest: float = nan
    putOpenInterest: float = nan
    callOpenInterest: float = nan
    putVolume: float = nan
    callVolume: float = nan
    avOptionVolume: float = nan
    histVolatility: float = nan
    impliedVolatility: float = nan
    dividends: Optional[Dividends] = None
    fundamentalRatios: Optional[FundamentalRatios] = None
    ticks: List[TickData]
    tickByTicks: List[Union[TickByTickAllLast, TickByTickBidAsk, TickByTickMidPoint]]
    domBids: List[DOMLevel]
    domAsks: List[DOMLevel]
```

domTicks: List[*MktDepthData*]

bidGreeks: Optional[*OptionComputation*] = None

askGreeks: Optional[*OptionComputation*] = None

lastGreeks: Optional[*OptionComputation*] = None

modelGreeks: Optional[*OptionComputation*] = None

auctionVolume: float = nan

auctionPrice: float = nan

auctionImbalance: float = nan

regulatoryImbalance: float = nan

bboExchange: str = ''

snapshotPermissions: int = 0

hasBidAsk()

See if this ticker has a valid bid and ask.

Return type
bool

midpoint()

Return average of bid and ask, or NaN if no valid bid and ask are available.

Return type
float

marketPrice()

Return the first available one of

- last price if within current bid/ask or no bid/ask available;
- average of bid and ask (midpoint).

Return type
float

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

class ib_insync.ticker.**TickerUpdateEvent**(*name=''*, *_with_error_done_events=True*)

trades()

Emit trade ticks.

Return type
Tickfilter

bids()

Emit bid ticks.

Return type
Tickfilter

asks()

Emit ask ticks.

Return type
Tickfilter

bidasks()

Emit bid and ask ticks.

Return type
Tickfilter

midpoints()

Emit midpoint ticks.

Return type
Tickfilter

class ib_insync.ticker.**Tickfilter**(*tickTypes*, *source=None*)

Tick filtering event operators that `emit(time, price, size)`.

on_source(*ticker*)

Emit a new value to all connected listeners.

Parameters
args – Argument values to emit to listeners.

timebars(*timer*)

Aggregate ticks into time bars, where the timing of new bars is derived from a timer event. Emits a completed *Bar*.

This event stores a *BarList* of all created bars in the `bars` property.

Parameters
timer (`Event`) – Event for timing when a new bar starts.

Return type
TimeBars

tickbars(*count*)

Aggregate ticks into bars that have the same number of ticks. Emits a completed *Bar*.

This event stores a *BarList* of all created bars in the `bars` property.

Parameters
count (*int*) – Number of ticks to use to form one bar.

Return type
TickBars

class ib_insync.ticker.**Midpoints**(*tickTypes*, *source=None*)

on_source(*ticker*)

Emit a new value to all connected listeners.

Parameters
args – Argument values to emit to listeners.

class ib_insync.ticker.**Bar**(*time: Union[datetime.datetime, NoneType]*, *open: float = nan*, *high: float = nan*, *low: float = nan*, *close: float = nan*, *volume: int = 0*, *count: int = 0*)

time: Optional[datetime]

open: float = nan

high: float = nan

low: float = nan

close: float = nan

volume: int = 0

count: int = 0

class ib_insync.ticker.**BarList**(**args*)

class ib_insync.ticker.**TimeBars**(*timer*, *source=None*)

Aggregate ticks into time bars, where the timing of new bars is derived from a timer event. Emits a completed *Bar*.

This event stores a *BarList* of all created bars in the `bars` property.

Parameters
timer – Event for timing when a new bar starts.

bars: *BarList*

on_source(*time*, *price*, *size*)

Emit a new value to all connected listeners.

Parameters
args – Argument values to emit to listeners.

class ib_insync.ticker.**TickBars**(*count*, *source=None*)

Aggregate ticks into bars that have the same number of ticks. Emits a completed *Bar*.

This event stores a *BarList* of all created bars in the `bars` property.

Parameters
count – Number of ticks to use to form one bar.

bars: *BarList*

on_source(*time*, *price*, *size*)

Emit a new value to all connected listeners.

Parameters

args – Argument values to emit to listeners.

2.6 Objects

Object hierarchy.

class ib_insync.objects.**ScannerSubscription**(*numberOfRows: int = -1*, *instrument: str = ''*, *locationCode: str = ''*, *scanCode: str = ''*, *abovePrice: float = 1.7976931348623157e+308*, *belowPrice: float = 1.7976931348623157e+308*, *aboveVolume: int = 2147483647*, *marketCapAbove: float = 1.7976931348623157e+308*, *marketCapBelow: float = 1.7976931348623157e+308*, *moodyRatingAbove: str = ''*, *moodyRatingBelow: str = ''*, *spRatingAbove: str = ''*, *spRatingBelow: str = ''*, *maturityDateAbove: str = ''*, *maturityDateBelow: str = ''*, *couponRateAbove: float = 1.7976931348623157e+308*, *couponRateBelow: float = 1.7976931348623157e+308*, *excludeConvertible: bool = False*, *averageOptionVolumeAbove: int = 2147483647*, *scannerSettingPairs: str = ''*, *stockTypeFilter: str = ''*)

numberOfRows: *int* = -1

instrument: *str* = ''

locationCode: *str* = ''

scanCode: *str* = ''

abovePrice: *float* = 1.7976931348623157e+308

belowPrice: *float* = 1.7976931348623157e+308

aboveVolume: *int* = 2147483647

marketCapAbove: *float* = 1.7976931348623157e+308

marketCapBelow: *float* = 1.7976931348623157e+308

moodyRatingAbove: *str* = ''

moodyRatingBelow: *str* = ''

spRatingAbove: *str* = ''

spRatingBelow: *str* = ''

maturityDateAbove: *str* = ''

maturityDateBelow: *str* = ''

couponRateAbove: *float* = 1.7976931348623157e+308

couponRateBelow: *float* = 1.7976931348623157e+308

excludeConvertible: *bool* = False

averageOptionVolumeAbove: *int* = 2147483647

scannerSettingPairs: *str* = ''

stockTypeFilter: *str* = ''

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**SoftDollarTier**(*name: str = ''*, *val: str = ''*, *displayName: str = ''*)

name: *str* = ''

val: *str* = ''

displayName: *str* = ''

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
`object`

class ib_insync.objects.**Execution**(*execId: str = ''*, *time: datetime.datetime = datetime.datetime(1970, 1, 1, 0, 0, tzinfo=datetime.timezone.utc)*, *acctNumber: str = ''*, *exchange: str = ''*, *side: str = ''*, *shares: float = 0.0*, *price: float = 0.0*, *permId: int = 0*, *clientId: int = 0*, *orderId: int = 0*, *liquidation: int = 0*, *cumQty: float = 0.0*, *avgPrice: float = 0.0*, *orderRef: str = ''*, *evRule: str = ''*, *evMultiplier: float = 0.0*, *modelCode: str = ''*, *lastLiquidity: int = 0*)

execId: str = ''

time: datetime = datetime.datetime(1970, 1, 1, 0, 0, tzinfo=datetime.timezone.utc)

acctNumber: str = ''

exchange: str = ''

side: str = ''

shares: float = 0.0

price: float = 0.0

permId: int = 0

clientId: int = 0

orderId: int = 0

liquidation: int = 0

cumQty: float = 0.0

avgPrice: float = 0.0

orderRef: str = ''

evRule: str = ''

evMultiplier: float = 0.0

modelCode: str = ''

lastLiquidity: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**CommissionReport**(*execId: str = ''*, *commission: float = 0.0*, *currency: str = ''*, *realizedPNL: float = 0.0*, *yield_: float = 0.0*, *yieldRedemptionDate: int = 0*)

execId: str = ''

commission: float = 0.0

currency: str = ''

realizedPNL: float = 0.0

yield_: float = 0.0

yieldRedemptionDate: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**ExecutionFilter**(*clientId: int = 0*, *acctCode: str = ''*, *time: str = ''*, *symbol: str = ''*, *secType: str = ''*, *exchange: str = ''*, *side: str = ''*)

clientId: int = 0

acctCode: str = ''

time: str = ''

symbol: str = ''

secType: str = ''

exchange: str = ''

side: str = ''

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**BarData**(*date: Union[datetime.date, datetime.datetime] = datetime.datetime(1970, 1, 1, 0, 0, tzinfo=datetime.timezone.utc)*, *open: float = 0.0*, *high: float = 0.0*, *low: float = 0.0*, *close: float = 0.0*, *volume: float = 0*, *average: float = 0.0*, *barCount: int = 0*)

date: Union[date, datetime] = datetime.datetime(1970, 1, 1, 0, 0, tzinfo=datetime.timezone.utc)

open: float = 0.0

high: float = 0.0

low: float = 0.0

close: float = 0.0

volume: float = 0

average: float = 0.0

barCount: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**RealTimeBar**(*time: datetime.datetime = datetime.datetime(1970, 1, 1, 0, 0, tzinfo=datetime.timezone.utc)*, *endTime: int = -1*, *open_: float = 0.0*, *high: float = 0.0*, *low: float = 0.0*, *close: float = 0.0*, *volume: float = 0.0*, *wap: float = 0.0*, *count: int = 0*)

time: datetime = datetime.datetime(1970, 1, 1, 0, 0, tzinfo=datetime.timezone.utc)

endTime: int = -1

open_: float = 0.0

high: float = 0.0

low: float = 0.0

close: float = 0.0

volume: float = 0.0

wap: float = 0.0

count: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**TickAttrib**(*canAutoExecute: bool = False*, *pastLimit: bool = False*, *preOpen: bool = False*)

canAutoExecute: bool = False

pastLimit: bool = False

preOpen: bool = False

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**TickAttribBidAsk**(*bidPastLow: bool = False*, *askPastHigh: bool = False*)

bidPastLow: bool = False

askPastHigh: bool = False

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**TickAttribLast**(*pastLimit: bool = False*, *unreported: bool = False*)

pastLimit: bool = False

unreported: bool = False

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**HistogramData**(*price: float = 0.0*, *count: int = 0*)

price: float = 0.0

count: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**NewsProvider**(*code: str = ''*, *name: str = ''*)

code: str = ''

name: str = ''

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**DepthMktDataDescription**(*exchange: str = ''*, *secType: str = ''*, *listingExch: str = ''*, *serviceDataType: str = ''*, *aggGroup: int = 2147483647*)

exchange: str = ''

secType: str = ''

listingExch: str = ''

serviceDataType: *str* = ''

aggGroup: *int* = 2147483647

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**PnL**(*account: str = ''*, *modelCode: str = ''*, *dailyPnL: float = nan*, *unrealizedPnL: float = nan*, *realizedPnL: float = nan*)

account: *str* = ''

modelCode: *str* = ''

dailyPnL: *float* = nan

unrealizedPnL: *float* = nan

realizedPnL: *float* = nan

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**TradeLogEntry**(*time: datetime.datetime*, *status: str = ''*, *message: str = ''*, *errorCode: int = 0*)

time: datetime

status: str = ''

message: str = ''

errorCode: int = 0

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**PnLSingle**(*account: str = ''*, *modelCode: str = ''*, *conId: int = 0*, *dailyPnL: float = nan*, *unrealizedPnL: float = nan*, *realizedPnL: float = nan*, *position: int = 0*, *value: float = nan*)

account: str = ''

modelCode: str = ''

conId: int = 0

dailyPnL: float = nan

unrealizedPnL: float = nan

realizedPnL: float = nan

position: int = 0

value: *float* = nan

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**HistoricalSession**(*startDateTime: str = ''*, *endDateTime: str = ''*, *refDate: str = ''*)

startDateTime: *str* = ''

endDateTime: *str* = ''

refDate: *str* = ''

dict()

Return dataclass values as dict. This is a non-recursive variant of dataclasses.asdict.

Return type
dict

nonDefaults()

For a dataclass instance get the fields that are different from the default values and return as dict.

Return type
dict

tuple()

Return dataclass values as tuple. This is a non-recursive variant of dataclasses.astuple.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given dataclass object from zero or more dataclass source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**HistoricalSchedule**(*startDateTime: str = ''*, *endDateTime: str = ''*, *timeZone: str = ''*, *sessions: List[ib_insync.objects.HistoricalSession] = <factory>*)

startDateTime: str = ''

endDateTime: str = ''

timeZone: str = ''

sessions: List[*HistoricalSession*]

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

class ib_insync.objects.**WshEventData**(*conId: int = 2147483647*, *filter: str = ''*, *fillWatchlist: bool = False*, *fillPortfolio: bool = False*, *fillCompetitors: bool = False*, *startDate: str = ''*, *endDate: str = ''*, *totalLimit: int = 2147483647*)

conId: int = 2147483647

filter: str = ''

fillWatchlist: bool = False

fillPortfolio: bool = False

fillCompetitors: bool = False

startDate: str = ''

endDate: str = ''

totalLimit: int = 2147483647

class ib_insync.objects.**AccountValue**(*account*, *tag*, *value*, *currency*, *modelCode*)

Create new instance of AccountValue(account, tag, value, currency, modelCode)

property account

property tag

property value

property currency

property modelCode

class ib_insync.objects.**TickData**(*time*, *tickType*, *price*, *size*)

Create new instance of TickData(time, tickType, price, size)

property time

property tickType

property price

property size

class ib_insync.objects.**HistoricalTick**(*time*, *price*, *size*)

Create new instance of HistoricalTick(time, price, size)

property time

property price

property size

class ib_insync.objects.**HistoricalTickBidAsk**(*time*, *tickAttribBidAsk*, *priceBid*, *priceAsk*, *sizeBid*, *sizeAsk*)

Create new instance of HistoricalTickBidAsk(time, tickAttribBidAsk, priceBid, priceAsk, sizeBid, sizeAsk)

property time

property tickAttribBidAsk

property priceBid

property priceAsk

property sizeBid

property sizeAsk

class ib_insync.objects.**HistoricalTickLast**(*time*, *tickAttribLast*, *price*, *size*, *exchange*, *specialConditions*)

Create new instance of HistoricalTickLast(time, tickAttribLast, price, size, exchange, specialConditions)

property time

property tickAttribLast

property price

property size

property exchange

property specialConditions

class ib_insync.objects.**TickByTickAllLast**(*tickType*, *time*, *price*, *size*, *tickAttribLast*, *exchange*, *specialConditions*)

Create new instance of TickByTickAllLast(tickType, time, price, size, tickAttribLast, exchange, specialConditions)

property tickType

property time

property price

property size

property tickAttribLast

property exchange

property specialConditions

class ib_insync.objects.**TickByTickBidAsk**(*time*, *bidPrice*, *askPrice*, *bidSize*, *askSize*, *tickAttribBidAsk*)

Create new instance of TickByTickBidAsk(time, bidPrice, askPrice, bidSize, askSize, tickAttribBidAsk)

property time

property bidPrice

property askPrice

property bidSize

property askSize

property tickAttribBidAsk

class ib_insync.objects.**TickByTickMidPoint**(*time*, *midPoint*)

Create new instance of TickByTickMidPoint(time, midPoint)

property time

property midPoint

class ib_insync.objects.**MktDepthData**(*time*, *position*, *marketMaker*, *operation*, *side*, *price*, *size*)

Create new instance of MktDepthData(time, position, marketMaker, operation, side, price, size)

property time

property position

property marketMaker

property operation

property side

property price

property size

class ib_insync.objects.**DOMLevel**(*price*, *size*, *marketMaker*)

Create new instance of DOMLevel(price, size, marketMaker)

property price

property size

property marketMaker

class ib_insync.objects.**PriceIncrement**(*lowEdge*, *increment*)

Create new instance of PriceIncrement(lowEdge, increment)

property lowEdge

property increment

class ib_insync.objects.**PortfolioItem**(*contract*, *position*, *marketPrice*, *marketValue*, *averageCost*, *unrealizedPNL*, *realizedPNL*, *account*)

Create new instance of PortfolioItem(contract, position, marketPrice, marketValue, averageCost, unrealizedPNL, realizedPNL, account)

property contract

property position

property marketPrice

property marketValue

property averageCost

property unrealizedPNL

property realizedPNL

property account

class ib_insync.objects.**Position**(*account*, *contract*, *position*, *avgCost*)

Create new instance of Position(account, contract, position, avgCost)

property account

property contract

property position

property avgCost

class ib_insync.objects.**Fill**(*contract*, *execution*, *commissionReport*, *time*)

Create new instance of Fill(contract, execution, commissionReport, time)

property contract

property execution

property commissionReport

property time

class ib_insync.objects.**OptionComputation**(*tickAttrib*, *impliedVol*, *delta*, *optPrice*, *pvDividend*, *gamma*, *vega*, *theta*, *undPrice*)

Create new instance of OptionComputation(tickAttrib, impliedVol, delta, optPrice, pvDividend, gamma, vega, theta, undPrice)

property **tickAttrib**

property **impliedVol**

property **delta**

property **optPrice**

property **pvDividend**

property **gamma**

property **vega**

property **theta**

property **undPrice**

class ib_insync.objects.**OptionChain**(*exchange*, *underlyingConId*, *tradingClass*, *multiplier*, *expirations*, *strikes*)

Create new instance of OptionChain(exchange, underlyingConId, tradingClass, multiplier, expirations, strikes)

property **exchange**

property **underlyingConId**

property **tradingClass**

property **multiplier**

property **expirations**

property **strikes**

class ib_insync.objects.**Dividends**(*past12Months*, *next12Months*, *nextDate*, *nextAmount*)

Create new instance of Dividends(past12Months, next12Months, nextDate, nextAmount)

property **past12Months**

property **next12Months**

property **nextDate**

property **nextAmount**

class ib_insync.objects.**NewsArticle**(*articleType*, *articleText*)

Create new instance of NewsArticle(articleType, articleText)

property **articleType**

property **articleText**

class ib_insync.objects.**HistoricalNews**(*time*, *providerCode*, *articleId*, *headline*)

Create new instance of HistoricalNews(time, providerCode, articleId, headline)

property time

property providerCode

property articleId

property headline

class ib_insync.objects.**NewsTick**(*timeStamp*, *providerCode*, *articleId*, *headline*, *extraData*)

Create new instance of NewsTick(timeStamp, providerCode, articleId, headline, extraData)

property timeStamp

property providerCode

property articleId

property headline

property extraData

class ib_insync.objects.**NewsBulletin**(*msgId*, *msgType*, *message*, *origExchange*)

Create new instance of NewsBulletin(msgId, msgType, message, origExchange)

property msgId

property msgType

property message

property origExchange

class ib_insync.objects.**FamilyCode**(*accountID*, *familyCodeStr*)

Create new instance of FamilyCode(accountID, familyCodeStr)

property accountID

property familyCodeStr

class ib_insync.objects.**SmartComponent**(*bitNumber*, *exchange*, *exchangeLetter*)

Create new instance of SmartComponent(bitNumber, exchange, exchangeLetter)

property bitNumber

property exchange

property exchangeLetter

class ib_insync.objects.**ConnectionStats**(*startTime*, *duration*, *numBytesRecv*, *numBytesSent*, *numMsgRecv*, *numMsgSent*)

Create new instance of ConnectionStats(startTime, duration, numBytesRecv, numBytesSent, numMsgRecv, numMsgSent)

property startTime

property duration

property numBytesRecv

property numBytesSent

property numMsgRecv

property numMsgSent

class ib_insync.objects.BarDataList(*args)

List of *BarData* that also stores all request parameters.

Events:

- updateEvent (bars: *BarDataList*, hasNewBar: bool)

reqId: int

contract: *Contract*

endDateTime: Optional[Union[datetime, date, str]]

durationStr: str

barSizeSetting: str

whatToShow: str

useRTH: bool

formatDate: int

keepUpToDate: bool

chartOptions: List[*TagValue*]

class ib_insync.objects.RealTimeBarList(*args)

List of *RealTimeBar* that also stores all request parameters.

Events:

- updateEvent (bars: *RealTimeBarList*, hasNewBar: bool)

reqId: int

contract: *Contract*

barSize: int

whatToShow: str

useRTH: bool

realTimeBarsOptions: List[*TagValue*]

class ib_insync.objects.ScanDataList(*args)

List of *ScanData* that also stores all request parameters.

Events:

- updateEvent (*ScanDataList*)

reqId: int

subscription: *ScannerSubscription*

scannerSubscriptionOptions: List[*TagValue*]

scannerSubscriptionFilterOptions: List[*TagValue*]

class ib_insync.objects.**DynamicObject**(***kwargs*)

class ib_insync.objects.**FundamentalRatios**(***kwargs*)

See: https://interactivebrokers.github.io/tws-api/fundamental_ratios_tags.html

class ib_insync.wrapper.**RequestError**(*reqId*, *code*, *message*)

Exception to raise when the API reports an error that can be tied to a single request.

Parameters

- **reqId** (int) – Original request ID.
- **code** (int) – Original error code.
- **message** (str) – Original error message.

2.7 Utilities

Utilities.

ib_insync.util.**df**(*objs*, *labels=None*)

Create pandas DataFrame from the sequence of same-type objects.

Parameters

labels (Optional[List[str]]) – If supplied, retain only the given labels and drop the rest.

ib_insync.util.**dataclassAsDict**(*obj*)

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type

dict

ib_insync.util.**dataclassAsTuple**(*obj*)

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type

tuple

ib_insync.util.**dataclassNonDefaults**(*obj*)

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type

dict

ib_insync.util.**dataclassUpdate**(*obj*, **srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type

object

ib_insync.util.**dataclassRepr**(*obj*)

Provide a culled representation of the given `dataclass` instance, showing only the fields with a non-default value.

Return type

str

ib_insync.util.**isnamedtupleinstance**(*x*)

From https://stackoverflow.com/a/2166841/6067848

ib_insync.util.**tree**(*obj*)

Convert object to a tree of lists, dicts and simple values. The result can be serialized to JSON.

ib_insync.util.**barplot**(*bars*, *title=''*, *upColor='blue'*, *downColor='red'*)

Create candlestick plot for the given bars. The bars can be given as a DataFrame or as a list of bar objects.

ib_insync.util.**allowCtrlC**()

Allow Control-C to end program.

ib_insync.util.**logToFile**(*path*, *level=20*)

Create a log handler that logs to the given file.

ib_insync.util.**logToConsole**(*level=20*)

Create a log handler that logs to the console.

ib_insync.util.**isNan**(*x*)

Not a number test.

Return type
bool

ib_insync.util.**formatSI**(*n*)

Format the integer or float n to 3 significant digits + SI prefix.

Return type
str

class ib_insync.util.**timeit**(*title='Run'*)

Context manager for timing.

ib_insync.util.**run**(**awaitables*, *timeout=None*)

By default run the event loop forever.

When awaitables (like Tasks, Futures or coroutines) are given then run the event loop until each has completed and return their results.

An optional timeout (in seconds) can be given that will raise asyncio.TimeoutError if the awaitables are not ready within the timeout period.

ib_insync.util.**schedule**(*time*, *callback*, **args*)

Schedule the callback to be run at the given time with the given arguments. This will return the Event Handle.

Parameters

- **time** (Union[time, datetime]) – Time to run callback. If given as datetime.time then use today as date.
- **callback** (Callable) – Callable scheduled to run.
- **args** – Arguments for to call callback with.

ib_insync.util.**sleep**(*secs=0.02*)

Wait for the given amount of seconds while everything still keeps processing in the background. Never use time.sleep().

Parameters
secs (*float*) – Time in seconds to wait.

Return type
bool

ib_insync.util.**timeRange**(*start*, *end*, *step*)

Iterator that waits periodically until certain time points are reached while yielding those time points.

Parameters

- **start** (Union[time, datetime]) – Start time, can be specified as datetime.datetime, or as datetime.time in which case today is used as the date
- **end** (Union[time, datetime]) – End time, can be specified as datetime.datetime, or as datetime.time in which case today is used as the date
- **step** (*float*) – The number of seconds of each period

Return type
Iterator[datetime]

ib_insync.util.**waitUntil**(*t*)

Wait until the given time t is reached.

Parameters
t (Union[time, datetime]) – The time t can be specified as datetime.datetime, or as datetime.time in which case today is used as the date.

Return type
bool

async ib_insync.util.**timeRangeAsync**(*start*, *end*, *step*)

Async version of *timeRange()*.

Return type
AsyncIterator[datetime]

async ib_insync.util.**waitUntilAsync**(*t*)

Async version of *waitUntil()*.

Return type
bool

ib_insync.util.**patchAsyncio**()

Patch asyncio to allow nested event loops.

ib_insync.util.**getLoop**()

Get the asyncio event loop for the current thread.

ib_insync.util.**startLoop**()

Use nested asyncio event loop for Jupyter notebooks.

ib_insync.util.**useQt**(*qtLib='PyQt5'*, *period=0.01*)

Run combined Qt5/asyncio event loop.

Parameters

- **qtLib** (str) – Name of Qt library to use:
  - PyQt5
  - PyQt6
  - PySide2
  - PySide6

- **period** (float) – Period in seconds to poll Qt.

ib_insync.util.**formatIBDatetime**(*dt*)

Format date or datetime to string that IB uses.

Return type
str

ib_insync.util.**parseIBDatetime**(*s*)

Parse string in IB date or datetime format to datetime.

Return type
Union[date, datetime]

2.8 FlexReport

Access to account statement webservice.

exception ib_insync.flexreport.**FlexError**

class ib_insync.flexreport.**FlexReport**(*token=None*, *queryId=None*, *path=None*)

Download and parse IB account statements via the Flex Web Service. https://guides.interactivebrokers.com/am/am/reports/flex_web_service_version_3.htm https://guides.interactivebrokers.com/cp/cp.htm#am/reporting/flexqueries.htm

Make sure to use a XML query (not CSV). A large query can take a few minutes. In the weekends the query servers can be down.

Download a report by giving a valid `token` and `queryId`, or load from file by giving a valid `path`.

topics()

Get the set of topics that can be extracted from this report.

extract(*topic*, *parseNumbers=True*)

Extract items of given topic and return as list of objects.

The topic is a string like TradeConfirm, ChangeInDividendAccrual, Order, etc.

Return type
list

df(*topic*, *parseNumbers=True*)

Same as extract but return the result as a pandas DataFrame.

download(*token*, *queryId*)

Download report for the given `token` and `queryId`.

load(*path*)

Load report from XML file.

save(*path*)

Save report to XML file.

2.9 IBC

class ib_insync.ibcontroller.**IBC**(*twsVersion: int = 0*, *gateway: bool = False*, *tradingMode: str = ''*, *twsPath: str = ''*, *twsSettingsPath: str = ''*, *ibcPath: str = ''*, *ibcIni: str = ''*, *javaPath: str = ''*, *userid: str = ''*, *password: str = ''*, *fixuserid: str = ''*, *fixpassword: str = ''*)

Programmatic control over starting and stopping TWS/Gateway using IBC (https://github.com/IbcAlpha/IBC).

Parameters

- **twsVersion** (*int*) – (required) The major version number for TWS or gateway.
- **gateway** (*bool*) –
  - True = gateway
  - False = TWS
- **tradingMode** (*str*) – 'live' or 'paper'.
- **userid** (*str*) – IB account username. It is recommended to set the real username/password in a secured IBC config file.
- **password** (*str*) – IB account password.
- **twsPath** (*str*) – Path to the TWS installation folder. Defaults:
  - Linux: ~/Jts
  - OS X: ~/Applications
  - Windows: C:\Jts
- **twsSettingsPath** (*str*) – Path to the TWS settings folder. Defaults:
  - Linux: ~/Jts
  - OS X: ~/Jts
  - Windows: Not available
- **ibcPath** (*str*) – Path to the IBC installation folder. Defaults:
  - Linux: /opt/ibc
  - OS X: /opt/ibc
  - Windows: C:\IBC
- **ibcIni** (*str*) – Path to the IBC configuration file. Defaults:
  - Linux: ~/ibc/config.ini
  - OS X: ~/ibc/config.ini
  - Windows: %%HOMEPATH%%\DocumentsIBC\config.ini
- **javaPath** (*str*) – Path to Java executable. Default is to use the Java VM included with TWS/gateway.
- **fixuserid** (*str*) – FIX account user id (gateway only).
- **fixpassword** (*str*) – FIX account password (gateway only).

This is not intended to be run in a notebook.

To use IBC on Windows, the proactor (or quamash) event loop must have been set:

```
import asyncio
asyncio.set_event_loop(asyncio.ProactorEventLoop())
```

Example usage:

```
ibc = IBC(976, gateway=True, tradingMode='live',
    userid='edemo', password='demouser')
ibc.start()
IB.run()
```

IbcLogLevel: ClassVar = 10

twsVersion: int = 0

gateway: bool = False

tradingMode: str = ''

twsPath: str = ''

twsSettingsPath: str = ''

ibcPath: str = ''

ibcIni: str = ''

javaPath: str = ''

userid: str = ''

password: str = ''

fixuserid: str = ''

fixpassword: str = ''

start()

Launch TWS/IBG.

terminate()

Terminate TWS/IBG.

async startAsync()

async terminateAsync()

async monitorAsync()

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

2.10 IBController

class ib_insync.ibcontroller.**IBController**(*APP: str = 'TWS'*, *TWS_MAJOR_VRSN: str = '969'*, *TRADING_MODE: str = 'live'*, *IBC_INI: str = '~/IBController/IBController.ini'*, *IBC_PATH: str = '~/IBController'*, *TWS_PATH: str = '~/Jts'*, *LOG_PATH: str = '~/IBController/Logs'*, *TWSUSERID: str = ''*, *TWSPASSWORD: str = ''*, *JAVA_PATH: str = ''*, *TWS_CONFIG_PATH: str = ''*)

For new installations it is recommended to use IBC instead.

Programmatic control over starting and stopping TWS/Gateway using IBController (https://github.com/ib-controller/ib-controller).

On Windows the the proactor (or quamash) event loop must have been set:

```
import asyncio
asyncio.set_event_loop(asyncio.ProactorEventLoop())
```

This is not intended to be run in a notebook.

APP: str = 'TWS'

TWS_MAJOR_VRSN: str = '969'

TRADING_MODE: str = 'live'

IBC_INI: str = '~/IBController/IBController.ini'

IBC_PATH: str = '~/IBController'

TWS_PATH: str = '~/Jts'

LOG_PATH: str = '~/IBController/Logs'

TWSUSERID: str = ''

TWSPASSWORD: str = ''

JAVA_PATH: str = ''

TWS_CONFIG_PATH: str = ''

start()

Launch TWS/IBG.

stop()

Cleanly shutdown TWS/IBG.

terminate()

Terminate TWS/IBG.

async startAsync()

async stopAsync()

async terminateAsync()

async monitorAsync()

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

2.11 Watchdog

class ib_insync.ibcontroller.**Watchdog**(*controller: Union[IBC, IBController]*, *ib:* IB, *host: str = '127.0.0.1'*, *port: int = 7497*, *clientId: int = 1*, *connectTimeout: float = 2*, *appStartupTime: float = 30*, *appTimeout: float = 20*, *retryDelay: float = 2*, *readonly: bool = False*, *account: str = ''*, *probeContract:* Contract *= Forex('EURUSD', exchange='IDEALPRO')*, *probeTimeout: float = 4*)

Start, connect and watch over the TWS or gateway app and try to keep it up and running. It is intended to be used in an event-driven application that properly initializes itself upon (re-)connect.

It is not intended to be used in a notebook or in imperative-style code. Do not expect Watchdog to magically shield you from reality. Do not use Watchdog unless you understand what it does and doesn't do.

Parameters

- **controller** (*Union[IBC, IBController]*) – (required) IBC or IBController instance.
- **ib** (IB) – (required) IB instance to be used. Do no connect this instance as Watchdog takes care of that.
- **host** (*str*) – Used for connecting IB instance.
- **port** (*int*) – Used for connecting IB instance.
- **clientId** (*int*) – Used for connecting IB instance.
- **connectTimeout** (*float*) – Used for connecting IB instance.
- **readonly** (*bool*) – Used for connecting IB instance.
- **appStartupTime** (*float*) – Time (in seconds) that the app is given to start up. Make sure that it is given ample time.
- **appTimeout** (*float*) – Timeout (in seconds) for network traffic idle time.
- **retryDelay** (*float*) – Time (in seconds) to restart app after a previous failure.
- **probeContract** (Contract) – Contract to use for historical data probe requests (default is EURUSD).
- **probeTimeout** (*float*); *Timeout (in seconds)* –

The idea is to wait until there is no traffic coming from the app for a certain amount of time (the `appTimeout` parameter). This triggers a historical request to be placed just to see if the app is still alive and well. If yes, then continue, if no then restart the whole app and reconnect. Restarting will also occur directly on errors 1100 and 100.

Example usage:

```
def onConnected():
    print(ib.accountValues())

ibc = IBC(974, gateway=True, tradingMode='paper')
ib = IB()
ib.connectedEvent += onConnected
watchdog = Watchdog(ibc, ib, port=4002)
watchdog.start()
ib.run()
```

Events:

- `startingEvent` (watchdog: *Watchdog*)
- `startedEvent` (watchdog: *Watchdog*)
- `stoppingEvent` (watchdog: *Watchdog*)
- `stoppedEvent` (watchdog: *Watchdog*)
- `softTimeoutEvent` (watchdog: *Watchdog*)
- `hardTimeoutEvent` (watchdog: *Watchdog*)

events = ['startingEvent', 'startedEvent', 'stoppingEvent', 'stoppedEvent', 'softTimeoutEvent', 'hardTimeoutEvent']

controller: Union[*IBC*, *IBController*]

ib: *IB*

host: str = '127.0.0.1'

port: int = 7497

clientId: int = 1

connectTimeout: float = 2

appStartupTime: float = 30

appTimeout: float = 20

retryDelay: float = 2

readonly: bool = False

account: str = ''

probeContract: *Contract* = Forex('EURUSD', exchange='IDEALPRO')

probeTimeout: float = 4

start()

stop()

async runAsync()

dict()

Return dataclass values as `dict`. This is a non-recursive variant of `dataclasses.asdict`.

Return type
dict

nonDefaults()

For a `dataclass` instance get the fields that are different from the default values and return as `dict`.

Return type
dict

tuple()

Return dataclass values as `tuple`. This is a non-recursive variant of `dataclasses.astuple`.

Return type
tuple

update(**srcObjs*, ***kwargs*)

Update fields of the given `dataclass` object from zero or more `dataclass` source objects and/or from keyword arguments.

Return type
object

CHAPTER

THREE

NOTEBOOKS

IB-insync can be used in a fully interactive, exploratory way with live data from within a Jupyter notebook. Here are some recipe notebooks:

CHAPTER

FOUR

CODE RECIPES

Collection of useful patterns, snippets and recipes.

When using the recipes in a notebook, don't forget to use `util.startLoop()`.

4.1 Fetching consecutive historical data

Suppose we want to get the 1 min bar data of Tesla since the very beginning up until now. The best way is to start with now and keep requesting further and further back in time until there is no more data returned.

```
import datetime
from ib_insync import *

ib = IB()
ib.connect('127.0.0.1', 7497, clientId=1)

contract = Stock('TSLA', 'SMART', 'USD')

dt = ''
barsList = []
while True:
    bars = ib.reqHistoricalData(
        contract,
        endDateTime=dt,
        durationStr='10 D',
        barSizeSetting='1 min',
        whatToShow='MIDPOINT',
        useRTH=True,
        formatDate=1)
    if not bars:
        break
    barsList.append(bars)
    dt = bars[0].date
    print(dt)

# save to CSV file
allBars = [b for bars in reversed(barsList) for b in bars]
df = util.df(allBars)
df.to_csv(contract.symbol + '.csv', index=False)
```

4.2 Scanner data (blocking)

```
allParams = ib.reqScannerParameters())
print(allParams)

sub = ScannerSubscription(
    instrument='FUT.US',
    locationCode='FUT.GLOBEX',
    scanCode='TOP_PERC_GAIN')
scanData = ib.reqScannerData(sub)
print(scanData)
```

4.3 Scanner data (streaming)

```
def onScanData(scanData):
    print(scanData[0])
    print(len(scanData))

sub = ScannerSubscription(
    instrument='FUT.US',
    locationCode='FUT.GLOBEX',
    scanCode='TOP_PERC_GAIN')
scanData = ib.reqScannerSubscription(sub)
scanData.updateEvent += onScanData
ib.sleep(60)
ib.cancelScannerSubscription(scanData)
```

4.4 Option calculations

```
option = Option('EOE', '20171215', 490, 'P', 'FTA', multiplier=100)

calc = ib.calculateImpliedVolatility(
    option, optionPrice=6.1, underPrice=525))
print(calc)

calc = ib.calculateOptionPrice(
    option, volatility=0.14, underPrice=525))
print(calc)
```

4.5 Order book

```
eurusd = Forex('EURUSD')
ticker = ib.reqMktDepth(eurusd)
while ib.sleep(5):
    print(
        [d.price for d in ticker.domBids],
        [d.price for d in ticker.domAsks])
```

4.6 Minimum price increments

```
usdjpy = Forex('USDJPY')
cd = ib.reqContractDetails(usdjpy)[0]
print(cd.marketRuleIds)

rules = [
    ib.reqMarketRule(ruleId)
    for ruleId in cd.marketRuleIds.split(',')]
print(rules)
```

4.7 News articles

```
newsProviders = ib.reqNewsProviders()
print(newsProviders)
codes = '+'.join(np.code for np in newsProviders)

amd = Stock('AMD', 'SMART', 'USD')
ib.qualifyContracts(amd)
headlines = ib.reqHistoricalNews(amd.conId, codes, '', '', 10)
latest = headlines[0]
print(latest)
article = ib.reqNewsArticle(latest.providerCode, latest.articleId)
print(article)
```

4.8 News bulletins

```
ib.reqNewsBulletins(True)
ib.sleep(5)
print(ib.newsBulletins())
```

4.9 Dividends

```
contract = Stock('INTC', 'SMART', 'USD')
ticker = ib.reqMktData(contract, '456')
ib.sleep(2)
print(ticker.dividends)
```

Output:

```
Dividends(past12Months=1.2, next12Months=1.2, nextDate=datetime.date(2019, 2, 6),␣
↪nextAmount=0.3)
```

4.10 Fundemental ratios

```
contract = Stock('IBM', 'SMART', 'USD')
ticker = ib.reqMktData(contract, '258')
ib.sleep(2)
print(ticker.fundamentalRatios)
```

4.11 Async streaming ticks

```
import asyncio

import ib_insync as ibi


class App:

    async def run(self):
        self.ib = ibi.IB()
        with await self.ib.connectAsync():
            contracts = [
                ibi.Stock(symbol, 'SMART', 'USD')
                for symbol in ['AAPL', 'TSLA', 'AMD', 'INTC']]
            for contract in contracts:
                self.ib.reqMktData(contract)

            async for tickers in self.ib.pendingTickersEvent:
                for ticker in tickers:
                    print(ticker)

    def stop(self):
        self.ib.disconnect()


app = App()
try:
    asyncio.run(app.run())
```

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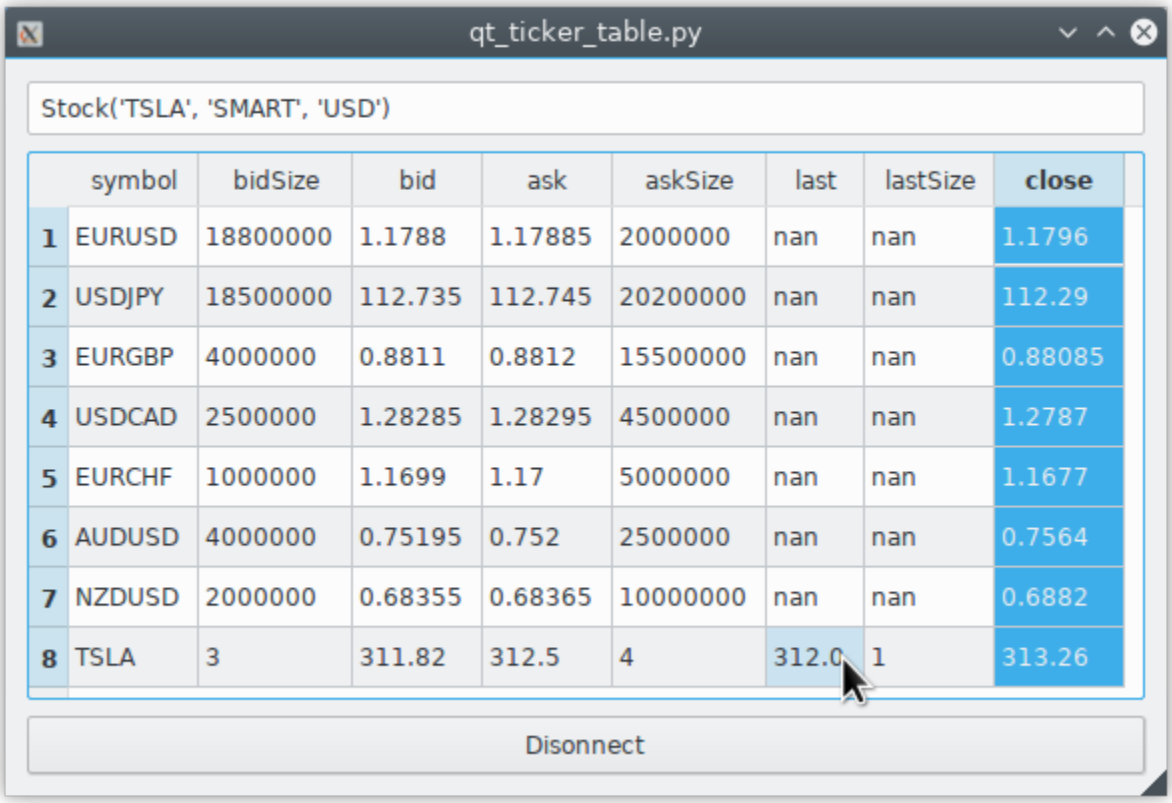
```
except (KeyboardInterrupt, SystemExit):
    app.stop()
```

4.12 Integration with PyQt5 or PySide2



	symbol	bidSize	bid	ask	askSize	last	lastSize	close
1	EURUSD	18800000	1.1788	1.17885	2000000	nan	nan	1.1796
2	USDJPY	18500000	112.735	112.745	20200000	nan	nan	112.29
3	EURGBP	4000000	0.8811	0.8812	15500000	nan	nan	0.88085
4	USDCAD	2500000	1.28285	1.28295	4500000	nan	nan	1.2787
5	EURCHF	1000000	1.1699	1.17	5000000	nan	nan	1.1677
6	AUDUSD	4000000	0.75195	0.752	2500000	nan	nan	0.7564
7	NZDUSD	2000000	0.68355	0.68365	10000000	nan	nan	0.6882
8	TSLA	3	311.82	312.5	4	312.0	1	313.26

This example of a ticker table shows how to integrate both realtime streaming and synchronous API requests in a single-threaded Qt application. The API requests in this example are `connect` and `ib.qualifyContracts()`; The latter is used to get the conId of a contract and use that as a unique key.

The Qt interface will not freeze when a request is ongoing and it is even possible to have multiple outstanding requests at the same time.

This example depends on PyQt5:

`pip3 install -U PyQt5`.

It's also possible to use PySide2 instead; To do so uncomment the PySide2 import and `util.useQt` lines in the example and comment out their PyQt5 counterparts.

4.13 Integration with Tkinter

To integrate with the Tkinter event loop, take a look at this example app.

4.14 Integration with PyGame

By calling `ib.sleep` from within the PyGame run loop, ib_insync can periodically run for short whiles and keep up to date:

```
import ib_insync as ibi
import pygame


def onTicker(ticker):
    screen.fill(bg_color)
    text = f'bid: {ticker.bid}   ask: {ticker.ask}'
    quote = font.render(text, True, fg_color)
    screen.blit(quote, (40, 40))
    pygame.display.flip()


pygame.init()
screen = pygame.display.set_mode((800, 600))
font = pygame.font.SysFont('arial', 48)
bg_color = (255, 255, 255)
fg_color = (0, 0, 0)

ib = ibi.IB()
ib.connect()
contract = ibi.Forex('EURUSD')
ticker = ib.reqMktData(contract)
ticker.updateEvent += onTicker

running = True
while running:
    # This updates IB-insync:
    ib.sleep(0.03)

    # This updates PyGame:
    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            running = False
            pygame.quit()
```

CHAPTER

FIVE

SOURCE CODE

CHAPTER

SIX

CHANGELOG

6.1 0.9

6.1.1 Version 0.9.73

- pull 523: Fix `completedOrder` parsing for new socket protocol.

6.1.2 Version 0.9.72

- pull 507: Fixes `bondContractDetails` request.
- Fixed: issue 502: Treat error 110 as a warning.
- Added `manualOrderTime` and `manualCancelOrderTime` for audit trails.
- Added `PEG MID` and `PEG BEST` order types.
- Added contract fields `description` and `issuerId`.
- Added `IB.reqUserInfo()`.
- Support socket protocol version 176.

6.1.3 Version 0.9.71

- pull 453: Added support for `bidExchange` and `askExchange` fields to `Ticker`.
- pull 489: `Watchdog.start()` now returns a `Future`.
- Fixed: issue 439: Set `marketDataType` directly on `Ticker`.
- Fixed: issue 441: Add explicit timezone of None to accomodate pandas Timestamp.
- Fixed: issue 471: Revised `Ticker.marketPrice()` calculation.
- Added `minTick`, `bboExchange` and `snapshotPermissions` fields to `Ticker`.
- Added `minSize`, `sizeIncrement` and `suggestedSizeIncrement` fields to `ContractDetails`.
- Added `IB.reqHistoricalSchedule` request.
- Added `IB.reqSmartComponents` request.
- Added `Order.advancedErrorOverride` field. Any advanced error message is made availble from `Trade.advancedError`.
- Added a recipe for integration with PyGame.

- Minimum required TWSAPI client protocol version is 157 now.

6.1.4 Version 0.9.70

- Fixed: issue 413: Set the appropriate events as done on disconnect.
- Exported symbols are now static so that the VSCode/PyLance code analyzer can understand it.

6.1.5 Version 0.9.69

- Fixed: issue 403: Change validity test for whatIfOrder response.

6.1.6 Version 0.9.68

- Fixed: issue 402: Downloading historical ticks for crypto currencies.

6.1.7 Version 0.9.67

- `Crypto` security class added. To accommodate fractional crypto currency sizes, all the various `size` and `volume` fields that were of type `int` are now of type `float`.
- pull 385: Get day trades remaining for next four days in `IB.accountSummary`.
- Fixed: issue 361: Prevent `util.logToConsole` and `util.logToFile` from messing with the root logger.
- Fixed: issue 370: Catch `asyncio.CancelledError` during connect.
- Fixed: issue 371: Fix type annotation for `reqMarketRuleAsync`.
- Fixed: issue 380: Reject bogus `whatIf` order response.
- Fixed: issue 389: Add `TradeLogEntry.errorCode` field.

6.1.8 Version 0.9.66

- Fixed: issue 360: Improved disconnect.
- Fixed issue with duplicate orderId.
- Update `Order` default values to work with the latest beta TWS/gateway.
- pull 348: Added PySide6 support.

6.1.9 Version 0.9.65

- Fixed: issue 337.
- pull 317: Update and order's `totalQuantity`, `lmtPrice`, `auxPrice` and `orderType` when the order is modified externally.
- pull 332: Typo.

6.1.10 Version 0.9.64

- Fixed: issue 309: Aggregate past fills into the `Trade` they belong to upon connect.
- `ContFut` objects are now hashable (issue 310).
- Added `Watchdog.probeTimeout` parameter (issue 307).

6.1.11 Version 0.9.63

- Fixed issue 282: `util.Qt()` also works with the ProactorEventLoop (default on Windows) now.
- Fixed issue 303: A regression in TWS 480.4l+ is bypassed now to avoid `IB.connect()` timeouts. Request timeouts during syncing are logged as errors but will let the connect proceed.

6.1.12 Version 0.9.62

- `IB.TimezoneTWS` field added, for when the TWS timezone differs from the local system timezone (issue 287).
- `IB.RaiseRequestErrors` field added, can be set to `True` to raise `RequestError` when certain requests fail, instead of returning empty data (pull 296).
- `IB.accountSummaryAsync()` method added (issue 267).
- `Watchdog.probeContract` field added, to use a contract other then EURUSD for probing the data connection (issue 298).
- `Ticker.rtTime` added (issue 274, pull 275). Please note that this timestamp appears to be mostly bogus.
- Fixed issue 270: Clear ticker depth data when canceling market depth subscription.
- Fixed issue with duplicate order IDs.

6.1.13 Version 0.9.61

- `Ticker.marketDataType` added to indicate the delayed/frozen status of the `reqMktData` ticks.

6.1.14 Version 0.9.60

- `IB.reqHistoricalData()` has a new `timeout` parameter that automatically cancels the request after timing out.
- `BracketOrder` is iterable again.
- `IB.waitOnUpdate()` returns `False` on timeout now.
- pull 210: Fix decoding of execDetails time.
- pull 215: New scanner notebook added, courtesy of C. Valcarcel.
- pull 220: Added `readonly` option for Watchdog.
- Fixed issue 221: Delayed close ticks handling by `Ticker`.
- Fixed issue 224: Added timeout for `completedOrders` request during connect.
- Fixed issue 227: `IB.MaxSyncedSubAccounts` added.
- Fixed issue 230: Fixed `IB.reqHistogramData` method.

- Fixed issue 235: `Order.discretionaryAmt` is now of type `float` (was `int`).
- Fixed issue 236: `ticker.updateEvent` is now fired for any change made to the ticker.
- Fixed issue 245: Emit `trade.statusEvent` when order is implicitly canceled by a problem.
- You can now sponsor the development of IB-insync!

6.1.15 Version 0.9.59

- PR #205 adds more typing annotations.
- `dataclasses` are now used for objects (instead of inheriting from a base `Object`). For Python 3.6.* install it with `pip install dataclasses`

6.1.16 Version 0.9.58

- PR #196 treats error 492 as a warning so that scanner results can still be used.

6.1.17 Version 0.9.57

- PR #184, #185 and #186 add the new Ticker fields `rtTradeVolume`, `auctionVolume`, `auctionPrice` and `auctionImbalance`.
- PR #191 lets `util.schedule` return a handle that can be canceled.
- PR #192 adds `throttleStart` and `throttleEnd` events to the `Client`.
- PR #194 adds better JSON support for `namedtuple` objects.

6.1.18 Version 0.9.56

- Fix bug #178: `Order.totalQuantity` is now float.

6.1.19 Version 0.9.55

- Sphinx update for documentation.

6.1.20 Version 0.9.54

- `ContractDetails.stockType` added.
- Fixed `Trade.filled()` for combo (BAG) contracts.
- Server version check added to make sure TWS/gateway version is at least 972.

6.1.21 Version 0.9.53

- Fix bug #155 (IB.commissionReportEvent not firing).
- Help editors with the code completion for Events.

6.1.22 Version 0.9.52

- Fix Client.exerciseOptions (bug #152).

6.1.23 Version 0.9.51

- Fix `ib.placeOrder` for older TWS/gateway versions.
- Better handling of unclean disconnects.

6.1.24 Version 0.9.50

- Fix `execDetailsEvent` regression.
- Added `readonly` argument to `ib.connect` method. Set this to `True` when the API is in read-only mode.

6.1.25 Version 0.9.49

- `ib.reqCompletedOrders()` request added (requires TWS/gateway >= 976). Completed orders are automatically synced on connect and are available from `ib.trades()`, complete with fills and commission info.
- Fixed bug #144.

6.1.26 Version 0.9.48

- `Ticker.halted` field added.
- `Client.reqFundamentalData` fixed.

6.1.27 Version 0.9.47

- `ibapi` package from IB is no longer needed, ib_insync handles its own socket protocol encoding and decoding now.
- Documentation moved to readthedocs as rawgit will cease operation later this year.
- Blocking requests will now raise `ConnectionError` on a connection failure. This also goes for `util.run`, `util.timeRange`, etc.

6.1.28 Version 0.9.46

- `Event` class has been replaced with the one from eventkit.
- Event-driven bar construction from ticks added (via `Ticker.updateEvent`)
- Fixed bug #136.
- Default request throttling is now 45 requests/s for compatibility with TWS/gateway 974 and higher.

6.1.29 Version 0.9.45

- `Event.merge()` added.
- `TagValue` serialization fixed.

6.1.30 Version 0.9.44

- `Event.any()` and `Event.all()` added.
- Ticker fields added: `tradeCount`, `tradeRate`, `volumeRate`, `avOptionVolume`, `markPrice`, `histVolatility`, `impliedVolatility`, `rtHistVolatility` and `indexFuturePremium`.
- Parse `ticker.fundamentalRatios` into `FundamentalRatios` object.
- `util.timeRangeAsync()` and `waitUntilAsync()` added.
- `ib.pendingTickersEvent` now emits a `set` of Tickers instead of a `list`.
- Tick handling has been streamlined.
- For harvesting tick data, an imperative code style with a `waitOnUpdate` loop should not be used anymore!

6.1.31 Version 0.9.43

- Fixed issue #132.
- `Event.aiter()` added, all events can now be used as asynchronous iterators.
- `Event.wait()` added, all events are now also awaitable.
- Decreased default throttling to 95 requests per 2 sec.

6.1.32 Version 0.9.42

- `Ticker.shortableShares` added (for use with generic tick 236).
- `ib.reqAllOpenOrders()` request added.
- tickByTick subscription will update ticker's bid, ask, last, etc.
- Drop redundant bid/ask ticks from `reqMktData`.
- Fixed occasional "Group name cannot be null" error message on connect.
- `Watchdog` code rewritten to not need `util.patchAsyncio`.
- `Watchdog.start()` is no longer blocking.

6.1.33 Version 0.9.41

- Fixed bug #117.
- Fixed order modifications with TWS/gateway 974.

6.1.34 Version 0.9.40

- `Ticker.fundamentalRatios` added (for use with generic tick 258).
- Fixed `reqHistoricalTicks` with MIDPOINT.

6.1.35 Version 0.9.39

- Handle partially filled dividend data.
- Use `secType='WAR'` for warrants.

6.1.36 Version 0.9.38

- ibapi v97.4 is now required.
- fixed tickByTick wrappers.

6.1.37 Version 0.9.37

- Backward compatibility with older ibapi restored.

6.1.38 Version 0.9.36

- Compatibility with ibapi v974.
- `Client.setConnectOptions()` added (for PACEAPI).

6.1.39 Version 0.9.35

- `Ticker.hasBidAsk()` added.
- `IB.newsBulletinEvent` added.
- Various small fixes.

6.1.40 Version 0.9.34

- Old event system (ib.setCallback) removed.
- Compatibility fix with previous ibapi version.

6.1.41 Version 0.9.33

- Market scanner subscription improved.
- `IB.scannerDataEvent` now emits the full list of ScanData.
- `ScanDataList` added.

6.1.42 Version 0.9.32

- Autocompletion with Jedi plugin as used in Spyder and VS Code working again.

6.1.43 Version 0.9.31

- Request results will return specialized contract types (like `Stock`) instead of generic `Contract`.
- `IB.scannerDataEvent` added.
- `ContractDetails` field `summary` renamed to `contract`.
- `isSmartDepth` parameter added for `reqMktDepth`.
- Event loop nesting is now handled by the nest_asyncio project.
- `util.useQt` is rewritten so that it can be used with any asyncio event loop, with support for both PyQt5 and PySide2. It does not use quamash anymore.
- Various fixes, extensive documentation overhaul and flake8-compliant code formatting.

6.1.44 Version 0.9.30

- `Watchdog.stop()` will not trigger restart now.
- Fixed bug #93.

6.1.45 Version 0.9.29

- `util.patchAsyncio()` updated for Python 3.7.

6.1.46 Version 0.9.28

- `IB.RequestTimeout` added.
- `util.schedule()` accepts tz-aware datetimes now.
- Let `client.disconnect()` complete when no event loop is running.

6.1.47 Version 0.9.27

- Fixed bug #77.

6.1.48 Version 0.9.26

- PR #74 merged (`ib.reqCurrentTime()` method added).
- Fixed bug with order error handling.

6.1.49 Version 0.9.25

- Default throttling rate now compatible with reqTickers.
- Fixed issue with `ib.waitOnUpdate()` in combination. with `ib.pendingTickersEvent`.
- Added timeout parameter for `ib.waitOnUpdate()`.

6.1.50 Version 0.9.24

- `ticker.futuresOpenInterest` added.
- `execution.time` was string, is now parsed to UTC datetime.
- `ib.reqMarketRule()` request added.

6.1.51 Version 0.9.23

- Compatability with Tornado 5 as used in new Jupyter notebook server.

6.1.52 Version 0.9.22

- updated `ib.reqNewsArticle` and `ib.reqHistoricalNews` to ibapi v9.73.07.

6.1.53 Version 0.9.21

- updated `ib.reqTickByTickData()` signature to ibapi v9.73.07 while keeping backward compatibility.

6.1.54 Version 0.9.20

- Fixed watchdog bug.

6.1.55 Version 0.9.19

- Don't overwrite `exchange='SMART'` in qualifyContracts.

6.1.56 Version 0.9.18

- Merged PR #65 (Fix misnamed event).

6.1.57 Version 0.9.17

- New IB events `disconnectedEvent`, `newOrderEvent`, `orderModifyEvent` and `cancelOrderEvent`.
- `Watchdog` improvements.

6.1.58 Version 0.9.16

- New event system that will supersede `IB.setCallback()`.
- Notebooks updated to use events.
- `Watchdog` must now be given an `IB` instance.

6.1.59 Version 0.9.15

- Fixed bug in default order conditions.
- Fixed regression from v0.9.13 in `placeOrder`.

6.1.60 Version 0.9.14

- Fixed `orderStatus` callback regression.

6.1.61 Version 0.9.13

- Log handling improvements.
- `Client` with `clientId=0` can now manage manual TWS orders.
- `Client` with master clientId can now monitor manual TWS orders.

6.1.62 Version 0.9.12

- Run `IBC` and `IBController` directly instead of via shell.

6.1.63 Version 0.9.11

- Fixed bug when collecting ticks using `ib.waitOnUpdate()`.
- Added `ContFuture` class (continuous futures).
- Added `Ticker.midpoint()`.

6.1.64 Version 0.9.10

- `ib.accountValues()` fixed for use with multiple accounts.

6.1.65 Version 0.9.9

- Fixed issue #57

6.1.66 Version 0.9.8

- Fix for `ib.reqPnLSingle()`.

6.1.67 Version 0.9.7

- Profit and Loss (PnL) funcionality added.

6.1.68 Version 0.9.6

- `IBC` added.
- PR #53 (delayed greeks) merged.
- `Ticker.futuresOpenInterest` field removed.

6.1.69 Version 0.9.5

- Fixed canceling bar and tick subscriptions.

6.1.70 Version 0.9.4

- Fixed issue #49.

6.1.71 Version 0.9.3

- `Watchdog` class added.
- `ib.setTimeout()` added.
- `Ticker.dividends` added for use with `genericTickList` 456.
- Errors and warnings will now log the contract they apply to.
- `IB` `error()` callback signature changed to include contract.
- Fix for issue #44.

6.1.72 Version 0.9.2

- Historical ticks and realtime bars now return time in UTC.

6.1.73 Version 0.9.1

- `IBController` added.
- `openOrder` callback added.
- default arguments for `ib.connect()` and `ib.reqMktData()`.

6.1.74 Version 0.9.0

- minimum API version is v9.73.06.
- `tickByTick` support.
- automatic request throttling.
- `ib.accountValues()` now works for multiple accounts.
- `AccountValue.modelCode` added.
- `Ticker.rtVolume` added.

6.2 0.8

6.2.1 Version 0.8.17

- workaround for IBAPI v9.73.06 for `Contract.lastTradeDateOrContractMonth` format.

6.2.2 Version 0.8.16

- `util.tree()` method added.
- `error` callback signature changed to `(reqId, errorCode, errorString)`.
- `accountValue` and `accountSummary` callbacks added.

6.2.3 Version 0.8.15

- `util.useQt()` fixed for use with Windows.

6.2.4 Version 0.8.14

- Fix for `ib.schedule()`.

6.2.5 Version 0.8.13

- Import order conditions into ib_insync namespace.
- `util.useQtAlt()` added for using nested event loops on Windows with Qtl
- `ib.schedule()` added.

6.2.6 Version 0.8.12

- Fixed conditional orders.

6.2.7 Version 0.8.11

- `FlexReport` added.

6.2.8 Version 0.8.10

- Fixed issue #22.

6.2.9 Version 0.8.9

- `Ticker.vwap` field added (for use with generic tick 233).
- Client with master clientId can now monitor orders and trades of other clients.

6.2.10 Version 0.8.8

- `barUpdate` event now used also for `reqRealTimeBars` responses
- `reqRealTimeBars` will return `RealTimeBarList` instead of list.
- realtime bars example added to bar data notebook.
- fixed event handling bug in `Wrapper.execDetails`.

6.2.11 Version 0.8.7

- `BarDataList` now used with `reqHistoricalData`; it also stores the request parameters.
- updated the typing annotations.
- added `barUpdate` event to `IB`.
- bar- and tick-data notebooks updated to use callbacks for realtime data.

6.2.12 Version 0.8.6

- `ticker.marketPrice` adjusted to ignore price of -1.
- `ticker.avVolume` handling fixed.

6.2.13 Version 0.8.5

- `realtimeBar` wrapper fix.
- context manager for `IB` and `IB.connect()`.

6.2.14 Version 0.8.4

- compatibility with upcoming ibapi changes.
- added `error` event to `IB`.
- notebooks updated to use `loopUntil`.
- small fixes and performance improvements.

6.2.15 Version 0.8.3

- new `IB.reqHistoricalTicks()` API method.
- new `IB.loopUntil()` method.
- fixed issues #4, #6, #7.

6.2.16 Version 0.8.2

- fixed swapped `ticker.putOpenInterest` vs `ticker.callOpenInterest`.

6.2.17 Version 0.8.1

- fixed `wrapper.tickSize` regression.

6.2.18 Version 0.8.0

- support for realtime bars and `keepUpToDate` for historical bars
- added option greeks to `Ticker`.
- new `IB.waitUntil()` and `IB.timeRange()` scheduling methods.
- notebooks no longer depend on PyQt5 for live updates.
- notebooks can be run in one go ('run all').
- tick handling bypasses ibapi decoder for more efficiency.

6.3 0.7

6.3.1 Version 0.7.3

- `IB.whatIfOrder()` added.
- Added detection and warning about common setup problems.

6.3.2 Version 0.7.2

- Removed import from ipykernel.

6.3.3 Version 0.7.1

- Removed dependencies for installing via pip.

6.3.4 Version 0.7.0

- added lots of request methods.
- order book (DOM) added.
- notebooks updated.

6.4 0.6

6.4.1 Version 0.6.1

- Added UTC timezone to some timestamps.
- Fixed issue #1.

6.4.2 Version 0.6.0

- Initial release.

CHAPTER

SEVEN

LINKS

- Interactive Brokers
- Interactive Brokers Python API
- TWSAPI documentation
- TWSAPI user goup
- IB-insync user goup
- Dmitry's TWS API FAQ
- IBC for hands-free operation of TWS or gateway

CHAPTER

EIGHT

INTRODUCTION

The goal of the IB-insync library is to make working with the Trader Workstation API from Interactive Brokers as easy as possible.

The main features are:

- An easy to use linear style of programming;
- An IB component that automatically keeps in sync with the TWS or IB Gateway application;
- A fully asynchonous framework based on asyncio and eventkit for advanced users;
- Interactive operation with live data in Jupyter notebooks.

Be sure to take a look at the notebooks, the recipes and the API docs.

8.1 Installation

```
pip install ib_insync
```

For Python 3.6 install the `dataclasses` package as well (newer Python versions already have it):

```
pip install dataclasses
```

Requirements:

- Python 3.6 or higher;
- A running TWS or IB Gateway application (version 972 or higher). Make sure the API port is enabled and 'Download open orders on connection' is checked.

The ibapi package from IB is not needed.

8.2 Example

This is a complete script to download historical data:

```
from ib_insync import *
# util.startLoop()  # uncomment this line when in a notebook

ib = IB()
ib.connect('127.0.0.1', 7497, clientId=1)
```

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```
contract = Forex('EURUSD')
bars = ib.reqHistoricalData(
    contract, endDateTime='', durationStr='30 D',
    barSizeSetting='1 hour', whatToShow='MIDPOINT', useRTH=True)

# convert to pandas dataframe:
df = util.df(bars)
print(df)
```

Output:

```
                  date      open      high       low     close  volume  \
0   2019-11-19 23:15:00  1.107875  1.108050  1.107725  1.107825      -1
1   2019-11-20 00:00:00  1.107825  1.107925  1.107675  1.107825      -1
2   2019-11-20 01:00:00  1.107825  1.107975  1.107675  1.107875      -1
3   2019-11-20 02:00:00  1.107875  1.107975  1.107025  1.107225      -1
4   2019-11-20 03:00:00  1.107225  1.107725  1.107025  1.107525      -1
..                  ...       ...       ...       ...       ...     ...
705 2020-01-02 14:00:00  1.119325  1.119675  1.119075  1.119225      -1
```

8.3 Documentation

The complete API documentation.

Changelog.

8.4 Discussion

The insync user group is the place to discuss IB-insync and anything related to it.

8.5 Consultancy & Development

IB-insync offers an easy entry into building automated trading systems for both individual traders and fintech companies. However, to get the most out of it is not a trivial matter and is beyond the reach of most developers.

If you need expert help, you can contact me. This can be for a small project, such as fixing something in your own code, or it can be creating an entire new trading infrastructure. Please provide enough details so that I can assess both the feasibility and the scope. Many folks worry about having to provide their 'secret sauce', but that is never necessary (although you're perfectly welcome to send that as well!)

8.6 Disclaimer

The software is provided on the conditions of the simplified BSD license.

This project is not affiliated with Interactive Brokers Group, Inc.'s.

Good luck and enjoy,

author
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