

#### TWS Configuration For API Use

"Trusted IPs" does not accept subnet (e.g. /27, /28), it only accepts single IP Addresses. In the following example, there is a remote computing cluster will randomly assign one of the computing nodes to connect to TVB In every connection. To make this happen, every Private IPv4 Address of the subnet are put into the "Trusted IPs" (You can also exclude the first IP Network Address and the Later IP Placetast Address of the subnet are put into the "Trusted IPs" (You can also exclude the first IP Network Address and the Later IP IP Placetast Address of the subnet are put into the "Trusted IPs" (You can also exclude the first IP Network Address and the Later IP IP Deadcast Address of the subnet IP IP Deadcast

1) In TWS, if you don't put the remote IP Address into the "Trusted IPs" and you try to establish remote A connection, there will be a message "Accept incoming connection attempt from 4P Address" which requires you to accept the connection or reject the connection in IB detensy, it is complision for IB Gateway users to put the remote IP Address into the "Trusted IPs". Otherwise, there will be no connect stooms detected.

#### Best Practice: Configure TWS / IB Gateway

The information listed below are not required or necessary in order to operate the TWS API. However, these steps include many references which can help improve the day to day usage of the TWS API that is not explicitly offered as a callable method within the API itself.

#### Memory Allocation

This feature is to control how much memory your computer can assign to the TWS/IB Gateway app Usually, higher value allows users to have faster data returning speed.

1 In IB Gateway Global Configuration – API – settings, there is no "Compatibility Mode: Send ISLAND for US stocks trading on NASDAO." Specifying NASDAO exchange in contract details may cause error if connecting to IB Gatewey. For this error, please specify IsLAND exchange.

#### Daily & Weekly Reauthentication

It is compulsory for TWS/ IB Gateway users to auto logoff/auto restart TWS/ IB Gateway daily and manually login TWS/ IB Gateway weekly (Organizational client with IMFUSD in equity or large organizational client can request an exception from IB Gateway weekly reauthentication.

#### Daily Reauthentication

In TWS/ IB Gateway – "Global Configuration" – "Lock and Exit", you can choose the time that your TWS will be shut down.

1) IBHK users do not have "Never lock Trader Workstation" and "Auto restart" in TWS. It is suggested IBHK users to use IB Gateway for API connection because IB Gateway won't be locked due to activity and IBHK users can choose "Auto restrir" in IB Gateway.

#### Weekly Reauthentication

The weekly authentication cycle starts on every Monday if you receive Login failed = Seft token-8 received instead or sequenced present for zdc1.iblc.com:4001 (SSL), this means you need to manually login again to complete the weekly assumed to the second of the second or second or the second or second or the second or second

## Request an exception from IB Gateway weekly reauthentication

est an exception from IB Gateway weekly reauthentication, please submit a web ticket to "Technical ice" – "Connectivity". However, it is not guaranteed to accept the IB Gateway weekly reauthentication

- 2 Username(s) of the IB Account number that need to be excluded from IB Gateway weekly reauthenti

- 5 Who is administering the machine?

#### Operating System Sleeping

#### Order Precautions

In TWS – "Global Configuration" – "API" – "Precautions", you can enable the following items to stop receiving the order submission messages.

- Enable "Bypass Order Precautions for API orders".
- Enable "Bypass Bond warning for API orders".
- Enable "Bypass Called Bond warning for API orders".
   Enable "Bypass "same action pair trade" warning for API or

- Enable "Bypass US Stocks market data in shares warning for API orders"

#### Connected IB Server Location in TWS

- 1 Which account do you want to have IB server location change?
- I was Jase (mong-noung)
   <l

After you submit the ticket, you will receive a web ticket reply which require you to confirm and understand the migration required.

- 1) For Internet users, as the connection between IB server and Exchange goes through a dedicated line, it is commonly recommended to choose a IB server location which is closer to your TWS location. For IB connection types, please with https://www.interacturberlockers.co.ukder/software/connection/interface.php
- The pre-decided IB server location connected from TWS is different from the IB Server location connected from IB Client Fornia and IBKR Mobile.

  Big server location connected from TWS is pre-decided. You can submit a web ticket to request the IB server relocation for the TWS connection.

#### SMART Algorithm

In TWS Global Configuration – Orders – Smart Routing, you can set your SMART order routing algorithm. For available SMART Routing via TWS API, please visit: https://www.interactivebrokers.com/campus/blsr-api-

## Allocation Setup (For Financial Advisors)

#### Intelligent Order Resubmission

The TWS Setting listed in the Global Configuration under API > Setting for Maintain and resubmit orders whe connection is restored, is enabled by default in TWS fo 28 and above. When this setting is checked, all order received while connectivity is lost will be saved and automatically resubmitted when connectivity is restored. Please note, if the Trader Workstation is closed during this time, the orders are deleted regardless of the setting the setting that the setting the setting the setting the setting that the setting the setting the setting the setting that the setting the settin

# Disconnect on Invalid Format

The TWS Setting listed in the Global Configuration under API  $\rightarrow$  Setting for Maintain connection upon receiving incorrectly formatted fields, is enabled by default in TWS 10.28 and above. For clients operating on Client Vers 100 and above, users will not disconnect from fields with invalid value submissions when the setting is enabled

#### Download the TWS API

Current LTS API version is 10.16 or above. It is
STRONGLY RECOMMENDED for 10.16 version below
API users to upgrade API.

TWS API Download Page

Running the Windows version of the API installer creates a directory "CNTWS API" for the API source code in addition to automatically copying two flies into the Windows directory for the DE and C+-APIs. It is important that the API installs to the C-trike, as otherwise API applications may not be able to find the associated files. The Windows Installer also copies compiled dynamic linked libraries (DLL) of the Actives control ITWSLb dil, C+API CSharpAPI dil, and C+-API TwisSocketClient dil. Starting in API version 973.07, running the API installer is designed to install an ActiveX-control TWSLb dil, and TwsRtdServer control TWSLD dil, and TwsRtdServer control TWSLD dill which are compatible with both 32 and 64 bit applications.

It is important to know that the TWS API is only available through the interactivebrokers github io MSI or ZiP file. Any other resource, including pip, NuGet, or any other online repository is not hosted, endorsed, supported, or connected to interactive Brokers. As such, updates to the installation should always be downloaded from the github directly.

#### How to install the TWS API Components on Mac / Unix

- 1 Download the IB API Stable for Mac/Unix zip file to your local mach

 Open Terminal (Ctrl+Alt+T on most distributions)
(On Mac press Command+Space to launch Spotlight, then type terminal and press Return) TWS API Folder Files & Tools TWS API Folder Files Explanation: "IBSampleApp.exe" Unique Configurations Implementing the Intel Decimal Library for MacOS and Linux Updating The Python Interpreter 1. Open Command Prompt or Terminal 2. Navigate to Python Source 3. Run The setup.py File 4. Confirm Updates 5. Confirm your installation

5. CONTIFM YOUR INSTAllATION

Finally, users should look to confirm their installation.

The simplest way to do this to confirm their version with pip. Typing this command should show the latest installed version on your system: python -m pip show

#### Implementing Visual Basic .NET

Our VB.NET code is provided for demonstration purposes only, there is no pure, standalone VB.NET-based TWS API library, Both our 'VB\_API\_Sample' and the VB.NET 'Testbed' projects included with our TWS.API releases call the C# TWS.API source. The provided VB.NET code only interfaces with the C# source. Please keep in mind that these samples are in VB.NET, not Visual Basic for Applications.

# Third Party API Platforms

Third party software vendors make use of the TWS' programming interface (API) to integrate their platforms with interactive Broker's. Thanks to the TWS API, well known platforms such as Ninja Trader or Multicharts can interact with the TWS to fetch market data, place orders and/or manage account and portfolio information.

It is important to keep in mind that most third party API platforms are not compatible with all IBKR account structures. Always check first with the software vendor before opening a specific account type or convening an BKR account type. For instance, many third party API platforms such as Nijarlader and TradeNavigator are not compatible with IBKR linked account structures, so it is highly recommended to first check with the third party vendor before infring your IBKR account.

An ongoing list of common Third Party Connections are available within our documentation. This resource will also link out to connection guides detailing how a user can connect with a given platform.

A non-exhaustive list of third party platforms implementing or interface can be found in our livrestories. Marketplace: By stated in the marketplace, the voters is to story a recommendation from interscribe Brokers. If you are interested in a given platform that is not listed, please contact the platform's vendor directly for further information.

#### Troubleshooting & Support

The API documentation contains a complete description of all API functions. Additionally the source code of the API itself is distributed freely and is a great resource for more in-depth understanding of how the API works it after reviewing these resources there are remaining questions about available API functionality, the API Support force in Amitable is to see.

It is important to keep in mind that IB cannot provide programming assistance or give suggestions on how to code custom applications. The API group can review log files which contain a record of communications between API applications and TWS, and give details about what the API can provide.

General suggestions on starting out with the IB system

- Become familiar with the analogous functionality in TWS before using the API, the TWS API is nothing but a communication channel between your client application and TWS. Each API function has a corresponding too in TWS. For instance, the market data teck types in the API correspond to watchist columns in TWS. Any order which can be created in the API can first be reveated in TWS. and it is recommended to do so Additionally if information is not evaluable in TWS, at will not be evaluable in the API. Before using IB Gateway with the API, it is recommended to the first become API.
- Make use of the sample API applications: the sample applications distributed with the API download have
  examples of essentially every API function in each of the available programming languages. If an issue does
  not occur in the corresponding sample application, that implies there is a problem with the custom
  implementation.
- Upgrade TWS or IB Gateway periodically TWS and IB Gateway often have new software releases that have enhancements, and that can sometimes have bug fines. Because of this, we strongly recommend our users to keep their software as up to date as possible. There is no problem with staying with a version of the API and upgrading TWS, as TWS/IB Gateway are designed to be backwards compatible with other API versions. If you are experiending a specific problem that is occurring in TWS or IB Gateway and not in the API program, it is units oversities if office or of cornic in the emore recent officers is build.

#### Understanding Order Precautions

By default, the Trader Workstation implements several precautionary settings that will notify customers of potential order risks to make sure users are well informed before transmitting orders. As a result, customers will typically need to acknowledge a precautionary message and manually transmit the orders through the Trader Workstation. These precautionary messages may be disabled if the user is comfortable and aware of the behavior they are disabline.

#### Disabling Warning Messages

- 1 Log in to the Trader Workstation
- 2 Open the Global Configuration by selecting the Cog Wheel icon in the top right com-
- 3 Navigate to the "Messages" section on the left.
- Carefully read each message before disabling it. You can then disable the warning by unchecking the box on the right of the message description.

#### Modifying Precautionary Settings

- Log in to the Trader Workstation
- 2 Open the Global Configuration by selecting the Cog Wheel icon in the top right com
- 3 Navigate to the "Presets" section on the left
- Select the instrument(s) you are trading
- Carefully read each setting before making changes to it. You may modify the values inside the "Precautionary Settings" settings to be more or less restrictive. You may also set the value to '0' to disable the precaution entirely.

## Log Files

The log flies are essential to provide detailed information about how a custom application may be maifunctioning. They are useful tools for direct review by an API application programmer, and additionally they can be uploaded for review by the API Support group.

# △ API Logs

TWS and IB Gateway can be configured to create a separate log file which has a record of just communications with API applications. This log is not enabled by default; but needs to be enabled by the Global Configuration setting "Create API Message Log File"(picture below).

- » API logs contain a record of exchanged messages between API applications and TWS/IB Gateway. Since only API messages are recorded, the API logs are more compact and easier to handle. However they do not contain general diagnostic information about TWS/IBG as the TWS/IBG logs. The TWS/IBG settings folder is by default CAUS or IBJs on MacLinux). The API logs are named apt\_clientdl/\_day\_logs\_where [clentdl/\_corresponds to the ld the client application used to connect to the TWS and [day] to the week day (i.e. apt23Thu.bu).
- There is also a setting "Include Market Data in API Log" that will include streaming market data values in the API log file. Historical candiestick data is always recorded in the API log.

Note: Both the API and TWS logs are encrypted locally. The API logs can be decrypted for review from the associated TWS or IB Gateway session, just like the TWS logs, as shown in the section describing the Local location of los.

# Enabling creation of API logs

TWS

- Navigate to File/Edit → Global Configuration → API → Settings
- 2 Check the box Create API message log file
- 3 Click Apply and Ok

IB Gateway

- Navigate to Configure → Settings → API → Settings
- 2 Check the box Create API message log file
- 3 Click Apply and Ok

#### TWS Log Files

The TWS Logging Level must be set to the 'Detail' level to record information pertinent to the API. By default it is at the 'Error' level which records a minimum of diagnostic information. To capture API messages it is necessary to change the Logging Level to 'Detail'. Note the 'Logging Level', like all TWS/IBG settings, is saved separately for different users and for TWS and IBG.

Important: The TWS/IR Gateway log file setting has to be set to 'Detail' level before an issue occurs so that information recorded correctly when it manifests. However due to the high amount of information that will be generated under this level, the resulting logs can grow considerably in size. It is therefore recommended to see TWS in the Intelligence and the log through the Intelligence and the log through the Intelligence of the Intelligence and Intellige

ne are cuent user Gang the Isagli Eclient setServelLog level function. Some third party applications, such as NinjaTrader, are configured to invoke this function to set the TWS Logging Level every time they connect, and so to set the TWS Log to Detail this will have to be done from within the API client priorgam. Navigate to File/Edit → Global Configuration → API → Settings 2 Set Logging Level to Detail Local location of logs The path to the log file directory can be found from a TWS or IB Gateway session by using the combination **Ctri- Alt-U**. This will reveal path such as C:Uts\detcfsvirl\ (on Windows). In IB Gateway, File -> Gateway Logs. Uploading Logs In the "reason" text field, please type the reason for your upload.
 Alternatively, type "ATTENTION:" and then the taken tumber you are working with, or the name of your upload are working with, or the name of your ucutationer service representative. Make sure "Full internal state of the application"
 Make sure "Full internal state of the application" is checked Make sure "Include previous days logs and settings" is unchecked, unless the error happened on a prior day.

 Make sure "Include previous days logs and settings" is unchecked, unless the error happened on a prior day. If logs have been uploaded, please let the API Support group know by creating a webticket in the Message Center in Account Management (under Support) indicating the username of the associated TWS session. In some cases a TWS log may also be requested at the Detailed logging level. The TWS log can grow quite large and may not be uploadable by the automatic method, in this case an alternative means of upload can be found. Exporting Logs 2 In IBG, both "API Logs" and "Gateway Logs" are accessible directly from the File me Reading Exported Logs Each supported API language of the API contains a message file that translates a given number identifier into their corresponding request. The message identifier numbers used in the underlying wire protocol is the core of the TWS API.

Both the Incoming and Outgoing message IC The information on the right documents where each message reader file is located. The [TWS API] listed is the path to the jimmay TWS API or JTS folder created from the API installation. By default, this will be saved directly on the C: drive. In our API logs, the direction of the message is indicated by the arrow at the beginn How To Enable Debug Logging m (TWS or IBG, this does not affect API logs): 2 Find its.ini and open in text editor 4 Reboot TWS/IBG Architecture The IBApi EWrapper interface is the mechanism through which the TWS delives information to the API client application by Implementing this interface the client application will be able to receive and handle the

your programming language's documentation.

The class used to send messages to TWS is

(BApi EClientSocket, Unitive EVirapper, this class is not
overniden as the provided functions in EClientSocket
are invoked to send messages to TWS. To use

EClientSocket, first it may be necessary to implement
the IBApi EVirapper interforce as pair of its constructor
parameters so that the application can handle all
returned messages. Messages sent from TWS as a
response to function calls in IBApi EClientSocket
require an EVirapper implementation so they can be
processed to meet the needs of the API client.

EstatApp(Testifrapper\_\_init\_\_(setf);
TestGilent\_\_init\_\_(setf);
TestGilent\_\_init\_\_(setf)
TestGilent\_\_init\_\_(setf)
TestGilent\_\_init\_\_(setf)

Another crucial element is the IBApi EReaderSignal object passed to theEClientSocker's constructor. With the exception of Python, this object is used in APIs to signal a message is ready for processing in the queue. (In Python the Queue class handles this task directly). We will discuss this object in more detail in the The EReader Thread section.

class TestApp(TestWrapper, TestClient):
 def \_\_init\_\_(self):
 TestWrapper.\_\_init\_\_(self)
 TestClient.\_\_init\_\_(self, wrapper)

- EWrapper functions are for receiving data from IB server.

#### The Trader Workstation

Our market maker-designed IBKR Trader Workstation (TWS) lets traders, investors, and institutions trade stocks, options, futures, forex, bonds, and funds on over 100 markets worldwide from a single account. The TWS API is a programming interface to TWS, and as such, for an application to connect to the API there must first be a running instance of TWS or IB Gateway.

#### The IB Gateway

As an alternative to TWS for API users, IBIR also offers IB Gateway (IBGW), From the perspective of an API application, IB Gateway and TWS are Identical both represent a server to which an API client application can by a socket connection after the user has sutherstitered with either application (TWS or IBGW), the user must manually enter their usersame and password into a login window, for security reasons, a headless session of TWS or IBGW without a GUI is not supported. From the user's perspective, IB Gateway may be advantageous because it is a lighter application which consumes about 40% fewer resources.

Both TWS and IBGW were designed to be restarted daily. This is necessary to perform functions such as re-downloading contract definitions in cases where contracts have been changed or new contracts have been added. Beginning in version 974+ both applications offer an autorestart feature that allows the application to restart daily without user intervention. With this option enabled. TWS or IBGW can potentially fun from Sund Sunday without re-authenticating. After the nightly server reset on Saturday night it will be necessary to aga

For simplicity, this guide will mostly refer to the TWS although the reader should understand that for the TWS API's purposes, TWS and IB Gateway are synonymous.

#### Connectivity

A socket connection between the API client application and TWS is established with the IBApt EclientSocket &Connect function. TWS acts as a server to receive requests from the API application (the client) and responsible by taking appropriate actions. The first step is for the API client to initiate a connection to TWS on a socket port where TWS is already listening. It is possible to have multiple TWS instances running on the same computer if each its configured with adifferent API socket port number. Also, each TWS resiston can receive up to 32 different client applications simultaneously. The client ID field specified in the API connection is used to distinguish different API clients.

## Establishing an API connection

Once our two main objects have been created,
EWisaper and ESocketClient, the client application can
connect via the IBAJE ECILentSocket object:

eConnect starts by requesting from the operating system that a TCP socket be opened to the specified IP address and socket port. If the socket cannot be opened, the operating system (not TWS) returns an error which is received by the API client as error code 502 to 18Api EWInappe.ceror (Note: since this error is not generated by TWS it is not explained in TWS log little). Most commonly error 502 will include that TWS is not running with the API enabled, or it is listening for connections on a different socket port. If connecting across a network, the error can also occur if there is a flewall or antivirus program blocking connections, or if the router's IP address is not listed in the "Trusted IPs" in TWS.

After the socket has been opened, there must be an initial handshake in which information is exchanged about the highest version supported by TWS and the API. This is important because API messages can have different lengths and fields in different versions and it is necessary to have a version number to interpret received messages correctly.

For this reason it is important that the main EReader object is not created until after a connection has been established. The initial connection results in a negotiated common version between TWS and the API client which will be needed by the EReader thread in interpreting subsequent messages.

After the highest version number which can be used for communication is established, TWS will return certain pieces of data that correspond specifically to the logged-in TWS user's session. This includes (i) the account number(s) accessible in this TWS session, (2) the next full order identified ([0]), and (3) the time of connection in the most common mode of operation the EClient AsyncEconnect field is set to false and the initial handshake is taken to completion immediately after the socket connection is established. TWS will then immediately provides the API client with this information.

Important: The IBApi.EWrapper.nextValidID callback is commonly used to indicate that the connection is completed and other messages can be sent from the API client to TWS. There is the possibility that function calls made prior to this time could be dropped by TWS.

There is an alternative, deprecated mode of connection used in special cases in which the variable AsyncEconnect is set to true, and the call to startAPI is only called from the connectAckly function. All IB samples use the mode AsyncEconnect = False.

#### The EReader Thread

The Caredouer Timeda

APP programs shape as least two threads of execution. One thread is used for sending messages to TWS, and another thread is used for reading returned messages. The second thread uses the API ERcader class to read from the socket and add messages for a gueue. Everytime a new message is added to the message queue, a notification flag is triggered to let other threads now that there is a message waiting to be processed. In the two-thread design, an additional thread is created to perform this task. The thread responsible for the message queue will decode messages and invoke the appropriate functions in EWrapper. The two-threaded design is used in the IB Python semple Program by and the C++ sample TestCpoClient, while the "Testbed" samples in the other languages use a three-threaded design Commonly in a Python asynchronous network application, the asyncio module will be used to create a more sequential looking code design.

The class which has functionality for reading and parsing raw messages from TWS is t in Python IB API, the code below is included in Python IB API, the code below is included in Python IB API, the code is the Readed thread is automatically started upon connection. There is no need for user to start the reader.

Once the client is connected, a reader thread will be automatically created to handle incoming messages and put the messages into a message queue (ar futher process. Let's required to larger Clientruni) below, where the message queue is processed in an

unintie loop and the EWapper call-back functions are automatically tiggered.

For C.F. Java, C.++, and Visual Basic, we instead maintain a triple thread structure which requires the creation of a reader thread, a queue thread, and then a wirapper thread. The documentation listed here further elaborates on the structure for those languages.

Now it is time to revisit the role of IBApiLPR-aaderSignal Initially introduced in The EClientSocket Class. As mentioned in the previous paragraph, after the EReader thread places a message in the queue, a notification is issued to make known that a message is ready for processing. In the (C++, C#/NET, Java) APIs, this is done via the IBApiEReaderSignal object we initiated within the IBApiEWapper's implementer. In the Python API, it is handled automatically by the Oueue class. The client application is now ready to work with the Treder Workstation! At the completion of the connection, the API program will start receiving events such as IBApi EWrappernextValidid and IBApi EWrappernextValidid and IBApi EWrappernextValidid and IBApi EWrappernext on the residual state in the extension of the start of the extension of the Accepting an API connection from TWS Accepting an API contrection from IVVS
For secuty reaches, by default the API is not configured to automatically accept connection requests from API is not configured to automatically accept connection attempt, a dialogue will appear in TWS asking the user to manually confirm that a connection can be made.

To prevent the TWS from asking the end user to accept the connection, it is possible to configure at to automatically accept the connection from a trusted IP address and/or the local machine. This can easily be done via the TWS API settings:

Note you have to make sure the connection has been fully established before attempting to do any requests to the TWS. Failure to do so will result in the TWS closing the connection. Typically this can be done by waiting for a callback from an event and the end of the little connection handshake, such as IBApLEWrapper.next/shield or IBApLEWrapper.managedAccounts. Logging into multiple applications It is not possible to login to multiple trading applications simultaneously with the same username. However, it is possible to create additional usernames for an account that can be used in different trading applications simultaneously, as long as there is not more than a single trading application object in with a given username at a time. There are some additional cases in which it is also useful to create additional usernames at a time. There are some additional cases in which it is also useful to create additional usernames at a time. There are some additional cases in which it is also useful to create additional usernames as a first five of the surface and reconnect to the server need;

Bow to add additional usernames in Account

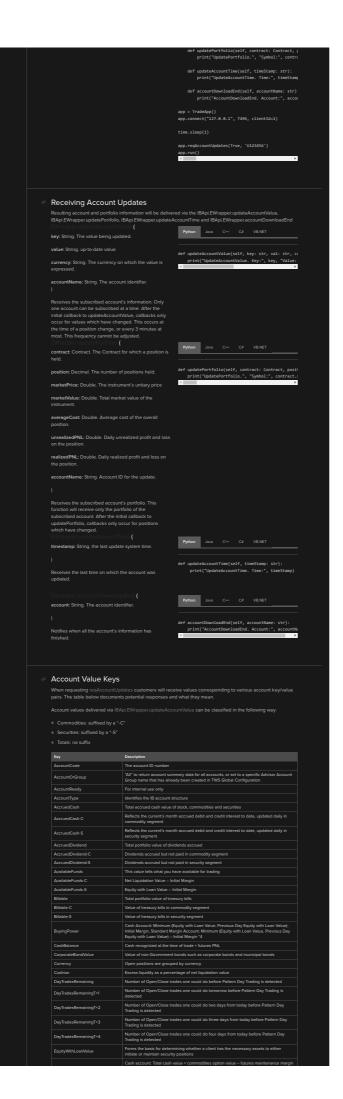
How to add additional usernames in Account

Management

Acrows in Bow session logged into a paper trading
account will not to receive market data if it is sharing
data from a live user which is used to login to Client

Portal. Broken API socket connection If there is a problem with the socket connection between TWS and the API client, for instance if TWS suddenly closes, this will trigger an exception in the EReader thread which is reading from the socket. This exception will also occur if an API client attempts to connect with a client ID that is already in use. The socket EOF is handled slightly differently in different API languages. For instance in Java, it is caught and sent to the client application to IRApi-EWrapper-reror with error Code 507-58 d Message; in C# it is caught and sent to IRApi-EWrapper-reror with error Code 507-58 d Message; in C# it is caught and sent to IRApi-EWrapper-reror with error Code -1. The client application needs to handle this error message and use it to indicate that an exception has been thrown in the socket connection. Associated functions such as IRApi-EWrapper-connectionCode and IRApi-EWrapper-connectionCode and IRApi-EWrapper-connected functions are not called automatically by the API code but need to be handled at the API client-level". Account & Portfolio Data Account Summary Requesting Account Summary Python Java C++ C# VB.NET class TradeApp(EWrapper, EClient):
 def \_\_init\_\_(self):
 EClient.\_\_init\_\_(self, self) def accountSummary(self, reqId: int, account: 
print("AccountSummary. ReqId:", reqId, "AccountSummary.") spp.reqAccountSummary(9001, "All", 'NetLiquidation
spp.run()

| AccountType  | / Tags  Identifies the IB account structure  | TP.  |
|--|--|--|
| NetLiquidation   | The basis for determining the pr   | re rice of the assets in your account. Total cash value + stock value  |
| TotalCashValue   | + options value + bond value   | st the time of trade + futures PNL   |
| SettledCash  | Cash recognized at the time of s   | settlement – purchases at the time of trade – commissions –  |
| AccruedCash  | taxes – fees  Total accrued cash value of stoo   | k, commodities and securities  |
| BuyingPower  | Buying power serves as a meas<br>in a securities account without of  | surement of the dollar value of securities that one may purchase depositing additional funds   |
| EquityWithLoanValue  | Forms the basis for determining  | whether a client has the necessary assets to either initiate or<br>h + stocks + bonds + mutual funds   |
| PreviousEquityWithLoanValue  |  | lue as of 16:00 ET the previous day  |
| GrossPositionValue   |  | of all stock and equity option positions   |
| RegTEquity<br>RegTMargin   | Regulation T equity for universal<br>Regulation T margin for universal   |  |
| SMA  | Special Memorandum Account:<br>Regulation T account increase in  | Line of credit created when the market value of securities in a  |
| InitMarginReq  | Initial Margin requirement of wh   |  |
| MaintMarginReq AvailableFunds  | Maintenance Margin requirement<br>This value tells what you have a   |  |
| ExcessLiquidity  | This value shows your margin or  |  |
| Cushion<br>FullnitMerginReq  | Excess liquidity as a percentage   | e of net liquidation value with no discounts or intraday credits   |
| FullMaintMarginReq   |  | ortfolio with no discounts or intraday credits   |
| FullAvailableFunds   |  | lio with no discounts or intraday credits  |
| FullExcessLiquidity  LookAheadNextChange   | Excess liquidity of whole portfoli<br>Time when look-ahead values to   | lio with no discounts or intraday credits  |
| LookAheadInitMarginReq   | Initial Margin requirement of wh   | ole portfolio as of next period's margin change  |
| LookAheadMaintMarginReq<br>LookAheadAvailableFunds   |  | nt of whole portfolio as of next period's margin change  |
| LookAheadAvailableFunds<br>LookAheadExcessLiquidity  |  | e funds at the next margin change<br>liquidity at the next margin change   |
| HighestSeverity  | A measure of how close the acc   | count is to liquidation  |
| DayTradesRemaining   | The Number of Open/Close trac<br>A value of "-1" means that the us   | des a user could put on before Pattern Day Trading is detected.<br>ser can put on unlimited day trades.  |
| Leverage   | GrossPositionValue / NetLiquida  |  |
| \$LEDGER<br>\$LEDGER:CURRENCY  | Single flag to relay all cash balar<br>Single flag to relay all cash balar   | nce tags*, only in base currency.  nce tags*, only in the specified currency.  |
| \$LEDGER:ALL   | Single flag to relay all cash balar  |  |
|  |  |  |
| Receiving Accour   | t Summary  |  |
|  |  | Python Java C++ C# VB.NET  |
| reqld: int. the request's uniq   |  | Pyunon Sava Com Com VB.NET   |
| account: String. the account   |  | def accountSummary(self, reqId: int, account: str,   |
| tag: String. the account's att   | lbute being received.  | print("AccountSummary. ReqId:", reqId, "Account:   |
| value: String. the account's a   | ittribute's value.   |  |
| currency: String, the currence   |  |  |
|  |  |  |
|  |  |  |
| Receives the account informative receive the account information and the receiver the account and the receiver the account information and the receiver the account and th |  |  |
| TWS' Account Summary Win   |  |  |
| regld: String. The request's i   | dentifier.   | Python Java C++ C# VB.NET  |
|  |  |  |
| Notifies when all the accoun   | ts' information has ben  | <pre>def accountSummaryEnd(self, reqId: int):     print("AccountSummaryEnd. ReqId:", reqId)</pre>  |
| received. Requires TWS 967<br>accountSummaryEnd in links   |  |  |
| accountsummaryzna in iniki   | a account structures.  |  |
|  |  |  |
| Cancel Account S   | ummary   | coded it can be cancelled up the   |
| IBApi::EClient::cancelAccour   |  | eeded, it can be cancelled via the   |
| regld: Int. The identifier of th   | ummary (<br>e previously performed   | Python C++   |
|  |  |  |
|  |  | self.cancelAccountSummary(9001)  |
|  |  |  |
|  |  |  |
|  |  |  |
| Account Updates  |  |  |
| The IBApi.EClient.reqAccour  |  | subscription to the TWS through which account and year same as the one displayed within the TWS account.   |
| The IBApi.EClient.reqAccour<br>portfolio information is delivi<br>Window. Just as with the TW  | ered. This information is the e<br>'S' Account Window, unless th   | subscription to the TWS through which account and<br>xact same as the one displayed within the TWS' Account<br>here is a position change this information is updated at a  |
| The IBApi.EClient.reqAccour<br>portfolio information is delive<br>Window. Just as with the TW<br>fixed interval of three minute<br>Unrealized and Realized P&I   | ered. This information is the e<br>'S' Account Window, unless the<br>'s.<br>. is sent to the API function IB   | xact same as the one displayed within the TWS' Account<br>here is a position change this information is updated at a<br>IApl.EWrapper.updateAccountValue function after a  |
| The IBApi.EClient.reqAccour<br>portfolio information is delive<br>Window. Just as with the TW<br>fixed interval of three minute<br>Unrealized and Realized P&I<br>subscription request is made   | ered. This information is the e<br>'S' Account Window, unless the<br>is.<br>. is sent to the API function IB<br>e with IBApi.EClient.reqAccou  | exact same as the one displayed within the TWS' Account<br>there is a position change this information is updated at a   |
| The IBApl.EClient.reqAccour<br>portfolio information is deliv<br>Window. Just as with the TW<br>fixed interval of three minute<br>Unrealized and Realized P&i<br>subscription request is made<br>the TWS Account Window, a<br>reset schedule than PnL dat  | ered. This information is the e.<br>S' Account Window, unless the<br>s.<br>Is sent to the API function IB<br>with IBApi. EClient.reqAccou<br>and has a different source of ir<br>a in the TWS Portfolio Window   | xxxxt same as the one displayed within the TMS' Account<br>nee is a position change this information is updated at a<br>LApt EWrapper update Account/value function after a<br>ntilpdates. This information corresponds to the data in<br>information, a different update frequency, and different<br>avand associated APf functions (below), in particular, the   |
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| EquityWithLoanValue-C  | requirement + minimum (0, futures PNL) Margin account: Total cash value + commodities  |
|--|--|
|  | option value – futures maintenance margin requirement  |
| EquityWithLoanValue-S  | Cash account: Settled Cash Margin Account: Total cash value + stock value + bond value + (non-U.S. & Canada securities options value)  |
| ExcessLiquidity  | (non-U.S. & Canada securities options value)  This value shows your margin cushion, before liquidation   |
| ExcessLiquidity-C  | Equity with Loan Value – Maintenance Margin  |
| ExcessLiquidity-S  | Net Liquidation Value – Maintenance Margin   |
| ExchangeRate   | The exchange rate of the currency to your base currency  |
| FullAvailableFunds   | Available funds of whole portfolio with no discounts or intraday credits   |
| FullAvailableFunds-C   | Net Liquidation Value – Full Initial Margin  |
| FullAvailableFunds-S   | Equity with Loan Value – Full Initial Margin   |
| FullExcessLiquidity  | Excess liquidity of whole portfolio with no discounts or intraday credits  |
| FullExcessLiquidity-C  | Net Liquidation Value – Full Maintenance Margin  |
| FullExcessLiquidity-S  | Equity with Loan Value – Full Maintenance Margin   |
| FullInitMarginReq  | Initial Margin of whole portfolio with no discounts or intraday credits  |
| FullInitMarginReq-C  | Initial Margin of commodity segment's portfolio with no discounts or intraday credits  |
| FullInitMarginReq-S  | Initial Margin of security segment's portfolio with no discounts or intraday credits   |
| FullMaintMarginReq   | Maintenance Margin of whole portfolio with no discounts or intraday credits  |
| FullMaintMarginReq-C   | Maintenance Margin of commodity segment's portfolio with no discounts or intraday credits  |
| FullMaintMarginReq-S   | Maintenance Margin of security segment's portfolio with no discounts or intraday credits   |
| FundValue  | Value of funds value (money market funds + mutual funds)   |
| FutureOptionValue  | Real-time market-to-market value of futures options  |
| FuturesPNL   | Real-time changes in futures value since last settlement   |
| FxCashBalance  | Cash balance in related IB-UKL account   |
| GrossPositionValue   | Gross Position Value in securities segment   |
| GrossPositionValue-S   | Long Stock Value + Short Stock Value + Long Option Value + Short Option Value  |
| IndianStockHaircut   | Margin rule for IB-IN accounts   |
| InitMarginReq  | Initial Margin requirement of whole portfolio  |
| InitMarginReq-C  | Initial Margin of the commodity segment in base currency   |
| InitMarginReq-S  | Initial Margin of the security segment in base currency  |
| IssuerOptionValue  | Real-time mark-to-market value of Issued Option  |
| Leverage-S   | GrossPositionValue / NetLiquidation in security segment  |
| LookAheadNextChange  | Time when look-ahead values take effect  |
| LookAheadAvailableFunds  | This value reflects your available funds at the next margin change   |
| LookAheadAvailableFunds-C  | Net Liquidation Value – look ahead Initial Margin  |
| LookAheadAvailableFunds-S  | Equity with Loan Value – look ahead Initial Margin   |
| LookAheadExcessLiquidity   | This value reflects your excess liquidity at the next margin change  |
| LookAheadExcessLiquidity-C   | Net Liquidation Value – look ahead Maintenance Margin  |
| LookAheadExcessLiquidity-S   | Equity with Loan Value – look ahead Maintenance Margin   |
| LookAheadInitMarginReq   | Initial margin requirement of whole portfolio as of next period's margin change  |
| LookAheadInitMarginReq-C   | Initial margin requirement as of next period's margin change in the base currency of the account   |
|  | account  Initial margin requirement as of next period's margin change in the base currency of the  |
| LookAheadInitMarginReq-S   | account  |
| LookAheadMaintMarginReq  | Maintenance margin requirement of whole portfolio as of next period's margin change  |
| LookAheadMaintMarginReg-C  | Maintenance margin requirement as of next period's margin change in the base currency  |
|  | of the account  Maintenance margin requirement as of next period's margin change in the base currency  |
| LookAheadMaintMarginReq-S  | of the account   |
| MaintMarginReq   | Maintenance Margin requirement of whole portfolio  |
| MaintMarginReq-C   | Maintenance Margin for the commodity segment   |
| MaintMarginReq-S   | Maintenance Margin for the security segment  |
| MoneyMarketFundValue   | Market value of money market funds excluding mutual funds  |
| MutualFundValue  | Market value of mutual funds excluding money market funds  |
| NetDividend  | The sum of the Dividend Payable/Receivable Values for the securities and commodities   |
|  |  |
|  | segments of the account  The basis for determining the price of the assets in your account.  |
| NetLiquidation  NetLiquidation-C   | The basis for determining the price of the assets in your account  |
| NetLiquidation NetLiquidation-C  | The basis for determining the price of the assets in your account  Total cash value + futures PNL + commodities options value  |
| NetLiquidation   | The basis for determining the price of the assets in your account  |
| NetLiquidation NetLiquidation-C NetLiquidation-S   | The basis for determining the price of the assets in your account  Total cash value + futures PNL + commodities options value  Total cash value + stock value + securities options value + bond value  |
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# Cancel Account Updates

Once the subscription to account updates is no longer needed, it can be cancelled by invoking the IBADLEClient.regAccountUpdates method while specifying the suspeription flag to be False.

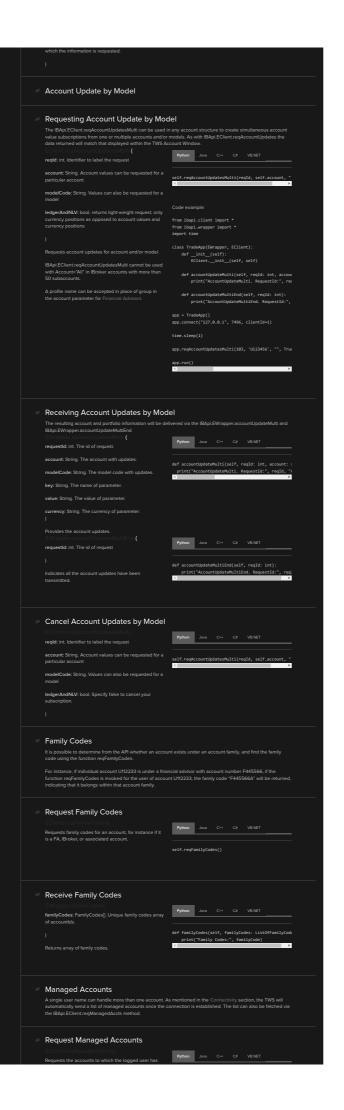
Note: An important key passed back in IBApi EWrapper-updateAccount/blue after a call to IBApi EClient reqAccountUpdates is a boolean value 'accountReady' if an accountReady value of false is returned that means that the IB server is in the process of resetting at that moment, i.e. the account is 'not ready'. When this occur subsequent key values returned to IBApi EWrapper-updateAccount/alue in the current update can be out of date or incorner.

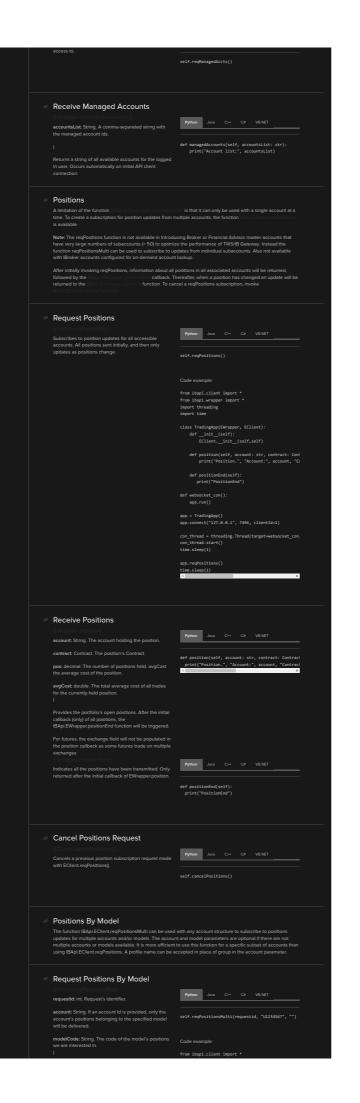
Importants only one account at a time can be subscribed at a time. Attempting a second subscription without previously cancelling an active one will not yield any error message although it will override the already subscribed account with the new one. With Financial Advisory (FAI account structures there is an alternative way of specifying the account code such that information is returned for 'All' sub accounts: this is done by appending the letter 'X1 to the end of the account number, i.e. rep.Account/pdatestyre. "PEQ3456A")

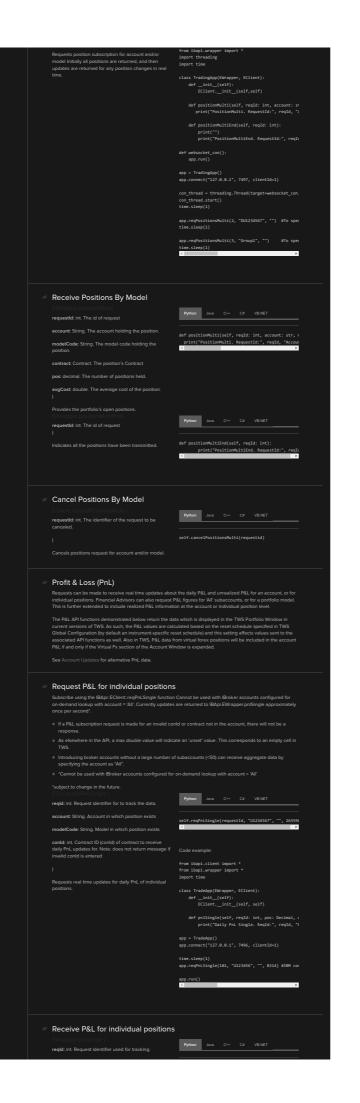
ubscribe: bool. Set to true to start the subscription and to false to stop it.

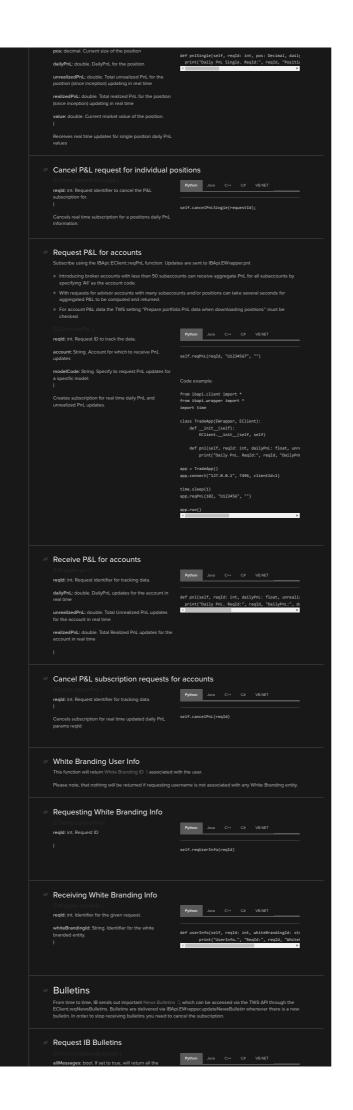
Python Java C++ C# VB.NET

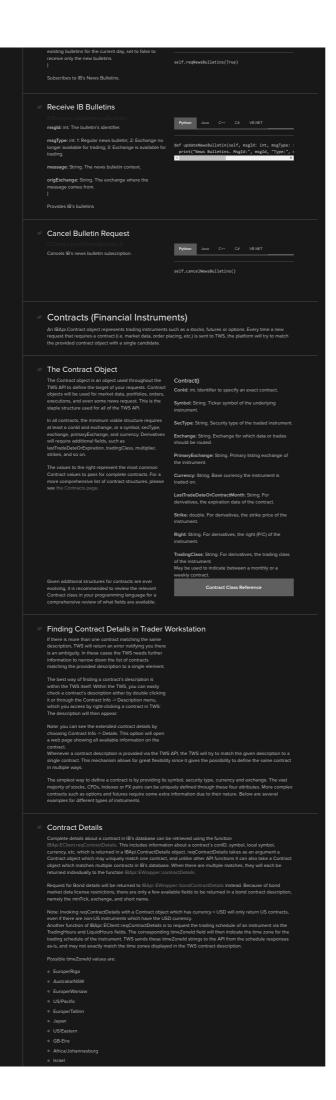
self.reqAccountUpdates(False, self.account)

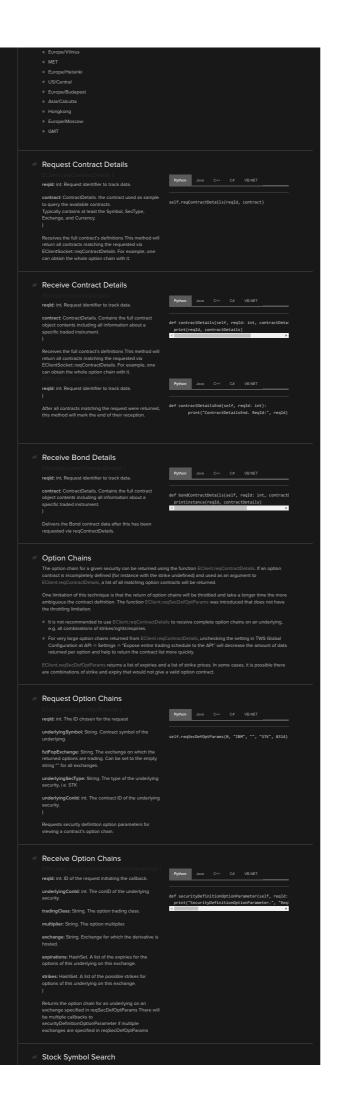












The function IBApi: Cclient-regMatchingSymbols is available to search for stock contracts. The input can be either the first few letters of the ticker symbol, or for longer strings, a character sequence matching a word in the security name. For instance to search for the stock symbol IBKR; the input I'l or IBI'can be used, as well as the word 'Interactive,' by to 6' matching results are return.

There must be an interval of at least 1 second between successive calls to regMatchingSymbols

Matching stock contracts are returned to IBApi::EWrapper::symbolSamples with information about types of derivative contracts which exist (warrants, options, dutch warrants, futures).

#### Request Stock Contract Search

reald; let Request identifier used to track date

pattern: String. Either start of ticker symbol or (for larger strings) company name.

Python Java C++ C# VB.NET

Requests matching stock symbols

#### Receive Searched Stock Contract

contractDescription: ContractDescription[]. Provide an array of contract objects matching the requested descriptoin.



def symbolSamples(self, reqfd: int, contractDescri print("Symbol Samples. Request Id: ", reqI for contractDescription in contractDescrip derivSecTypes = ""

for derivSecType in contractbescript
derivSecTypes + "
derivSecTypes + derivSecTy
print("Contract: comlotks,
 "curnerySks, deriv
contractbescription

#### 

When a client application sends a message to TWS which requires a response which has an expected response (i.e. placing an order, requesting market data, subscribing to account updates, etc.), TWS will almost either always If respondy with the relevant data or 21 scan day error messages to EW/apage group.

 Exceptions when no response can occur. Also, if a request is made prior to full establishment of connection (denoted by a returned 2104 or 2106 error code "Data Server is Ok"), there may not be a response from the request.

Error messages sett by the TWS are handled by the EWapor enroll method. The EWapore errorly event contains the originating request for the ordered in case the error was risked when placing an order, a numeric error code and a brief description. It is important to keep in mind that this function is used for true error messages as well as notifications that do not mean arthritin is wrone.

#### API Error Messages when TWS is not set to the English Language

 Currently on the Windows platform, error messages are sent using Latin1 encoding. If TWS is launched in a non-Western language, it is recommended to enable the setting at Global Configuration > API >> Settings to "Show API error messages in English".

#### Understanding Message Codes

The TWS uses the EWappenerror method not only to deliver errors but also warnings or informative messages. This is done mostly for simplicity's sake Belovis a table with all the messages which can be sent by the TWS/IB Gateway All messages delivered by the TWS are usually accompanied by a brief but meaningful description pointing in the direction of the problem.

Remember that the TWS API simply connects to a running TWS/IB Gateway which most of times will be running or your local network if not in the same host as the client application. It is your responsibility to provide reliable connectivity between the TWS and your client application.

#### System Message Codes

The messages in the table below are not a consequence of any action performed by the client application. They are notifications about the connectivity status between the TVSA and our severs. Your client application must spot special attention to them and handle the situation accordingly. You are very likely to lose connectivity to our severes at least once a day due to our daily severe maintenance downtime as clearly detailed in our Current System Status page. Note that after the system reset, the TWS/IB Gateway will automatically reconnect to our severes and you can resume your operations normally.

#### Note

1 During a reset period, there may be an interruption in the ability to log in or manage orders. Existing orders (native types) will operate normally although execution reports and simulated orders will be delayed until the reset is complete. It is not recommended to operate during the scheduled reset times.

| Code | TWS message   | Additional notes  |
|------|---|---|
|      | Connectivity between IB and the TWS has been lost.  | Your TWS/IB Gateway has been disconnected from IB servers. This can occur because of an internet connectivity issue, a nightly reset of the IB servers, or a competing session. |
|      | Connectivity between IB and TWS has been restored- data lost.*  | The TWS/IB Gateway has successfully reconnected to IB's servers.<br>Your market data requests have been lost and need to be re-<br>submitted.                                   |
|      | Connectivity between IB and TWS has been restored- data maintained.   | The TWS/IB Gateway has successfully reconnected to IB's servers.<br>Your market data requests have been recovered and there is no<br>need for you to re-submit them.            |
|      | TWS socket port has been reset and this<br>connection is being dropped. Please reconnect<br>on the new port = <port_num></port_num> | The port number in the TWS/IBG settings has been changed during an active API connection.   |

## Error Codes

Error codes in different ranges have different indications

| Code | TWS message  | Additional notes   |  |
|------|--|--|--|
|      | Max rate of messages per second<br>has been exceeded.  | The client application has exceeded the rate of 50 messages/second. The TWS will likely disconnect the client application after this message.  |  |
|      | Max number of tickers has been reached.  | "The current number of active market data subscriptions in TWS and the API altogether has been exceeded. This number is calculated based on a formula which is based on the equity, commissions, and quote booster packs in an account. Active lines can be checked in Tws using the Ctrl-Alt-e combination" |  |
|      | Duplicate ticker ID.   | A market data request used a ticker ID which is already in use by an active request.   |  |
|      | Duplicate order ID.  | An order was placed with an order ID that is less than or equal to the order ID of a previous order from this client   |  |
|      | Can't modify a filled order.   | An attempt was made to modify an order which has already been filled by the system.  |  |
|      | Order being modified does not<br>match original order.   | An order was placed with an order ID of a currently open order but basic<br>parameters differed (aside from quantity or price fields)  |  |
| 106  | Can't transmit order ID:   |  |  |
| 107  | Cannot transmit incomplete order.  | Order is missing a required field.   |  |
|      | Price is out of the range defined<br>by the Percentage setting at order<br>defaults frame. The order will not<br>be transmitted. | Price entered is outside the range of prices set in TWS or IB Gateway Order<br>Precautionary Settings  |  |
|      | The price does not conform to the<br>minimum price variation for this<br>contract.   | An entered price field has more digits of precision than is allowed for this<br>particular contract. Minimum increment information can be found on the IB<br>Contracts and Securities Search page.   |  |

|     | The TIE (Tif type) and the order   | The time in force specified cannot be used with this order type. Please refer to   |  |
|-----|--|--|--|
|     | The TIF (Tif type) and the order type are incompatible.  | order tickets in TWS for allowable combinations.   |  |
|     | The Tif option should be set to<br>DAY for MOC and LOC orders.   | Market-on-close or Limit-on-close orders should be sent with time in force set to 'DAY'  |  |
|     | Relative orders are valid for stocks only.   | This error is deprecated.  |  |
|     | *Relative orders for US stocks can<br>only be submitted to SMART,<br>SMART_ECN, INSTINET, or   | This error is deprecated.  |  |
|     | PRIMEX."  The order cannot be transmitted to a dead exchange.  | Exchange field is invalid.   |  |
|     | The block order size must be at least 50.  |  |  |
|     | VWAP orders must be routed through the VWAP exchange.  | Million on order is resided to the VAMAD archeorer the time of the order word  |  |
| 119 | Only VWAP orders may be placed<br>on the VWAP exchange.  It is too late to place a VWAP  | "When an order is routed to the VWAP exchange, the type of the order must be defined as "VWAP."  The cutoff has passed for the current day to place VWAP orders.   |  |
| 121 | order for today.  "Invalid BD flag for the order. Check ""Destination"" and ""BD""   | This error is deprecated.  |  |
| 122 | flag."  No request tag has been found for  |  |  |
|     | order:  No record is available for conid:  | The specified contract ID cannot be found. This error is deprecated.   |  |
|     | No market rule is available for conid:  Buy price must be the same as the  |  |  |
|     | best asking price.  Sell price must be the same as the   |  |  |
|     | VWAP orders must be submitted<br>at least three minutes before the   | The start time specified in the VWAP order is less than 3 minutes after when it is placed.   |  |
|     | start time.  "The sweep-to-fill flag and display<br>size are only valid for US stocks<br>routed through SMART, and will<br>be ignored."  |  |  |
|     | This order cannot be transmitted without a clearing account.   |  |  |
|     | Submit new order failed.   |  |  |
| 134 | Modify order failed.  Can't find order with ID =   | An attempt was made to cancel an order not currently in the system.  |  |
| 135 | This order cannot be cancelled.  | "An attempt was made to cancel an order than cannot be cancelled, for  |  |
|     | VWAP orders can only be<br>cancelled up to three minutes   | instance because"  |  |
| 138 | before the start time.   |  |  |
| 138 | Could not parse ticker request:  Parsing error:  | Error in command syntax generated parsing error.   |  |
|     | The size value should be an  | The size field in the Order class has an invalid type.   |  |
| 141 | The price value should be a  | A price field in the Order type has an invalid type.   |  |
| 142 | double: Institutional customer account   | The court year is all inventige.   |  |
|     | does not have account info  Requested ID is not an integer number.   | The IDs used in API requests must be integer values.   |  |
|     | "Order size does not match total share allocation. To adjust the share allocation, right-click on the order and select &CoeModify > Share Allocation.&E?"  |  |  |
| 145 | Error in validating entry fields –   | An error occurred with the syntax of a request field.  |  |
|     | Invalid trigger method.  | The trigger method specified for a method such as stop or trail stop was not<br>one of the allowable methods.  |  |
|     | The conditional contract info is incomplete.   |  |  |
|     | Conditional submission of orders is supported for Limit, Market, MidPrice, Relative and Snap order types only. Conditional cancelation of orders is supported for Limit and MidPrice order types only. |  |  |
|     | This order cannot be transmitted without a user name.  | In DDE the user name is a required field in the place order command.   |  |
|     | "The ""hidden" order attribute<br>may not be specified for this  | The order in question cannot be placed as a hidden order.  See- https://www.interactivebrokers.com/en/index.php?f=596  |  |
| 153 | order."  EFPs can only be limit orders.  | This error is deprecated.  |  |
|     | Orders cannot be transmitted for a   | A security was halted for trading when an order was placed.  |  |
| 155 | A sizeOp order must have a user  |  |  |
| 156 | name and account.  A SizeOp order must go to IBSX  | This error is deprecated.  This error is deprecated.   |  |
| 157 | An order can be EITHER Iceberg<br>or Discretionary. Please remove<br>either the Discretionary amount or  | In the Order class extended attributes the fields 'Iceberg' and 'Discretionary' cannot   |  |
|     | the Display size.  You must specify an offset amount or a percent offset value.  | TRAIL and TRAIL STOP orders must have an absolute offset amount or offset percentage specified.  |  |
|     | The percent offset value must be between 0% and 100%.  | A percent offset value was specified outside the allowable range of 0% and 100%  |  |
| 160 | The size value cannot be zero.   | 100%. The size of an order must be a positive quantity.  |  |
|     | Cancel attempted when order is<br>not in a cancellable state. Order<br>permid =  | An attempt was made to cancel an order not active at the time.   |  |
|     | Historical market data Service error message.  The price specified would violate   |  |  |
|     | the percentage constraint<br>specified in the default order<br>settings.   | The order price entered is outside the allowable range specified in the Order<br>Precautionary Settings of TWS or IB Gateway   |  |
|     | There is no market data to check price percent violations.   | No market data is available for the specified contract to determine whether the specified price is outside the price percent precautionary order setting.  |  |
|     | Historical market Data Service<br>query message.   | "There was an issue with a historical data request, such is no such data in IB's database. Note this message is not specific to the APL"   |  |
| 166 | HMDS Expired Contract Violation.  VWAP order time must be in the   | Historical data is not available for the specified expired contract.   |  |
|     | VWAP order time must be in the future.  Discretionary amount does not conform to the minimum price   | The start time of a VWAP order has already passed.  The discretionary field is specified with a number of degrees of precision   |  |
| 168 | variation for this contract.   | higher than what is alllowed for a specified contract.  "The specified contract does not match any in IB's database, usually because   |  |
|     | No security definition has been found for the request.  The contract description specified   | of an incorrect or missing parameter."   |  |
|     | The contract description specified for is ambiguous  | Ambiguity may occur when the contract definition provided is not unique.  "For some stocks that has the same Symbol, Currency and Exchange, you  |  |
|     |  | For some stocks that has the same Symbol, Currency and Exchange, you need to specify the IBApi Contract PrimaryExch attribute to avoid ambiguity.<br>Please refer to a sample stock contract here.*  "For futures that has multiple multipliers for the same expiration, You need to |  |
|     |  | specify the IBApi.Contract.Multiplier attribute to avoid ambiguity. Please refer to a sample futures contract here."   |  |
|     | Order rejected – Reason:   | An attempted order was rejected by the IB servers. See Order Placement<br>Considerations for additional information/considerations for these errors.   |  |
|     | Order cancelled – Reason:  | An active order on the IB server was cancelled. See Order Placement  |  |
|     | The security is not available or allowed for this account.   | Considerations for additional information/considerations for these errors.  The specified security has a trading restriction with a specific account.  |  |
|     | allowed for this account.  Can't find Eld with ticker ld:  | An attempt was made to cancel market data for a ticker ID that was not associated with a current subscription. With the DDE API this occurs by clearing the spreadsheet cell.  |  |
|     | Invalid ticker action:   |  |  |
| 302 | Error parsing stop ticker string:<br>Invalid action:   | An action field was specified that is not available for the account. For most accounts this is only BUY or SELL. Some institutional accounts also have the   |  |
| 304 | Invalid action:  | accounts this is only BUT of Sell. Some institutional accounts also have the options SSHORT or SLONG available.  |  |
|     | "Request parsing error, the request has been ignored."   | The syntax of a DDE request is invalid.  |  |
| 306 | Error processing DDE request:  | An issue with a DDE request prevented it from processing.  |  |

| 307        | Invalid request topic:  | The 'topic' field in a DDE request is invalid.  |
|------------|---|---|
|            | Unable to create the 'API' page in<br>TWS as the maximum number of<br>pages already exists.   | "An order placed from the API will automatically open a new page in classic TWS, however there are already the maximum number of pages open."   |
|            | "Max number (3) of market depth requests has been reached. Note: TWS currently limits users to a maximum of 3 distinct market depth requests. This same restriction applies to API clients, however API clients may make multiple market depth requests for the same security." |   |
|            | Can't find the subscribed market depth with tickerId:   | An attempt was made to cancel market depth for a ticker not currently active.   |
| 311        | The origin is invalid.  The combo details are invalid.  | The origin field specified in the Order class is invalid.  Combination contract specified has invalid parameters.   |
| 313        | The combo details for leg " are invalid.  | A combo leg was not defined correctly.  |
|            | Security type 'BAG' requires combo leg details.   | When specifying security type as 'BAG' make sure to also add combo legs with details.   |
|            | Stock combo legs are restricted to<br>SMART order routing.  | Make sure to specify "SMART" as an exchange when using stock combo contracts.   |
|            | Market depth data has been<br>HALTED. Please re-subscribe.  | You need to re-subscribe to start receiving market depth data again.  |
|            | Market depth data has been<br>RESET. Please empty deep book<br>contents before applying any new<br>entries.   |   |
| 319        | Invalid log level  Server error when reading an API client request.   | Make sure that you are setting a log level to a value in range of 1 to 5.   |
|            | Server error when validating an<br>API client request.  |   |
|            | Server error when processing an API client request.   |   |
|            | Server error: cause – s   |   |
|            | Server error when reading a DDE<br>client request (missing<br>information).   | Make sure that you have specified all the needed information for your request.  |
|            | Discretionary orders are not<br>supported for this combination of<br>exchange and order type.   | Make sure that you are specifying a valid combination of exchange and order type for the discretionary order.   |
|            | Unable to connect as the client id is already in use. Retry with a unique client id.  | Another client application is already connected with the specified client id.   |
|            | Only API connections with clientld set to 0 can set the auto bind TWS orders property.  |   |
|            | Trailing stop orders can be attached to limit or stop-limit   | Indicates attempt to attach trail stop to order which was not a limit or stop-<br>limit.  |
|            | Order modify failed. Cannot change to the new order type.   | You are not allowed to modify initial order type to the specific order type you are using.  |
|            | Only FA or STL customers can<br>request managed accounts list.  | are using.  Make sure that your account type is either FA or STL.   |
|            | Internal error. FA or STL does not have any managed accounts.   | You do not have any managed accounts.   |
|            | The account codes for the order profile are invalid.  | You need to check that the account codes you specified for your request are valid.  |
| 333        | Invalid share allocation syntax.  | Check you order settings.   |
| 335        | Invalid delta: The delta must be<br>between 0 and 100.  | Circuit you older actings.  |
|            | "The time or time zone is invalid. The correct format is hh.mm.as xxx where xxx is an optionally specified time zone. E.g.: 15:59:00 EST Note that there is a space between the time and the time zone. If no time zone is specified, local time is assumed."                   |   |
|            | "The date, time, or time-zone entered is invalid. The correct format is syymmidd harmmss sox where yyymmidd and xox are optional. E.g. 20031126 IS-5900 ESTNote that there is a space between the date and time, and between the time and time-zone."                           |   |
|            | Good After Time orders are<br>currently disabled on this  |   |
|            | exchange.  Futures spread are no longer supported. Please use combos instead.   |   |
| 340        | Invalid improvement amount for box auction strategy.  |   |
|            | "Invalid delta. Valid values are<br>from 1 to 100. You can set the delta<br>from the "Pegged to Stock"<br>section of the Order Ticket Panel,<br>or by selecting Page/Layout from<br>the main menu and adding the<br>Delta column."  |   |
| 342        | Pegged order is not supported on this exchange.   | You can review all order types and supported exchanges on the Order Types and Algos page.   |
|            | "The date, time, or time-zone<br>entered is invalid. The correct<br>format is yyyymmdd hh:mm:ss<br>xxx"   |   |
|            | The account logged into is not a financial advisor account.   | You are trying to perform an action that is only available for the financial advisor account.   |
| 345        | Generic combo is not supported<br>for FA advisor account.   |   |
| 346        | Not an institutional account or an<br>away clearing account.<br>Short sale slot value must be 1   |   |
|            | (broker holds shares) or 2<br>(delivered from elsewhere).   | Make sure that your slot value is either 1 or 2.  |
|            | Order not a short sale – type must<br>be SSHORT to specify short sale<br>slot.  | Make sure that the action you specified is 'SSHORT'.  |
| 349        | "Generic combo does not support ""Good After" attribute."  Minimum quantity is not supported  |   |
|            | for best combo order.  "The ""Regular Trading Hours   |   |
|            | only" flag is not valid for this<br>order."<br>Short sale slot value of 2   |   |
|            | (delivered from elsewhere)<br>requires location.  | You need to specify designatedLocation for your order.  |
|            | Short sale slot value of 1 requires<br>no location be specified.  Not subscribed to requested   | You do not need to specify designated Location for your order.  You do not have live market data available in your account for the specified.   |
|            | market data.  Order size does not conform to market rule.   | You do not have live market data available in your account for the specified<br>instruments. For further details please refer to Streaming Market Data.<br>Check order size parameters for the specified contract from the TWS Contract<br>Details. |
|            | Smart-combo order does not support OCA group.   | Remove OCA group from your order.   |
|            | Your client version is out of date.  Smart combo child order not supported.   |   |
|            | Combo order only supports reduce on fill without block(OCA).  |   |
|            | No whatif check support for smart combo order.  | Pre-trade commissions and margin information is not available for this type of order.   |
| 361<br>362 | Invalid trigger price. Invalid adjusted stop price.   |   |
| 363<br>364 | Invalid adjusted stop limit price.  Invalid adjusted trailing amount.   |   |
| 365        | No scanner subscription found for ticker id:  | Scanner market data subscription request with this ticker id has either been cancelled or is not found.   |
| 366        | No historical data query found for ticker id:   | Historical market data request with this ticker id has either been cancelled or is not found.   |
|            | Volatility type if set must be 1 or 2   |   |

| 367        | for VOL orders. Do not set it for  |   |
|------------|--|---|
|            | other order types.  Reference Price Type must be 1 or 2 for dynamic volatility   |   |
|            | management. Do not set it for non-VOL orders.  |   |
|            | Volatility orders are only valid for US options.   | Make sure that you are placing an order for US OPT contract.  |
|            | "Dynamic Volatility orders must be<br>SMART routed, or trade on a Price<br>Improvement Exchange."  |   |
|            | VOL order requires positive<br>floating point value for volatility.<br>Do not set it for other order types.  |   |
|            | Cannot set dynamic VOL attribute<br>on non-VOL order.  | Make sure that your order type is 'VOL'.  |
|            | Can only set stock range attribute<br>on VOL or RELATIVE TO STOCK<br>order.  |   |
|            | "If both are set, the lower stock<br>range attribute must be less than<br>the upper stock range attribute."  |   |
|            | Stock range attributes cannot be<br>negative.  The order is not eligible for   |   |
|            | continuous update. The option<br>must trade on a cheap-to-reroute<br>exchange.   |   |
|            | Must specify valid delta hedge<br>order aux. price.  Delta hedge order type requires   |   |
|            | delta hedge aux. price to be<br>specified.  Delta hedge order type requires  | Make sure your order has delta attribute.   |
|            | that no delta hedge aux. price be<br>specified.  This order type is not allowed for  | Make sure you do not specify aux. delta hedge price.  |
| 380        | delta hedge orders.  Your DDE.dll needs to be  | "Limit, Market or Relative orders are supported."   |
|            | upgraded.  The price specified violates the number of ticks constraint specified in the default order  |   |
|            | The size specified violates the size constraint specified in the   |   |
| 384        | default order settings.  Invalid DDE array request.  |   |
| 385        | Duplicate ticker ID for API scanner subscription.  | Make sure you are using a unique ticker ID for your new scanner subscription.   |
| 386        | Duplicate ticker ID for API<br>historical data query.  | Make sure you are using a unique ticker ID for your new historical market data<br>query.  |
|            | Unsupported order type for this exchange and security type.  | You can review all order types and supported exchanges on the Order Types and Algos page.  Charles and a support of the properties of the |
| 388        | Order size is smaller than the<br>minimum requirement.  Supplied routed order ID is not  | Check order size parameters for the specified contract from the TWS Contract<br>Details.  |
| 389        | Supplied routed order ID is not<br>unique.  Supplied routed order ID is invalid.   |   |
| 390        | The time or time-zone entered is<br>invalid. The correct format is   |   |
|            | hh:mm:ss xxx  Invalid order: contract expired.   | You can not place an order for the expired contract.  |
|            | Short sale slot may be specified for delta hedge orders only.  |   |
|            | Invalid Process Time: must be<br>integer number of milliseconds  |   |
| 205        | *Due to system problems, orders  | Charle TMS hullating for many info  |
|            | with OCA groups are currently not<br>being accepted."  "Due to system problems,  | Check TWS bulletins for more information.   |
|            | application is currently accepting only Market and Limit orders for this contract."  | Check TWS bulletins for more information.   |
|            | application is currently accepting<br>only Market and Limit orders for<br>this contract."  |   |
| 398<br>399 | cannot be used as a condition trigger.  Order message error  | Please make sure that you specify a valid condition   |
| 400        | Algo order error.  |   |
| 401        | Length restriction.  Conditions are not allowed for this   | Condition order type does not support for this contract   |
| 403        | contract. Invalid stop price.  | The Stop Price you specified for the order is invalid for the contract  |
|            | Shares for this order are not<br>immediately available for short<br>sale. The order will be held while<br>we attempt to locate the shares.                                 | You order is held by the TWS because you are trying to sell a contract but you<br>do not have any long position and the market does not have short sale<br>available. You order will be transmitted once there is short sale available on<br>the market   |
|            | The child order quantity should be<br>equivalent to the parent order<br>size.  | This error is deprecated.   |
| 406        | The currency is not allowed.  The symbol should contain valid  | Please specify a valid currency   |
| 407        | The symbol should contain valid<br>non-unicode characters only.  Invalid scale order increment.  | Please check your contract Symbol   |
| 408        | Invalid scale order increment.  Invalid scale order. You must specify order component size.  | ScaleInitLevelSize specified is invalid   |
|            | Invalid subsequent component size for scale order.   | ScaleSubsLevelSize specified is invalid   |
|            | "The ""Outside Regular Trading<br>Hours" flag is not valid for this  | Trading outside of regular trading hours is not available for this security   |
|            | The contract is not available for trading.   |   |
|            | What-if order should have the transmit flag set to true.   | You need to set IBApi. Order.Transmit to TRUE   |
|            | Snapshot market data<br>subscription is not applicable to<br>generic ticks.  | You must leave Generic Tick List to be empty when requesting snapshot market data   |
|            | Wait until previous RFQ finishes<br>and try again.  RFQ is not applicable for the<br>contract. Order ID:   |   |
|            | contract. Order ID:  Invalid initial component size for scale order.   | ScaleInitLevelSize specified is invalid   |
| 418        | Invalid scale order profit offset.   | ScaleProfitOffset specified is invalid  |
|            | Missing initial component size for scale order.  | You need to specify the ScaleInitLevelSize  |
| 420<br>421 | Invalid real-time query.  Invalid route.   | Information about pacing violations  This error is deprecated.  |
|            | The account and clearing attributes on this order may not be changed.  |   |
|            | Cross order RFQ has been<br>expired. THI committed size is no<br>longer available. Please open<br>order dialog and verify liquidity<br>allocation.                         |   |
|            | FA Order requires allocation to be specified.  | This error is deprecated.   |
|            | FA Order requires per-account<br>manual allocations because there<br>is no common clearing instruction.<br>Please use order dialog Adviser<br>tab to enter the allocation. | This error is deprecated.   |
|            | None of the accounts have enough shares.   | You are not able to enter short position with Cash Account  |
|            | Mutual Fund order requires<br>monetary value to be specified.  | This error is deprecated.   |
|            | Mutual Fund Sell order requires shares to be specified.  | This error is deprecated.   |
|            | Delta neutral orders are only  |   |

| 429            | supported for combos (BAG   |  |
|----------------|---|--|
|                | security type).  "We are sorry, but fundamentals  |  |
|                | data for the security specified is<br>not available."  What to show field is missing or   |  |
| 431            | What to show field is missing or<br>incorrect.  Commission must not be negative.  | This error is deprecated.  This error is deprecated.   |
| 433            | *Invalid **Restore size after taking<br>profit** for multiple account   | This error is deprecated.  |
|                | allocation scale order."  The order size cannot be zero.  |  |
| 435            | You must specify an account.  "You must specify an allocation   | The function you invoked only works on a single account  |
|                | (either a single account, group, or profile)."  | "When you try to place an order with a Financial Advisor account, you must specify the order to be routed to either a single account, a group, or a profile."  |
|                | Order can have only one flag<br>Outside RTH or Allow PreOpen.   | This error is deprecated.  |
| 438            | The application is now locked.  Order processing failed. Algorithm  | This error is deprecated.  Please double check your specification  |
| 439            | definition not found.  Order modify failed. Algorithm   | for IBApi.Order.AlgoStrategy and IBApi.Order.AlgoParams  |
| 441            | cannot be modified.  Algo attributes validation failed:   | Please double check your specification   |
| 442            | Specified algorithm is not allowed  | for IBApi.Order.AlgoStrategy and IBApi.Order.AlgoParams  |
|                | for this order.  Order processing failed. Unknown algo attribute.   | Specification for IBApi Order AlgoParams is incorrect  |
| 444            | Volatility Combo order is not yet<br>acknowledged. Cannot submit  | The order is not in a state that is able to be modified  |
| 445            | changes at this time.  The RFQ for this order is no longer  |  |
| 445            | valid.  Missing scale order profit offset.  | ScaleProfitOffset is not properly specified  |
|                | Missing scale price adjustment<br>amount or interval.   | ScalePriceAdjustValue or ScalePriceAdjustInterval is not specified properly  |
| 448            | Invalid scale price adjustment interval.  | ScalePriceAdjustInterval specified is invalid  |
| 449            | Unexpected scale price adjustment amount or interval.   | ScalePriceAdjustValue or ScalePriceAdjustInterval specified is invalid   |
| 481<br>501     | Order size reduced.  Already Connected.   | Your client application is already connected to the TWS.   |
|                | "Couldn't connect to TWS. Confirm that ""Enable ActiveX and Socket Clients" is enabled and  | When you receive this error message it is either because you have not  |
|                | connection port is the same as  | enabled API connectivity in the TWS and/or you are trying to connect on the wrong port. Refer to the TWS' API Settings as explained in the error message. See also Connectivity  |
|                | >Global Configuration>API-<br>>Settings" menu."   |  |
|                | The TWS is out of date and must be upgraded.  | Indicates TWS or IBG is too old for use with the current API version. Can also be triggered if the TWS version does not support a specific API function.  You are trying to perform a request without properly connecting and/or after   |
|                |   | You are trying to perform a request without properly connecting and/or after connection to the TWS has been broken probably due to an unhandled exception within your client application.  |
| 505            | Fatal Error: Unknown message id.  | "Indicates EOF exception was caught while reading from the socket. This can  |
|                | Bad Message Length (Java-only)  | occur if there is an attempt to connect to TWS with a client ID that is already in<br>use, or if TWS is locked, closes, or breaks the connection. It should be<br>handled by the client application and used to indicate that the socket<br>connection is not valid."  |
| 585            | FA Profile is not supported<br>anymore, use FA Group instead  | "Indicates FaDataTypeEnum.PROFILES is deprecated. Use<br>FaDataTypeEnum.GROUPS or 1 instead"   |
|                | New account data requested from<br>TWS. API client has been   | The TWS only allows one IBApi.EClient.repAccountUpdates request at a time.<br>If the client application attempts to subscribe to a second account without<br>cancelling the provious subscription the new request will overtide the old one.   |
|                | unsubscribed from account data.  Unable to subscribe to account as  | canceling the previous subscription, the new request will override the old one and the TWS will send this message notifying so."  "If a client application invokes IBApi.EClient.reqAccountUpdates when there is   |
|                | the following clients are<br>subscribed to a different account.   | an active subscription started by a different client, the TWS will reject the new subscription request with this message."   |
|                | Unable to modify this order as it is still being processed.   | "If you attempt to modify an order before it gets processed by the system, the<br>modification will be rejected. Wait until the order has been fully processed<br>before modifying it. See Placing Orders for further details."  |
|                | A market data farm is disconnected.   | "Indicates a connectivity problem to an IB server. Outside of the nightly IB server reset, this typically indicates an underlying ISP connectivity issue."   |
|                | Market data farm connection is OK   | "A notification that connection to the market data server is ok. This is a notification and not a true error condition, and is expected on first establishing connection."   |
|                | A historical data farm is disconnected.   | "Indicates a connectivity problem to an IB server. Outside of the nightly IB server reset, this typically indicates an underlying ISP connectivity issue."   |
|                | A historical data farm is connected.  | "A notification that connection to the market data server is ok. This is a<br>notification and not a true error condition, and is expected on first establishing<br>connection."   |
|                | A historical data farm connection<br>has become inactive but should<br>be available upon demand.  | "Whenever a connection to the historical data farm is not being used because<br>there is not an active historical data request, the connection will go inactive in<br>IB Gateway. This does not indicate any connectivity issue or problem with IB<br>Gateway. As soon as a historical data request is made the status will change<br>back to active.  |
|                | A market data farm connection<br>has become inactive but should<br>be available upon demand.  | "Whenever a connection to our data farms is not needed, it will become dormant. There is nothing abnormal nor wrong with your client application nor   |
|                | "Order Event Warning: Attribute ""Outside Regular Trading Hours"" is ignored based on the order   | with the TWS. You can safely ignore this message."  Indicates the outsideRth flag was set for an order for which there is not a  |
|                | type and destination. PlaceOrder is now processed."   | regular vs outside regular trading hour distinction  |
|                | Connectivity between TWS and<br>server is broken. It will be restored<br>automatically.   | Indicates a connectivity problem between TWS or IBG and the IB server. This will usually only occur during the IB nightly server reset, cases at other times indicate a problem in the local ISP connectivity.   |
|                | The Start and/or End Time for algo<br>order BUY/SELL a contract was<br>adjusted to use the next trading<br>date. To modify this setting, use<br>the Auto-adjust algo order date<br>item on the Orders configuration<br>page | Resse go to TWS Global Configuration – "Orders" – "Settings" to correct the configuration.   |
| 2119           | Market data farm is connecting.   |  |
|                | Warning: products are trading on<br>the basis of currency price with<br>factor.   |  |
|                | Cross Side Warning  | "This werning message occurs in TWS version 955 and higher. It occurs when an order will change the position in an account from long to short or from short to long. To bypass the wenting, a new feature has been added to IB Gateway 956 (or higher) and TWS 957 (or higher) so that once can go to Global Configuration. "Messages and disable the "Cross Side Wenting.""   |
|                | Market depth smart depth exchanges.   | Cross Side warning.":  |
|                | Sec-def data farm connection is<br>OK   | "A notification that connection to the Security definition data server is ok. This is a notification and not a true error condition, and is expected on first  |
| 2168           | Etrade Only Not Supported   | establishing connection."  The EtradeOnly IBApi.Order attribute is no longer supported. Error received   |
| 2169           | Warning Firm Quote Only Not Supported Warning   | with TWS versions 983+. Remove attribute to place order.  The firmQuoteOnly IBApi Order attribute is no longer supported. Error received with TWS versions 983+. Remove attribute to place order.  |
| 10000          | Cross currency combo error.   | min. The Versions acces, Remote annuale to piace order.  |
| 10001          | Cross currency vol error.  Invalid non-guaranteed legs.   |  |
| 10003<br>10005 | IBSX not allowed.  Read-only models.  |  |
| 10006          | Missing parent order.   | The parent order ID specified cannot be found. In some cases this can occur with bracket orders if the child order is placed immediately after the parent order, a brief pause of 50 ms or less will be necessary before the child order is transmitted to TWS/IBC.  |
| 10007          | Invalid hedge type.   | and the second s |
| 10008          | Invalid beta value. Invalid hedge ratio.  |  |
| 10010          | Invalid delta hedge order.  Currency is not supported for   |  |
| 10011          | Smart combo.  Invalid allocation percentage   | FaPercentage specified is not valid  |
| 10013          | Smart routing API error (Smart routing opt-out required).   |  |
| 10014          | PctChange limits.  Trading is not allowed in the API.   | This error is deprecated   |
|                |   |  |

| 10017 | Contract is not visible.  Contracts are not visible.  | This error is deprecated   |
|-------|---|--|
| 10018 | Orders use EV warning.  |  |
| 10019 | Trades use EV warning.  Display size should be smaller  |  |
| 10020 | than order size./td>  | The display size should be smaller than the total quantity   |
| 10021 | Invalid leg2 to Mkt Offset API.  Invalid Leg Prio API.  | This error is deprecated  This error is deprecated   |
| 10023 | Invalid combo display size API.   | This error is deprecated   |
| 10024 | Invalid don't start next legin API.   | This error is deprecated   |
| 10025 | Invalid leg2 to Mkt time1 API.  Invalid leg2 to Mkt time2 API.  | This error is deprecated  This error is deprecated   |
| 10027 | Invalid combo routing tag API.  | This error is deprecated   |
| 10090 | Part of requested market data is not subscribed.  | Indicates that some lick types requested require additional market data subscriptions not held in the account. This commonly occus for instance if a user has options subscriptions but not underlying stock so the system cannot calculate the real time great what got the default ticks will be returned, Or alternatively, if generic lick types are specified in a market data request without the associated subscriptions." |
| 10147 | Order to be canceled was not  | request winton the associated subscriptions.   |
| 10148 | "Orderld that needs to be<br>cancelled can not be cancelled,<br>state."   | An attempt was made to cancel an order that had already been filled by the system.   |
| 10186 | Requested market data is not<br>subscribed. Delayed market data<br>is not enabled   | See Market Data Types on how to enable delayed data.   |
| 10187 | Failed to request historical  |  |
| 10189 | ticks:No market data permissions  Failed to request tick-by-tick data.  | Trading TWS session is connected from a different IP address. Or, No market  |
| 10189 | Invalid Real-time Query  No market data during competing  | data permissions  "Indicates that the user is logged into the paper account and live account simultaneously trying to request live market data using both the accounts. In   |
|       | *Bust event occurred, current subscription is deactivated. Please   | such a scenario preference would be given to the live account, for more details please refer: https://libkr.info/node/1719*  |
|       | resubscribe real-time bars<br>immediately"<br>"You have unsaved FA changes.   |  |
|       | Please retry 'request FA' operation<br>later, when 'replace FA' operation<br>is complete"   | There are pending Financial Advisor configuration changes. See Financial Advisors  |
|       | The following Groups and/or<br>Profiles contain invalid accounts:<br>Defaults were inherited from   | "If the account(s) inside Groups or Profiles is/are incorrect in xml-formatted configuration string of replaceFA request, then the error shows list of such Groups and/or Profiles."   |
|       | CASH preset during the creation of this order.  The Decision Maker field is   |  |
| 10234 | required and not set for this order<br>(non-desktop).  The Decision Maker field is  |  |
| 10235 | required and not set for this order (ibbot).  Child has to be AON if parent   |  |
| 10236 | order is AON  All or None ticket can route entire unfilled size only  |  |
|       | Some error occured during communication with Advisor Setup web-app  |  |
|       | This order will affect one or more<br>accounts that are flagged because<br>they do not fit the required risk<br>score criteria prescribed by the<br>group/profile/model allocation. |  |
| 10240 | You must enter a valid Price Cap.  Order Quantity is expressed in monetary terms. Modification is not supported via API. Please use desktop version to revise this                  |  |
| 10242 | order.  Fractional-sized order cannot be modified via API. Please use desktop version to revise this  |  |
| 10243 | order.  Fractional-sized order cannot be placed via API. Please use desktop version to place this   |  |
| 10244 | order.  Cash Quantity cannot be used for  |  |
|       | this order  This financial instrument does not  |  |
| 10245 | support fractional shares trading   |  |
| 10246 | This order doesn't support<br>fractional shares trading   |  |
| 10247 | Only IB SmartRouting supports<br>fractional shares  |  |
| 10248 | doesn't have permission to trade<br>fractional shares   |  |
| 10249 | *=****> order doesn't support   |  |
| 10249 | fractional shares*  The size does not conform to the minimum variation of for this  |  |
|       | contract Fractional shares are not  |  |
|       | supported for allocation orders   |  |
|       | This non-close-position order doesn't support fractional shares trading   |  |
| 10253 | Clear Away orders are not<br>supported for multi-leg combo<br>with attached hedge.<br>Invalid Order: bond expired   |  |
| 10268 | The 'EtradeOnly' order attribute is not supported   | The EtradeOnly IBApi.Order attribute is no longer supported. Error received with TWS versions 983*   |
| 10269 | The 'firmQuoteOnly' order   | The firmQuoteOnly IBApi.Order attribute is no longer supported. Error  |
|       | attribute is not supported  The 'nbboPriceCap' order  | received with TWS versions 983+  The nbboPriceCap IBApi.Order attribute is no longer supported. Error  |
|       | attribute is not supported  | received with TWS versions 983+  |
| 10276 | News feed is not allowed  News feed permissions required  | The API client is not permissioned for receiving WSH news feed.  The API client is not subscribed to receive WSH news feed   |
| 10277 | Duplicate WSH metadata request  | A request is already pending for the same API client.  |
| 10279 | Failed request WSH metadata   | A general error occurred when processing the request.  |
| 10280 | Failed cancel WSH metadata  | A general error occurred when processing the request.  |
| 10281 | Duplicate WSH event data request  | A request is already pending for the same API client.  WSH metadata was not requested by first sending a reqWshMetaData  |
| 10282 | WSH metadata not requested Fail request WSH event data  | request.  A general error occurred when processing the request.  |
| 10283 | Fail request WSH event data Fail cancel WSH event data  | A general error occurred when processing the request.  A general error occurred when processing the request.   |
| 10285 | Your API version does not support<br>fractional sizing rules. Please<br>upgrade to at least version 163   |  |
|       |   | This indicates socket connection was closed improperly. Typically for Pythor<br>clients. You may refer: https://stackoverflow.com/questions/15210178/python  |

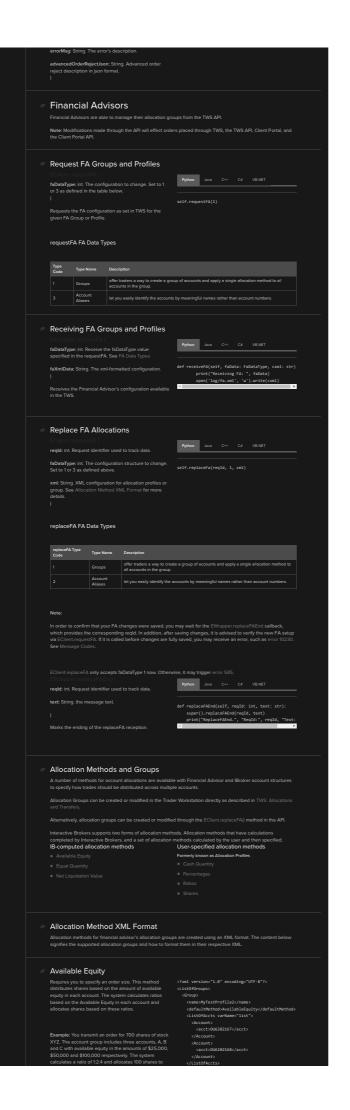
# Receiving Error Messages

regid: Int. The request identifier corresponding to the most recent regid that maintained the error stream. This does not pertain to the orderld from placeOrder but whatever the most recent requested is

errorTime: Int. The Unix timestamp of when the error took place. Note: This is only implemented for TWS API 10.33+

errorCode: Int. The code identifying the error





</Group> Contracts Or Shares Equal Quantity

Requires you to specify an order size. This method distributes shares equally between all accounts in the group. MonetaryAmount The Monetary Amount method calculates the number of units to be allocated based on the monetary value assigned to each account. <ListOfAccts varName="list"> <Account> <acct>DU6202167</acct> <amount>1000.0</amount> Net Liquidation Value Net Liquidation Value
Requires you to specify an order size. This method distributes shares based on the net liquidation value of each account. The system calculates ratios based on the Net Liquidation value in each account and allocates shares based on these ratios.

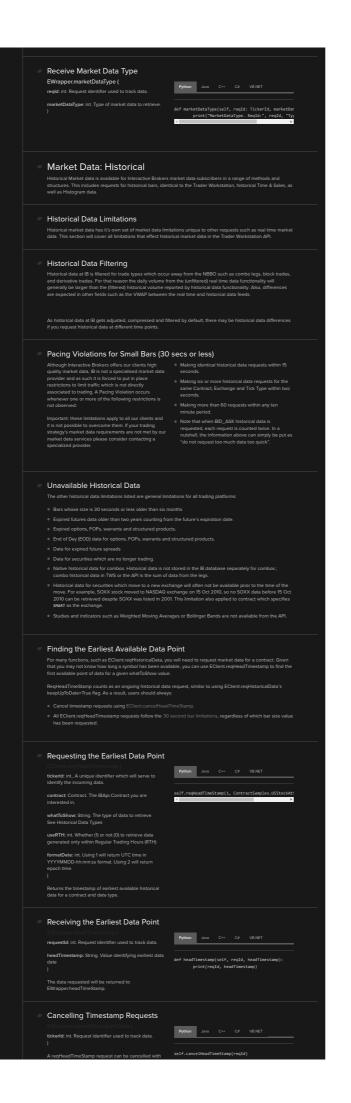
Example: You transmit an order for 700 shares of stock XYZ. The account group includes three accounts. A, B and C with Net Liquidation values of \$25,000, \$50,000 and \$100,000 respectively. The system calculates a ratio of 12.4 and allocates 100 shares to Client C.

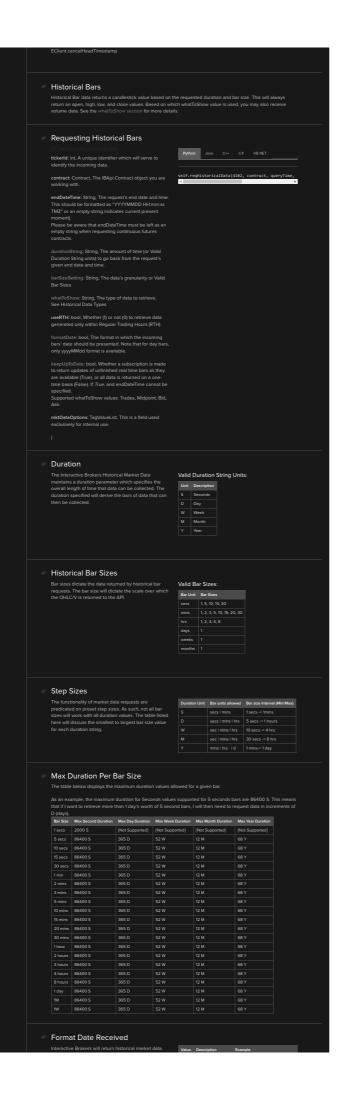
Shares to Client B, and 400 shares to Client C. Percentages Long Position Increases position No effect
Short Position No effect Decreases posit 
 SELL ORDER
 Positive Percent
 Negative Percent

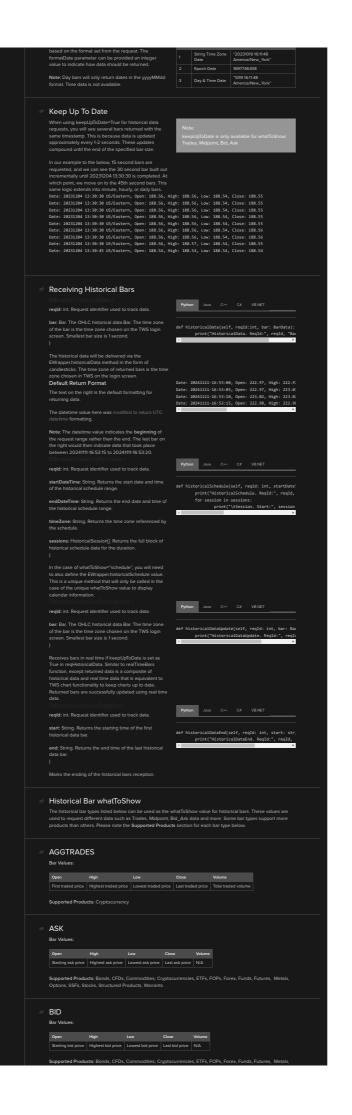
 Long Position
 No effect
 Decreases position

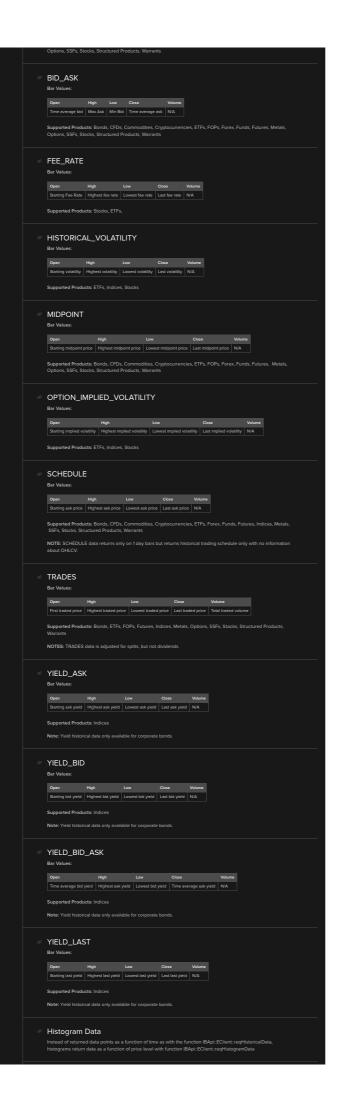
 Short Position
 Increases position
 No effect
 Ratios

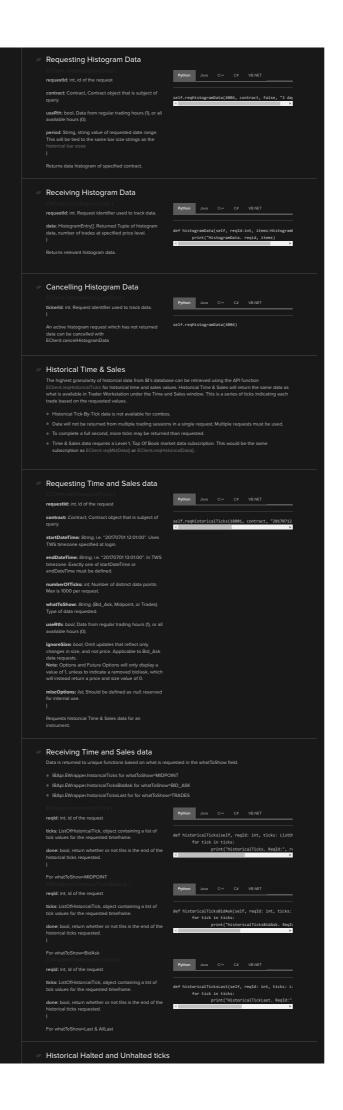
Model Portfolios and the API Portfolio Model Creation modelOrder = Order()
modelOrder.account = "OF12345"
modelOrder.modelCode = "Technology" # model for ter
telf.olaceOrder(self.nextOrderId(), contract, model Unification of Groups and Profiles With TWS/IBGW build 983+, the API settings will have a new flag/checkbox, "Use Account Groups with Allocation Methods" (enabled by default for new users). If not enabled, groups and profiles would behave the same as before. If it is checked, group and profile functionality will be merged. Order Placement For advisors to place orders to their allocation groups users would simply declare their allocation group name in the order object. This would be done with the Corder's factors left. The example to the right references a standard market order placed to our addication group. Mylesal\*Profile. Market Data: Delayed Market Data Type Behavior Interactive Brokers data will always try to provide the most up to date market data possible, but will pe additional delayed or frozen data if available upon request. Request Market Data Type ketDataType: int. Type of market data to retrieve.



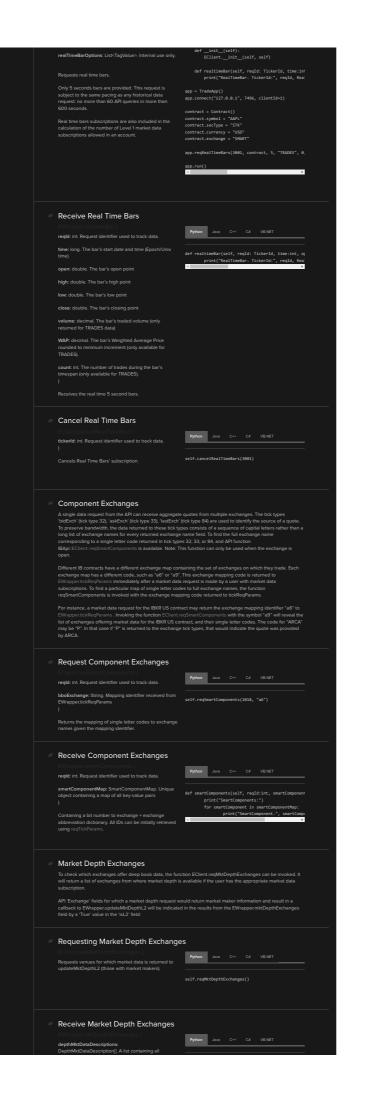


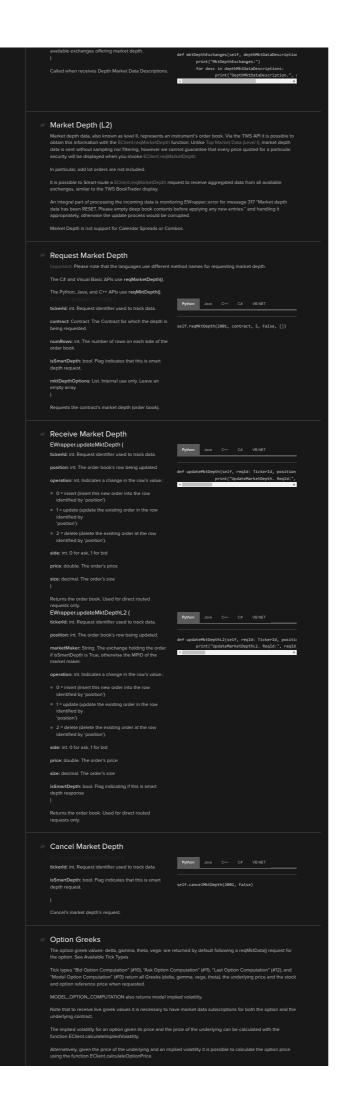


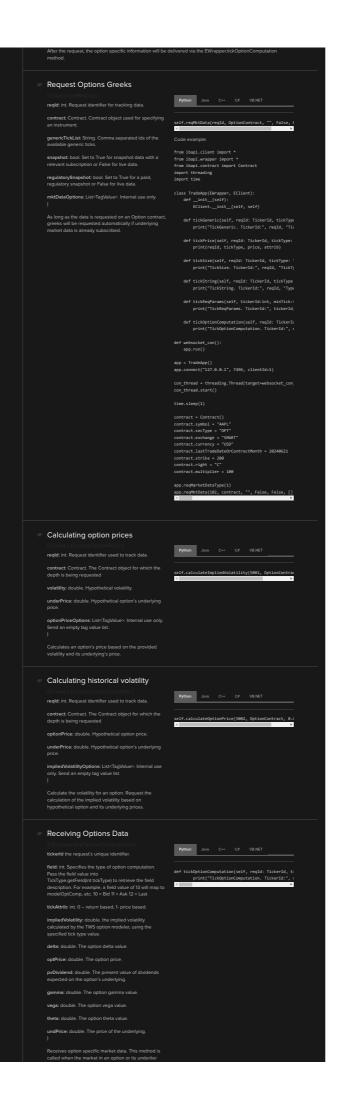




Historical Date Formatting Operator Time Zone Coordinated Universal Time (UTC) Operator Time Zone For US residents, this will typically appear as 
"America/New\_York", "America/Chicago", or 
"America/New\_York", "America/Chicago", or 
"America/New\_York", "America/Chicago" is readed 
"America/New\_York", "America/Chicago" is readed 
differently than "US/Central" as a time zone. 
All requests made can now be sent as "YYYYMMDD hhmmss America/Chicago" to always send dates in Central 
time. This same rule goes for any alternative Time Zones, such as "America/Chicago" or "America/New\_York". Exchange Time Zone Lexininger Time Zone is the value the exchange itself us the Operator Time Zone, but these values can overlap. As an example, the New York Stock Exchange operates on "USEastern." However, the CME operates on "USEcentral." However, the CME operates on "USEcentral." However, the CME operates on "USEcentral." This values can be programmatically requested using the Eclient.regContractDetails method, and then received from EWrapper.contractDetails in contractDetails. Time Zoneld. Coordinated Universal Time (UTC) UTC is a time standard centered around Greenwich Mean Time (GMT), UTC historical data can be formatted as "YYYYMMDD-hh:mmss". Please keep in mind this is based on UTC-0, and as a reference, USEastern time is approximately UTC-4 or UTC-5 depending on U.S. Daylight savings. Please note GMT is unaffected by Daylight savings, and so 09:00:00 will be the same time of day year round regardless of the exchange's or your local daylight savings observation. Modifying Returned Date Market Data: Live Live Data Limitations To display quotes as lots, from the Global Configuration > API > Settings page, check "Bypass US Stocks market data in shares warning for API orders." 5 Second Bars Real time and historical data functionality is combined through the EClient.reqRealTimeBars request. reqRealTimeBars will create an active subscription that will return a single bar in real time every five seconds that has the CHLC values over that period reqRealTimeBars can only be used with a bar size of 5 seconds. Important: real time bars subscriptions combine the limitations of both, top and historical market data. Make sure you observe Market Data Lines and Pacing Violations for Small Bars (30 secs or less). For example, no more than 50 'new' requests for real time bars can be made in 10 minutes, and the total number of active active subscriptions of all types cannot exceed the maximum blowed market data lines for the user. Request Real Time Bars tickerld: Int. Request identifier used to track data. self.reqRealTimeBars(3001, contract, 5, "MIDPOIN" Available Values: TRADES, MIDPOINT, BID, ASK from ibapt\_client import \* from ibapt\_client import \* from ibapt\_client import \* from ibapt\_contract import contract import contract import contract import contract import time.







deltas, along with the present value of dividends expected on that options underlier are

#### Top of Book (L1)

| Product                    | Frequency |
|----------------------------|-----------|
| Stocks, Futures and others |           |
| US Options                 | 100 ms    |
| FX pairs                   | 5 ms      |

#### Request Watchlist Data

mktDataOptions: List<TagValue>. Internal use on

# Python Java C++ C# VB.NET

#### Generic Tick Types

#### Streaming Data Snapshots

#### EWrapper.tickSnapshotEnd (

When requesting market data snapshots, this market will indicate the snapshot reception is finished.

Expected to occur 11 seconds after beginning of request.



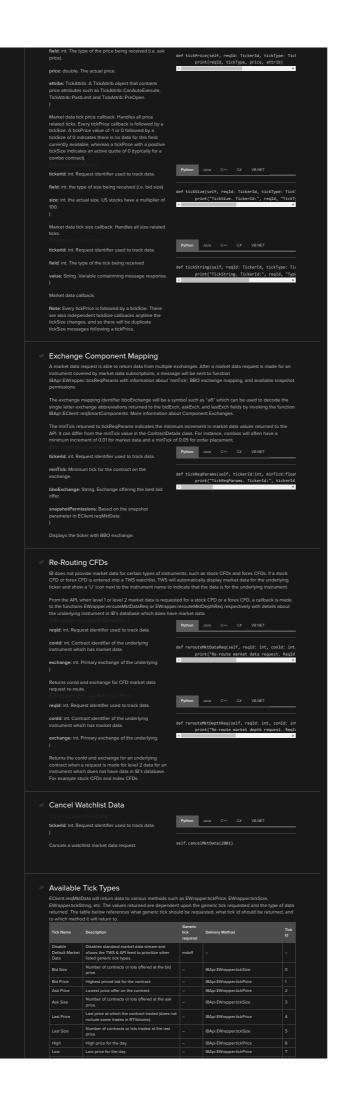
## Regulatory Snapshots

Alternatively, there is also a "US Securities Snapshot Bundle" subscription which does not provide streaming data but which allows for real time calculated snapshots of US market MBD prices. By setting the 5th parameter in the function CFClient-repliktiobat to Time a regulatory snapshot request can be made from the API. The returned value is a calculation of the current market state based on data from all available exchanges.

| Listed<br>Network Feed       | Price per<br>reqSnapshot<br>request | Pro or<br>non-<br>Pro | Max<br>reqSnapshot<br>request |
|------------------------------|-------------------------------------|-----------------------|-------------------------------|
| NYSE<br>(Network<br>A/CTA)   |                                     |                       | 4500                          |
| NYSE<br>(Network<br>A/CTA)   |                                     | Non-<br>Pro           |                               |
| AMEX<br>(Network<br>B/CTA)   |                                     |                       |                               |
| AMEX<br>(Network<br>B/CTA)   |                                     | Non-<br>Pro           |                               |
| NASDAQ<br>(Network<br>C/UTP) |                                     |                       |                               |
| NASDAQ<br>(Network<br>C/UTP) |                                     | Non-<br>Pro           |                               |

## Receive Live Data





|   | Trading volume for the day for the selected contract (US Stocks: multiplier 100).  |            | IBApi.EWrapper.tickSize  |          |
|---|--|------------|--|----------|
|   | "The last available closing price for<br>the previous day. For US Equilities we use<br>corporate action processing to get the closing<br>price so the close price is adjusted to reflect<br>forward and reverse splits and cash and stock<br>dividends." |            | IBApi.EWrapper.tickPrice   |          |
| Bid Option<br>Computation                       | Computed Greeks and implied volatility based<br>on the underlying stock price and the option bid<br>price. See Option Greeks   |            | IBApi.EWrapper.tickOptionComputation                             |          |
| Ask Option<br>Computation                       | Computed Greeks and implied volatility based<br>on the underlying stock price and the option ask<br>price. See Option Greeks   |            | IBApi.EWrapper.tickOptionComputation                             |          |
| Last Option<br>Computation                      | Computed Greeks and implied volatility based<br>on the underlying stock price and the option last<br>traded price. See Option Greeks   |            | IBApi.EWrapper.tickOptionComputation                             |          |
| Model Option<br>Computation                     | Computed Greeks and implied volatility based<br>on the underlying stock price and the option<br>model price. Correspond to greeks shown in<br>TWS. See Option Greeks   |            | IBApi.EWrapper.tickOptionComputation                             |          |
| Open Tick                                       | IWS. See Option Greeks  Current session's opening price. Before open will refer to previous day. The official opening price requires a market data subscription to the native exchange of the instrument.  |            | IBApi.EWrapper.tickPrice   |          |
| Low 13 Weeks                                    | Lowest price for the last 13 weeks. For stocks only.   | 165        | IBApi.EWrapper.tickPrice   |          |
| High 13 Weeks                                   | Highest price for the last 13 weeks. For stocks only.  | 165        | IBApi.EWrapper.tickPrice   |          |
| Low 26 Weeks                                    | Lowest price for the last 26 weeks. For stocks only.   | 165        | IBApi.EWrapper.tickPrice   |          |
| High 26<br>Weeks                                | Highest price for the last 26 weeks. For stocks only.  | 165        | IBApi.EWrapper.tickPrice   |          |
| Low 52 Weeks                                    | Lowest price for the last 52 weeks. For stocks only.   | 165        | IBApi.EWrapper.tickPrice   |          |
| High 52<br>Weeks                                | Highest price for the last 52 weeks. For stocks only.  | 165        | IBApi.EWrapper.tickPrice   |          |
| Average<br>Volume                               | The average daily trading volume over 90 days.  Multiplier of 100. For stocks only.  | 165        | IBApi.EWrapper.tickSize  |          |
| Open Interest                                   | "(Deprecated not currently in use) Total number of options that are not closed."   |            | IBApi.EWrapper.tickSize  |          |
| Option<br>Historical                            | The 30-day historical volatility (currently for stocks).   | 104        | IBApi.EWrapper.tickGeneric                                       |          |
| Volatility                                      | "A prediction of how volatile an underlying will   |            |  |          |
| Option Implied<br>Volatility                    | be in the future. The IB 30-day volatility is the at-<br>market volatility estimated for a maturity thirty<br>calendar days forward of the current trading day<br>and is based on option prices from two<br>consecutive expiration months."              |            | IBApi.EWrapper.tick.Generic                                      |          |
| Option Bid<br>Exchange                          | Not Used.  |            | IBApi.EWrapper.tickString  |          |
| Option Ask<br>Exchange                          | Not Used.  |            | IBApi.EWrapper.tickString  |          |
| Option Call<br>Open Interest                    | Call option open interest.   | 101        | IBApi.EWrapper.tickSize  |          |
| Option Put<br>Open Interest                     | Put option open interest.  | 101        | IBApi.EWrapper.tickSize  |          |
| Option Call<br>Volume                           | Call option volume for the trading day.  | 100        | IBApi.EWrapper.tickSize  |          |
| Option Put<br>Volume                            | Put option volume for the trading day.   | 100        | IBApi.EWrapper.tickSize  |          |
| Index Future<br>Premium                         | The number of points that the index is over the cash index.  | 162        | IBApi.EWrapper.tickGeneric                                       |          |
| Bid Exchange                                    | "For stock and options identifies the exchange(s) posting the bid price.   |            | IBApi.EWrapper.tickString  | 32       |
| Bid Exchange                                    | See Component Exchanges"  "For stock and options identifies the  |            | помри.емпарретликанті  | 32       |
| Ask Exchange                                    | exchange(s) posting the ask price.  See Component Exchanges"   |            | IBApi.EWrapper.tickString  |          |
| Auction<br>Volume                               | The number of shares that would trade if no<br>new orders were received and the auction were<br>held now.  The price at which the auction would occur if no  |            | IBApi.EWrapper.tickSize  |          |
|   | The price at which the auction would occur if no<br>new orders were received and the auction were<br>held now- the indicative price for the auction.<br>Typically received after Auction imbalance (tick<br>type 36)                                     |            | IBApi.EWrapper.tickPrice   |          |
| Auction<br>Imbalance                            | The number of unmatched shares for the next auction; returns how many more shares are on one side of the auction than the other. Typically received after Auction Volume (tick type 34)  |            | IBApi.EWrapper.tickSize  |          |
| Mark Price                                      | "The mark price is the current theoretical<br>calculated value of an instrument. Since it is a<br>calculated value it will typically have many digits<br>of precision."  |            | IBApi.EWrapper.tickPrice   |          |
| Bid EFP<br>Computation                          | Computed EFP bid price   |            | IBApi.EWrapper.tickEFP   |          |
| Ask EFP<br>Computation                          | Computed EFP ask price   |            | IBApi.EWrapper.tickEFP   |          |
| Last EFP<br>Computation                         | Computed EFP last price  |            | IBApi.EWrapper.tickEFP   |          |
| Open EFP<br>Computation                         | Computed EFP open price  |            | IBApi.EWrapper.tickEFP   |          |
| High EFP<br>Computation                         | Computed high EFP traded price for the day   |            | IBApi.EWrapper.tickEFP   |          |
| Low EFP<br>Computation                          | Computed low EFP traded price for the day  |            | IBApi.EWrapper.tickEFP   |          |
| Close EFP<br>Computation                        | Computed closing EFP price for previous day  |            | IBApi.EWrapper.tickEFP   |          |
| Last<br>Timestamp                               | Time of the last trade (in UNIX time).   |            | IBApi.EWrapper.tickString  |          |
| Shortable                                       | Describes the level of difficulty with which the contract can be sold short. See Shortable   |            | IBApi.EWrapper.tickGeneric                                       |          |
| RT Volume<br>(Time & Sales)                     | "Last trade details (Including both ""Last"" and<br>""Unreportable Last"" trades). See RT Volume"  |            | IBApi.EWrapper.tickString  |          |
| Halted  | Indicates if a contract is halted. See Halted  Implied yield of the bond if it is purchased at the   |            | IBApi.EWrapper.tickGeneric                                       | 49       |
| Bid Yield                                       | current bid.  Implied yield of the bond if it is purchased at the  |            | IBApi.EWrapper.tickPrice   |          |
|   | current ask.  Implied yield of the bond if it is purchased at the  |            | IBApi.EWrapper.tickPrice   |          |
| Last Yield  Custom Option                       | Implied yield of the bond if it is purchased at the<br>last price.  Greek values are based off a user customized   |            | IBApi.EWrapper.tickPrice   |          |
| Custom Option<br>Computation<br>Trade Count     | Greek values are based off a user customized<br>price.  Trade count for the day.   | -<br>293   | IBApi.EWrapper.tickOptionComputation  IBApi.EWrapper.tickGeneric | 53<br>54 |
| Trade Rate                                      | Trade count for the day.  Trade count per minute.  | 293<br>294 | IBApi.EWrapper.tickGeneric                                       | 55       |
| Volume Rate<br>Last RTH                         | Volume per minute.   | 295        | IBApi.EWrapper.tickGeneric                                       | 56       |
| Trade<br>RT Historical                          | Last Regular Trading Hours traded price.   |            | IBApi.EWrapper.tickPrice   |          |
| Volatility  IB Dividends                        | 30-day real time historical volatility.  Contract's dividends. See IB Dividends.   | 411        | IBApi.EWrapper.tickGeneric  IBApi.EWrapper.tickString            | 58<br>59 |
| Bond Factor<br>Multiplier                       | The bond factor is a number that indicates the<br>ratio of the current bond principal to the original<br>principal   | 460        | IBApi.EWrapper.tickGeneric                                       |          |
| Regulatory<br>Imbalance                         | The imbalance that is used to determine which at the open or at the close orders can be entered following the publishing of the regulatory imbalance.  |            | IBApi.EWrapper.tickSize  |          |
| News  | Contract's news feed.  | 292        | IBApi.EWrapper.tickString  | 62       |
| Short-Term<br>Volume 3<br>Minutes<br>Short-Term | The past three minutes volume. Interpolation may be applied. For stocks only.  |            | IBApi.EWrapper.tickSize  |          |
| Volume 5<br>Minutes<br>Short-Term               | The past five minutes volume. Interpolation may be applied. For stocks only.   |            | IBApi.EWrapper.tickSize  |          |
| Volume 10<br>Minutes                            | The past ten minutes volume. Interpolation may be applied. For stocks only.  |            | IBApi.EWrapper.tickSize  |          |
| Delayed Bid<br>Delayed Ask                      | Delayed bid price. See Market Data Types.  Delayed ask price. See Market Data Types.   |            | IBApi.EWrapper.tickPrice   | 66<br>67 |
| Delayed Ask  Delayed Last                       | Delayed ask price. See Market Data Types.  Delayed last traded price. See Market Data Types.   |            | IBApi.EWrapper.tickPrice   | 68       |
| Delayed Bid                                     | Delayed bid size. See Market Data Types.   |            | IBApi.EWrapper.tickSize  |          |

| Delayed Ask<br>Size             | Delayed ask size. See Market Data Types.   |     | IBApi.EWrapper.tickSize    |     |
|---------------------------------|--|-----|----------------------------|-----|
| Delayed Last<br>Size            | Delayed last size. See Market Data Types.  |     | IBApi.EWrapper.tickSize    |     |
| Delayed High<br>Price           | Delayed highest price of the day. See Market<br>Data Types.  |     | IBApi.EWrapper.tickPrice   |     |
| Delayed Low<br>Price            | Delayed lowest price of the day. See Market<br>Data Types  |     | IBApi.EWrapper.tickPrice   |     |
| Delayed<br>Volume               | Delayed traded volume of the day. See Market<br>Data Types   |     | IBApi.EWrapper.tickSize    |     |
| Delayed Close                   | The prior day's closing price.   |     | IBApi.EWrapper.tickPrice   | 75  |
| Delayed Open                    | Not currently available  |     | IBApi.EWrapper.tickPrice   |     |
| RT Trade<br>Volume              | "Last trade details that excludes ""Unreportable<br>Trades"". See RT Trade Volume"   |     | IBApi.EWrapper.tickString  |     |
| Creditman<br>mark price         | Not currently available  |     | IBApi.EWrapper.tickPrice   | 78  |
| Creditman<br>slow mark<br>price | Slower mark price update used in system calculations   | 619 | IBApi.EWrapper.tickPrice   |     |
| Delayed Bid<br>Option           | Computed greeks based on delayed bid price.<br>See Market Data Types and Option Greeks.  |     | IBApi.EWrapper.tickPrice   | 80  |
| Delayed Ask<br>Option           | Computed greeks based on delayed ask price.<br>See Market Data Types and Option Greeks.  |     | IBApi.EWrapper.tickPrice   | 81  |
| Delayed Last<br>Option          | Computed greeks based on delayed last price.<br>See Market Data Types and Option Greeks.   |     | IBApi.EWrapper.tickPrice   | 82  |
| Delayed<br>Model Option         | Computed Greeks and model's implied volatility<br>based on delayed stock and option prices.  |     | IBApi.EWrapper.tickPrice   | 83  |
| Last Exchange                   | Exchange of last traded price  |     | IBApi.EWrapper.tickString  | 84  |
| Last<br>Regulatory<br>Time      | Timestamp (in Unix ms time) of last trade returned with regulatory snapshot  |     | IBApi.EWrapper.tickString  | 85  |
| Futures Open<br>Interest        | Total number of outstanding futures contracts. *HSI open interest requested with generic tick 101  |     | IBApi.EWrapper.tickSize    | 86  |
| Average<br>Option Volume        | Average volume of the corresponding option contracts(TWS Build 970+ is required)   | 105 | IBApi.EWrapper.tickSize    | 87  |
| Delayed Last<br>Timestamp       | Delayed time of the last trade (in UNIX time)<br>(TWS Build 970+ is required)  |     | IBApi.EWrapper.tickString  | 88  |
| Shortable<br>Shares             | Number of shares available to short (TWS Build 974+ is required)   |     | IBApi.EWrapper.tickSize    | 89  |
|                                 | The last price of Net Asset Value (NAV). For<br>ETFs: Calculation is based on prices of ETF's<br>underlying securities. For NextShares: Value is<br>provided by NASDAQ |     | IBApi.EWrapper.tickPrice   | 96  |
| ETF Nav<br>Frozen Last          |  |     | IBApi.EWrapper.tickPrice   |     |
| ETF Nav High                    | The high price of ETF's Net Asset Value (NAV)  | 614 | IBApi.EWrapper.tickPrice   | 98  |
| ETF Nav Low                     | The low price of ETF's Net Asset Value (NAV)   | 614 | IBApi.EWrapper.tickPrice   | 99  |
| Estimated IPO<br>- Midpoint     | Midpoint is calculated based on IPO price range  | 586 | IBApi.EWrapper.tickGeneric | 101 |
| Final IPO Price                 | Final price for IPO  | 586 | IBApi.EWrapper.tickGeneric | 102 |
| Delayed Yield<br>Bid            | Delayed implied yield of the bond if it is<br>purchased at the current bid.  |     | IBApi.EWrapper.tickPrice   | 103 |
| Delayed Yield<br>Ask            | Delayed implied yield of the bond if it is<br>purchased at the current ask.  |     | IBApi.EWrapper.tickPrice   | 104 |
|                                 |  |     |                            |     |

## Halted

| Value | Description   |
|-------|---|
|       | Halted status not available. Usually returned with frozen data.                                   |
|       | Not halted. This value will <b>only</b> be returned if the contract is in a TWS watchlist.        |
|       | General halt. Trading halt is imposed for purely regulatory reasons with/without volatility halt. |
|       | Volatility halt. Trading halt is imposed by the exchange to protect against extreme volatility.   |

# Shortable

| Range                    | Description   |
|--------------------------|---|
| Value higher<br>than 2.5 | There are at least 1000 shares available for short selling.                 |
| Value higher<br>than 1.5 | This contract will be available for short selling if shares can be located. |
| 1.5 or less              | Contract is not available for short selling.                                |

# Volume Data

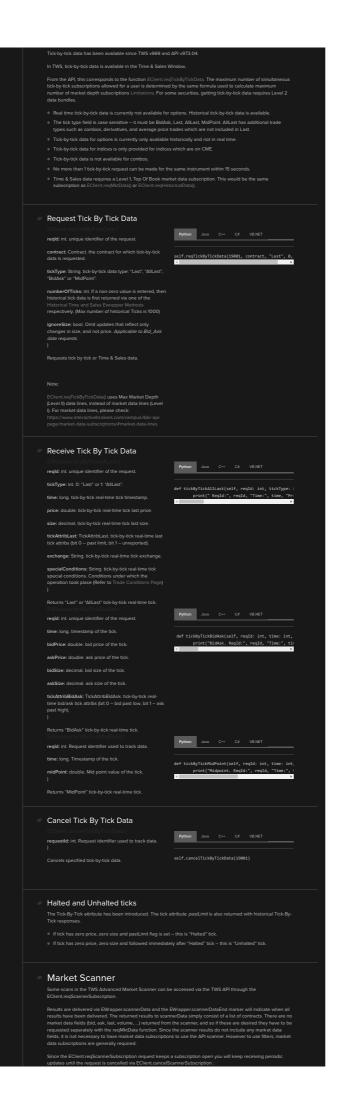
## RT Volume

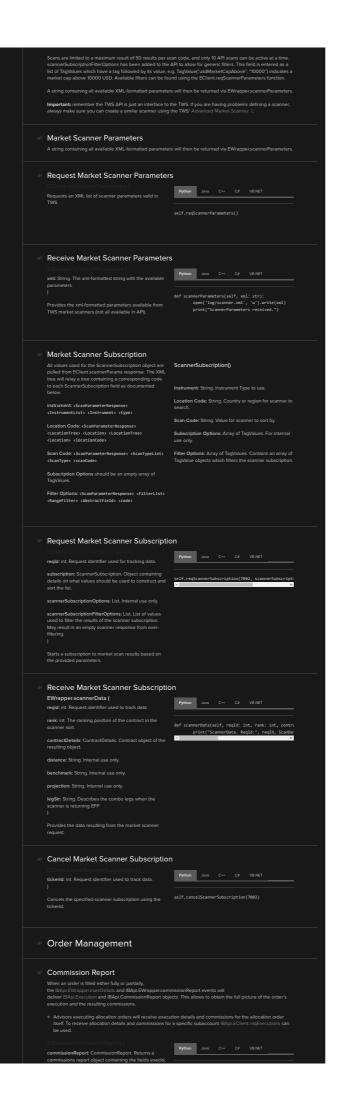
It is important to note that while the TWS Time & Sales Window also has information about trade conditions available with data points, his data is not available through the API. So for instance, the 'unreportable' trade statu displayed with points in the Time & Sales Window is not available through the API, and that trade data will appear in the API just as any other data point. As always, an API application needs to exercise caution in responding to sholle data point.

- The next dividend date (20130219 in the example below).

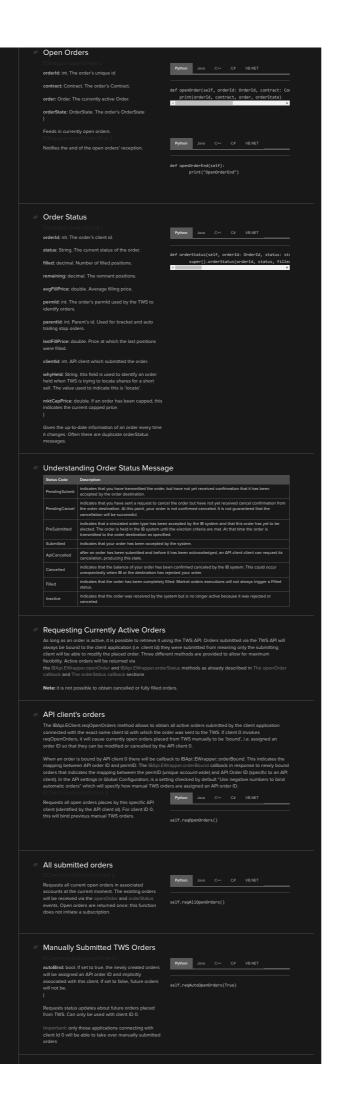
  The next single dividend amount (0.23 from the example below).

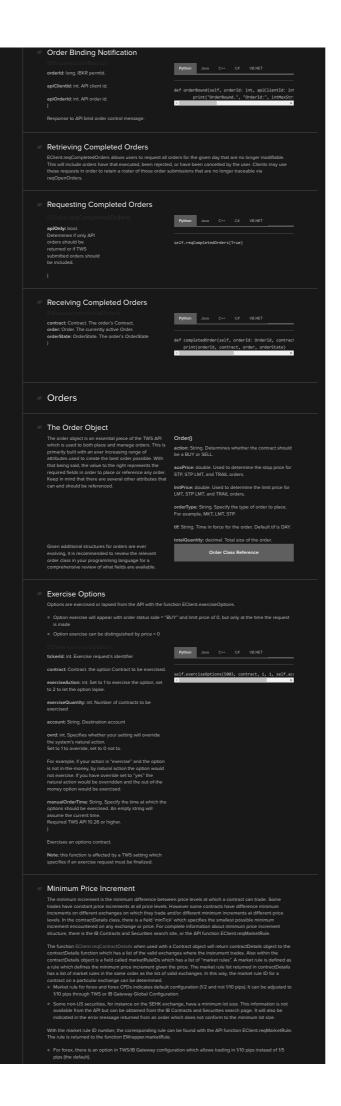
Tick By Tick Data

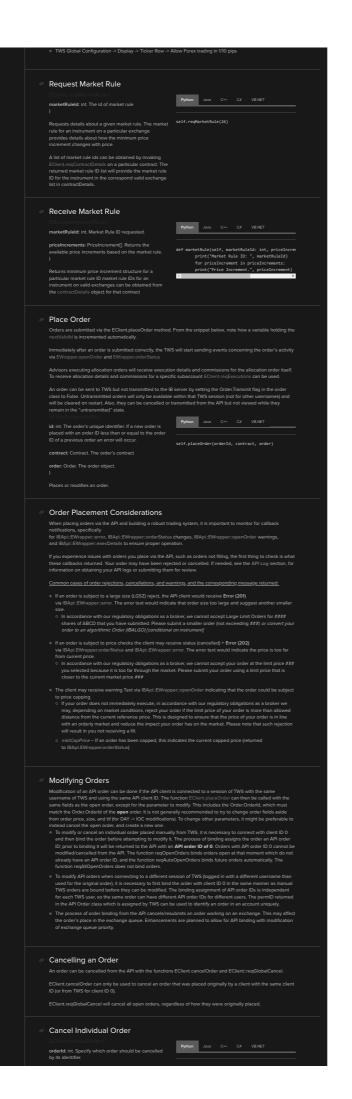




**Execution Details** IBApLExecution and IBApl CommissionReport can be requested on demand via the IBApl EClient.reqExecutions medical which receives a IBApl ExecutionFilter object as parameter to obtain only those executions matching the given criteria. An empty IBAple ExecutionFilter object can be passed to obtain all previous executions. ExecID Behavior If a correction to an execution is published it will be received as an additional IBAptEWrapper.execDetails callbact with all parameters identical except for the execID in the Execution object. The execID will differ only in the digits after the final period. By default, most ExectD values will return as 4-segment alphanumeric sequence to identify each unique order. In the case of Combo orders, you may encounter a 5-segment alphanumeric sequence which will be used to denote per-leg executions. As an example, if a 1 to combo for 200 shares of both contracts is placed, the first leg may lift in 200 shares, then leg 2 may lift for 100 in one execution, and then another execution for leg 2 of 100. The fifth segment will distinguish between these unique inner-combo executions. The Execution Object The Execution object is used to maintain all data related to a user's traded orders. This can be used in both querying execution details and navigating received data. The details provided will display all information pertaining to the execution, including how many shars even efflied, the price of the execution, and what time it took place. AcctNumber: String. The account to which the order was allocated. Side: String. Specifies if the transaction was buy or sale BOT for bought, SLD for sold. Price: double. The order's execution price excluding **Permid:** int. The TWS order identifier. The Permid can be 0 for trades originating outside IB. Liquidation: Int. Identifies whether an execution occurred because of an IB-initiated liquidation. OrderRef: String. The OrderRef is a user-customizable string that can be set from the API or TWS and will be associated with an order for its lifetime. Evitule: String, The Economic Value Rule name and the respective optional argument. The two values should be separated by a colon. For example, aussieBond-YearsToExpiration-3. When the optional argument is not present, the first value will be followed by a colon. LastLiquidity: Liquidity. The liquidity type of the Given additional structures for executions are ever evolving, it is recommended to review the relevant Execution class in your programming language for a comprehensive review of what fields are available. Request Execution Details Python Java C++ C# VB.NET filter: ExecutionFilter. The filter criteria used to determine which execution reports are returned. Receive Execution Details Python Java C++ C# VB.NET def execDetails(self, reqId: int, contract: Contra
print("ExecDetails. ReqId:", reqId, "Symbol:", c Python Java C++ C# VB.NET def execDetailsEnd(self, reqId: int):
 print("ExecDetailsEnd. ReqId:", reqId)







### Cancel All Open Orders

This method will cancel ALL open orders including

Python Java C++ C# VB.NET those placed directly from TV/S.

### Test Order Impact (WhatIf)

From the API is possible to check how a specified trade execution is expected to change the account margin requirements for an account in real time. This is done by creating an Order object which has the IBAO OrderWalmfill flag set to true. By default the what Boolean in Order has a false value, but if set to True in an Order object with its passed to IBAO ISCHIET placeOrder, instead of sending the order to a destination the IB server. It will modepo a credit check for the expected post-trade margin requirement. The estimated post-trade margin requirement is returned to the IBAO OrderState object in the EWapper openOrder callback.

### Trigger Methods

Below is a table which indicates whether a given secType is compatible with bid/ask-driven or last-driven trigger methods (method 7 only used in IBot alerts)

| secType        | Bid/Ask-driven (1, 4,<br>8) | Last-driven (2,<br>3) | Default behavior                       | Notes                                     |
|----------------|-----------------------------|-----------------------|--|---|
|                |                             |                       |  | The double bid/ask is used for OTC stocks |
| CFD            | yes                         | yes                   | Last                                   |   |
| CFD -<br>Index |                             |                       |  | Ex IBUS500                                |
|                |                             |                       | US OPT: Double bid/ask, Other:<br>Last |   |
| FOP            | yes                         | yes                   | Last                                   |   |
| WAR            | yes                         | yes                   | Last                                   |   |
| IOPT           | yes                         | yes                   | Last                                   |   |
| FUT            | yes                         | yes                   | Last                                   |   |
| сомво          | yes                         | yes                   | Last                                   |   |
| CASH           | yes                         | n/a                   | Bid/ask                                |   |
| CMDTY          | yes                         | n/a                   | Last                                   |   |
| IND            | n/a                         | yes                   | n/a                                    | For conditions only                       |

# Important notes :

# MiFIR Transaction Reporting Fields

- IBApi.Order.Miffid2DecisionMaker Used to send "investment decision within the firm" value (if IBApi.Order.Miffid2DecisionAlgo is not used).
- IBApi.Order.Mifid2ExecutionTrader Used to send "execution within the firm" value (if IBApi.Order.Mifid2ExecutionAlgo is not used).

The following choices are available for the "investment decision within the firm" IBApi.Order.Mifid2DecisionMaker and IBApi.Order.Mifid2DecisionAlgo attributes

