

The Chartist Smart API

USER MANUAL

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Overview:

The chartist Smart API is a new version from the old API. It has the following features:

- 1- Can be used for Stocks, CFDs, ETFs
- 2- Can be used for Long and Short positions
- 3- Can handle multiple strategies at the same time as long as all the strategies are similar in their nature such as exit with MOC, or don't close positions.
- 4- Supports getting the minimum tick and adjusting the position for each order
- 5- Supports direct entry and delayed entry
- 6- Multiple exit strategies
 - a. Don't close opened positions
 - b. MOC
 - c. Market orders
 - d. Limit orders (ASX closing auction)
 - e. Delayed MOC orders
- 7- Manages exposure and limits the number of filled orders to the value provided by the user
- 8- Generates activity report that can be imported directly to Share trade tracker

Requirements:

- 1- This API runs on windows machine.
- 2- The machine should be running all the time the API is running
- 3- TWS should be open all the time the API is running
- 4- Internet connection should be available

Interface:

The screenshot displays the 'The Chartist Smart API' interface. The window title is 'The Chartist Smart API'. The main content area shows a form with fields for Host IP (127.0.0.1), Port (7496), and Client Id (100). A 'CONNECT TO IB' button is at the bottom. A sidebar on the left contains menu items: SETTINGS, IMPORT ORDERS, Live ORDERS, DASHBOARD, LOG, RECOVERY MODE, CHANGE LOG, and Generate Report. A footer bar at the bottom shows 'API is NOT connected to IB.', 'Time Remaining to Cancel entry positions', '11:23:05', and '2.0.0.0'. Red boxes with numbers 1, 2, and 3 highlight the sidebar, footer, and main content area respectively.

1- Side bar controls:

- Settings is the place to fill the API settings for entries, exits, exposure...
- Import Orders is where you can import and transmit orders to TWS
- Live Orders is where you can monitor the live orders
- Dashboard is where you can view the number of fills and the remaining allowed fills and if there are any immediate fills.
- Log is where API messages are displayed
- Recovery Mode is where recovery mode is launched
- Change Log is where you can see the changes with each update on the API
- Generate report provides the trades report that can be imported to Share Trade Tracker.

2- Footer bar:

- Displays the connectivity status with TWS
- Displays the time remaining to cancel entry orders
- Displays the version of the API

3- Body

- All windows and controls will be displayed in it

Connection Window:

The Chartist Smart API

The Chartist The Chartist Smart API *Automated API for Order placement and exposure management*

Host IP : 127.0.0.1

Port : 7496

Client Id : 100

Client Id can be any positive integer above ZERO.

CONNECT TO IB

API is NOT connected to IB. Time Remaining to Cancel entry positions 11:23:05 2.0.0.0

Connection window is the first window that will appear when the API is opened. It has three fields:

- 1- Host IP: should be 127.0.0.1 this means that TWS is running on the same machine
- 2- Port: is the port number that is set in TWS under the API tab
- 3- Client Id: can be any positive integer number. Client Id is used to differentiate between APIs so each API will know what which messages are directed to it.
- 4- Connect to IB button: it creates the connection with TWS

After the connection is established the bottom part of the API will indicate that the connection is OK by changing the indicator color to green and the message to connected.

API is connected to IB. Time Remaining to Cancel entry positions 10:58:21 2.0.0.0

Settings:

General:

General	Entries	Exits	Exposure	Report	License
---------	---------	-------	----------	--------	---------

Strategy Name :	US HFT
Account Number :	DU355343

The account number and the strategy name will be used from the imported file. In case the api is used to run only one strategy the account number and the strategy name will be used from the imported file and if they are not provided in the imported file the values in this form will be used.

Modify Limit Orders based on Minimum Tick Size

This tab has three optional fields:

Strategy Name: is the name of the strategy this will appear in the order reference for each order. This way you can differentiate each order is for which strategy and the API can manage the orders.

[This field should be filled if the API is used to manage only one strategy, if the API is used to manage multiple strategies it is not required because the strategy name will be provided in the imported file.](#)

Account Number: is the account that the orders will be transmitted to.

[This field should be filled if the API is used to manage only one strategy, if the API is used to manage multiple strategies it is not required because the strategy name will be provided in the imported file.](#)


Modify Limit orders based on Minimum Tick Size: this can be checked if you want to API to check with IB the minimum tick size for each order and adjust the LIMIT and STOP orders accordingly.

Entries:

General Entries Exits Exposure Report License

Regular Entry
Orders will be transmitted to IB when the submit button is pressed.

Delayed Entry
Orders will be transmitted to IB at a specified time.

Entry Time : 

The API can support two types of entry placement strategies.

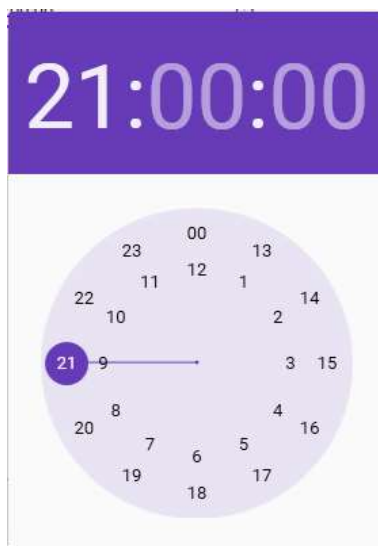
Regular Entry: the orders will be transmitted to TWS when you press the transmit orders button.

Delayed Entry: the orders will be transmitted to TWS when the time specified in Entry time is reached.



[Please note that even for this option you need to press the transmit orders button.](#)

Entry Time: this field is used to set the time to transmit the delayed entry orders, this field is optional.

There is a dial where you can set the time in hours, minutes, and seconds.



Exits:

General	Entries	Exits	Exposure	Report	License
<p><input type="radio"/> Don't Close filled trades</p> <p><input checked="" type="radio"/> Close filled trades With MOC orders</p> <p><input type="radio"/> Close filled trades With MARKET orders</p> <p><input type="radio"/> Close filled trades With LIMIT orders</p> <p>Time to place LIMIT orders : 23:00:05 </p> <p>Limit Coeff : 0.25</p> <p><small>Coeff should be positive decimal number, example 0.25 or 1.2</small></p> <p><input type="radio"/> Close filled trades With delayed MOC orders</p> <p>Time to place delayed MOC orders : 20:00:00 </p>					

There are five exit strategies that the API supports, and it can have only one at a time.

Don't Close: this is when you don't want the API to close any position that was opened during the session.

Close Filled trades with MOC orders: this will place MOC orders for any entry order that is filled during the session by the API.

Close filled trades with Market Orders: this will place MKT orders for any entry order that is filled during the session by the API.


Close Trades with LIMIT orders: this will place LMT order for each order that is filled by the API. This option requires the user to enter two more fields time to place the order and the limit coeff. The limit coefficient is the offset from the price. If the coeff is more than 1 this means the limit price is higher than the entry price while if it is lower than one this means it will be lower than the entry price. The limit price is the entry price multiplied by the coeff.

Close filled trades with delayed MOC orders: this will place MOC orders not directly when the order is filled but at a specific time that is specified by the user. Please note that for the US market the last time to enter MOC orders is 15-20 minutes from the close time.

Exposure:

General	Entries	Exits	Exposure	Report	License
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Maximum allowed fills :
Max fills should be positive integer above ZERO

Time to cancel unfilled entry orders : 

Cancel Unfilled entry orders regardless the exit strategy

Exposure tab is where the exposure of the strategy is specified.

Maximum allowed fills: this field is a positive integer that specifies the maximum number of entry orders that can be filled. When this number is reached all the remaining entry orders will be cancelled automatically. In case the number of fills exceeded the specified number due to gaps the API will close all the additional fills. [*This field is not required in case the API will be used for multi strategy because this field will be provided with the imported file.*](#)

Time to cancel unfilled entries: this is the time that will be used to cancel all entry orders if they are not filled yet. Also this is the time that will be used to place MKT orders in case the strategy will be using close with MKT orders.

Cancel Unfilled entry orders: this checkbox if checked then all unfilled entry orders will be canceled at the time specified in the previous field. This field is optional.

Report:

General	Entries	Exits	Exposure	Report	License
---------	---------	-------	----------	--------	---------

Markets

US MARKET
 ASX

Commissions

Minimum Commission : 1

Commission Per Share : 0.05

Commission percentage of trade cost : 0.4

This window will be used to generate trading report with the trades that the API has taken and this report can be copy pasted directly to Share Trade Tracker.





The API can generate trade reports that can be imported directly to STT (share trade tracker).

Markets: here you need to specify if the traded strategies are for US markets or ASX. This will help in setting the exchange in the reports. For US markets the exchange will be NYSE and for ASX the exchange will be ASX.

Commissions: this will help in calculating the commission for each trade (entry/exit)

In case any one them is not applicable then it should be set to ZERO. For example if the ASX trades don't have commission per share then it should be set to ZERO.

License:

General	Entries	Exits	Exposure	Report	License
	License #1	<input type="text"/>			
	License #2	<input type="text"/>			
	License #3	<input type="text"/>			
	License #4	<input type="text"/>			
	License #5	<input type="text"/>			
	License #6	<input type="text"/>			

All the licenses that are provided to you should be placed over here.

Saving the Settings:

<input type="button" value="SAVE SETTINGS"/>
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Whenever the settings are filled the save settings button will store all the information in the API for current and future use.

Import Orders:

Account Number	Strategy Name	Max Fills	Ticker	Type	Exchange	Primary Exchange	Currency	Action	Quantity	Order Type	Lmt Price	Stp Price
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Import button (ALT + I) will open windows to browse for the CSV that has the orders.

Send Button (ALT + S) will transmit the imported orders to TWS. Note that even if you selected delayed entry the Send button should be pressed.

Clear Button (ALT + C) in case you imported some file and you decided not to transmit and to import another file then the clear button will remove the imported list.

Live Orders:

Strategy Info	Entry Order	Entry Order Status	Entry Filled	Entry Remaining	Entry Avg Fill Price	Exit Order	Exit Order Status	Exit Filled	Exit Remaining	Exit Avg Fill Price
DU355343 US HFT 20	BUY 791 AAL LMT @ 14.78 [0]	Unack	0	791	0					
DU355343 US HFT 20	BUY 26 ADSK LMT @ 294.2 [0]	Unack	0	26	0					
DU355343 US HFT 20	BUY 569 ALKS LMT @ 20.55 [0]	Unack	0	569	0					
DU355343 US HFT 20	BUY 89 ALNY LMT @ 131.69 [0]	Unack	0	89	0					
DU355343 US HFT 20	BUY 78 ALXN LMT @ 149.83 [0]	Unack	0	78	0					
DU355343 US HFT 20	BUY 864 APA LMT @ 13.52 [0]	Unack	0	864	0					
DU355343 US HFT 20	BUY 45 ATVI LMT @ 87.22 [0]	Unack	0	45	0					
DU355343 US HFT 20	BUY 192 BKR LMT @ 20.36 [0]	Unack	0	192	0					
DU355343 US HFT 20	BUY 91 BMRN LMT @ 85.29 [0]	Unack	0	91	0					
DU355343 US HFT 20	BUY 33 COUP LMT @ 339.23 [0]	Unack	0	33	0					
DU355343 US HFT 20	BUY 171 DD LMT @ 67.87 [0]	Unack	0	171	0					
DU355343 US HFT 20	BUY 38 DDOG LMT @ 103.55 [0]	Unack	0	38	0					
DU355343 US HFT 20	BUY 184 DT LMT @ 42.32 [0]	Unack	0	184	0					
DU355343 US HFT 20	BUY 57 EA LMT @ 135.86 [0]	Unack	0	57	0					
DU355343 US HFT 20	BUY 41 EFX LMT @ 189.36 [0]	Unack	0	41	0					
DU355343 US HFT 20	BUY 21 ETSY LMT @ 183.3 [0]	Unack	0	21	0					
DU355343 US HFT 20	BUY 138 FBHS LMT @ 84.44 [0]	Unack	0	138	0					

All the live orders will be displayed over here including the filled, cancelled and live orders.

Dashboard:

Account Number	Strategy Name	Max Allowed Fills	Current Fills	Closed positions with MKT orders
DU355343	US HFT	20	0	0

Dashboard will display the account number the strategy Name, maximum allowed fills, current fills, and immediate fills (in case the filled trades where more than the maximum allowed)

Log:

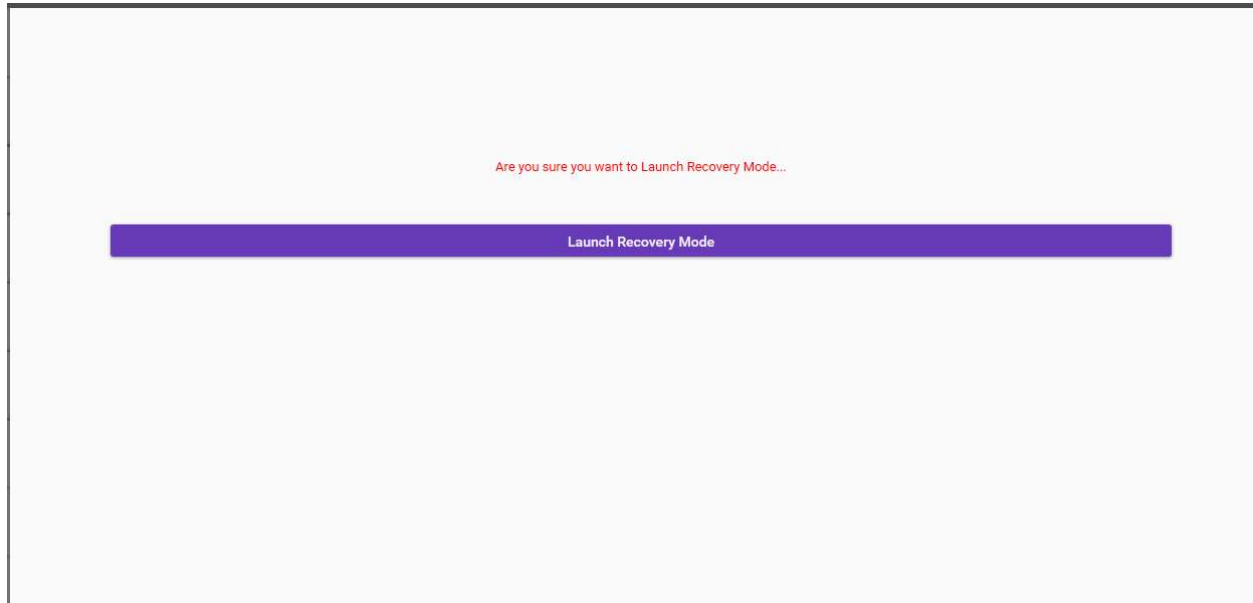
Time Stamp	Level	Message
12/25/2020 12:28:02.007 PM	ERROR	Error ID: 6163 Error Code: 399 Error Message: Order Message: BUY 119 WY NYSE Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.933 PM	ERROR	Error ID: 6162 Error Code: 399 Error Message: Order Message: BUY 188 UAL NASDAQ.NMS Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.885 PM	ERROR	Error ID: 6161 Error Code: 399 Error Message: Order Message: BUY 221 TWTR NYSE Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.839 PM	ERROR	Error ID: 6160 Error Code: 399 Error Message: Order Message: BUY 11 TWLO NYSE Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.800 PM	ERROR	Error ID: 6159 Error Code: 399 Error Message: Order Message: BUY 185 TW NASDAQ.NMS Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.761 PM	ERROR	Error ID: 6158 Error Code: 399 Error Message: Order Message: BUY 39 TTWO NASDAQ.NMS Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.692 PM	ERROR	Error ID: 6157 Error Code: 399 Error Message: Order Message: BUY 126 TSN NYSE Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.634 PM	ERROR	Error ID: 6156 Error Code: 399 Error Message: Order Message: BUY 27 TSCO NASDAQ.NMS Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.592 PM	ERROR	Error ID: 6155 Error Code: 399 Error Message: Order Message: BUY 153 TRN NYSE Warning: your order will not be placed at the exchange until 2020-12-28 09:30:00 US/Eastern
12/25/2020 12:28:01.556 PM	ERROR	Error ID: 6154 Error Code: 399 Error Message: Order Message:

The log will display the messages that are received and transmitted to API. It is a simplified way for the user to know what is going on with the orders.

Also it will display error messages with red background and information messages with white background.

Time Stamp	Level	Message
12/25/2020 12:27:56.694 PM	INFO	Place order: Request id : 6147, contract : SMAR/SMART/STK, Action : BUY, order type : LMT, Limit price : 69.5, Aux price : 0
12/25/2020 12:27:56.658 PM	INFO	Place order: Request id : 6146, contract : SLM/SMART/STK, Action : BUY, order type : LMT, Limit price : 11.97, Aux price : 0
12/25/2020 12:27:56.621 PM	INFO	Place order: Request id : 6145, contract : SGEN/SMART/STK, Action : BUY, order type : LMT, Limit price : 184.25, Aux price : 0
12/25/2020 12:27:56.586 PM	INFO	Place order: Request id : 6144, contract : ROL/SMART/STK, Action : BUY, order type : LMT, Limit price : 38.84, Aux price : 0
12/25/2020 12:27:56.551 PM	INFO	Place order: Request id : 6143, contract : RCL/SMART/STK, Action : BUY, order type : LMT, Limit price : 67.33, Aux price : 0
12/25/2020 12:27:56.515 PM	INFO	Place order: Request id : 6142, contract : PFE/SMART/STK, Action : BUY, order type : LMT, Limit price : 35.98, Aux price : 0
12/25/2020 12:27:56.480 PM	INFO	Place order: Request id : 6141, contract : OXY/SMART/STK, Action : BUY, order type : LMT, Limit price : 16.04, Aux price : 0
12/25/2020 12:27:56.443 PM	INFO	Place order: Request id : 6140, contract : ORCL/SMART/STK, Action : BUY, order type : LMT, Limit price : 64.13, Aux price : 0
12/25/2020 12:27:56.407 PM	INFO	Place order: Request id : 6139, contract : OKTA/SMART/STK, Action : BUY, order type : LMT, Limit price : 262.82, Aux price : 0
12/25/2020 12:27:56.372 PM	INFO	Place order: Request id : 6138, contract : NTNX/SMART/STK, Action : BUY, order type : LMT, Limit price : 32.13, Aux price : 0
12/25/2020 12:27:56.337 PM	INFO	Place order: Request id : 6137, contract : NKTR/SMART/STK, Action : BUY, order type : LMT, Limit price : 17.69, Aux price : 0
12/25/2020 12:27:56.302 PM	INFO	Place order: Request id : 6136, contract : NEWR/SMART/STK, Action : BUY, order type : LMT, Limit price : 67.13, Aux price : 0

Recovery Mode:



If for some reason the API or TWS was closed and you want to restore the API to its previous status before the close you can do it with the recovery mode.

Please note that TWS must be open before recovery mode is started.

Change Log:

	The Chartist Smart API
The Chartist Smart API V2.0	
2020-12-23 Added features	
1- Support the latest api from IB.	
2- All the features from the previous API with bug fixes.	
3- Support Multi Strategy with the same API instance.	

Any update that is done to the API and bug fixes can be found over here.

MULTI STRATEGY:

The API supports running multiple strategies on multiple accounts from one instance of the API. There are some conditions for this to be achieved.

- 1- All the strategies should be accessed from the same TWS account.
- 2- All the strategies should be same in nature
 - a. The close time should be the same
 - b. Cancel entry orders time should be the same
 - c. The close strategy should be the same

The API was tested with 6 strategies and more than 1000 orders and performed incredibly good, but common sense should be used when running the API, because if the API will be managing 10K orders this will make it slow. The API works based on messages that are received from TWS, each message will be taken analyzed and processed then action will be taken. So, if the number of orders is huge this will require more time to respond and act. Within the range of 2000 orders the API can perform perfectly.

To use Multi Strategy with the API three more fields should be added to the CSV file that is imported:

- 1- *Account Number*
- 2- *Strategy Name*
- 3- *Max Fills*

AddTextColumn(Writelf(BO1,"DU355343",""),"Account Number",1.3,29,55,Width1);

AddTextColumn(Writelf(BO1,"US HFT",""),"Strategy Name",1.3,29,55,Width1);

AddTextColumn(Writelf(BO1,"20",""),"Max Fills",1.3,29,55,Width1);