**Interactive Brokers (IB)**

**MetaTrader 5(MT5)**

**EA Trader Instruction**

**(Coded by Pure MQL5 Language. No third DLLs or Libraries.)**

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1. Introduction

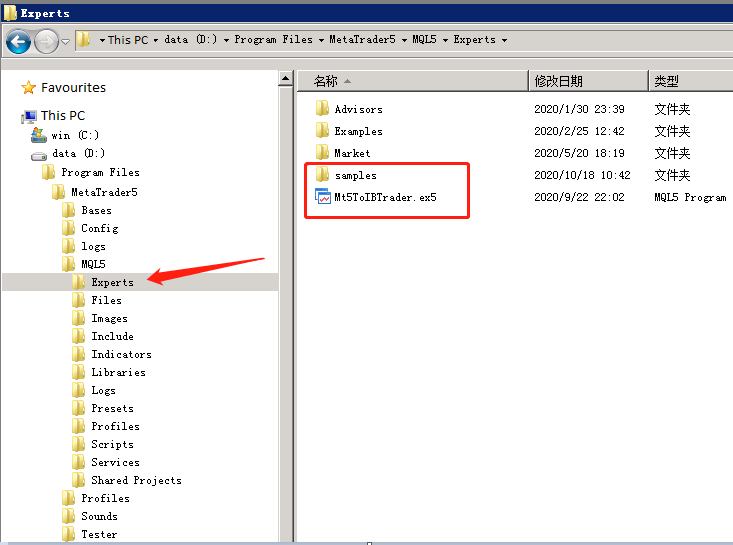
* + - **View IB Data Feed** in MT5 Charts
    - **Placing Orders** in Charts Directly
    - **Make Your** **EAs** that can send orders to IB accounts directly
    - **Back testing** with **IB Data Feed**.



2. Usage

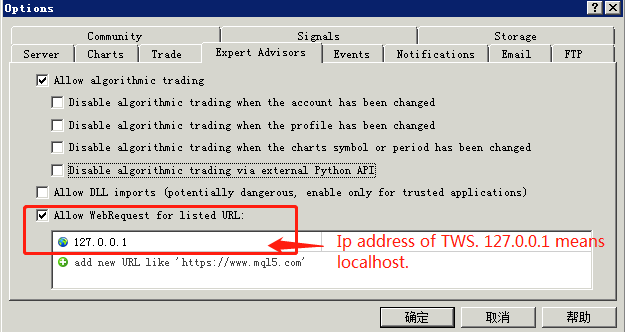
1. Installation

Put the MT5 to IB Trader(such as MT5ToIBTraderEn.ex5) and sample files to [MT5 Data Folder] ->MQL5->Experts.



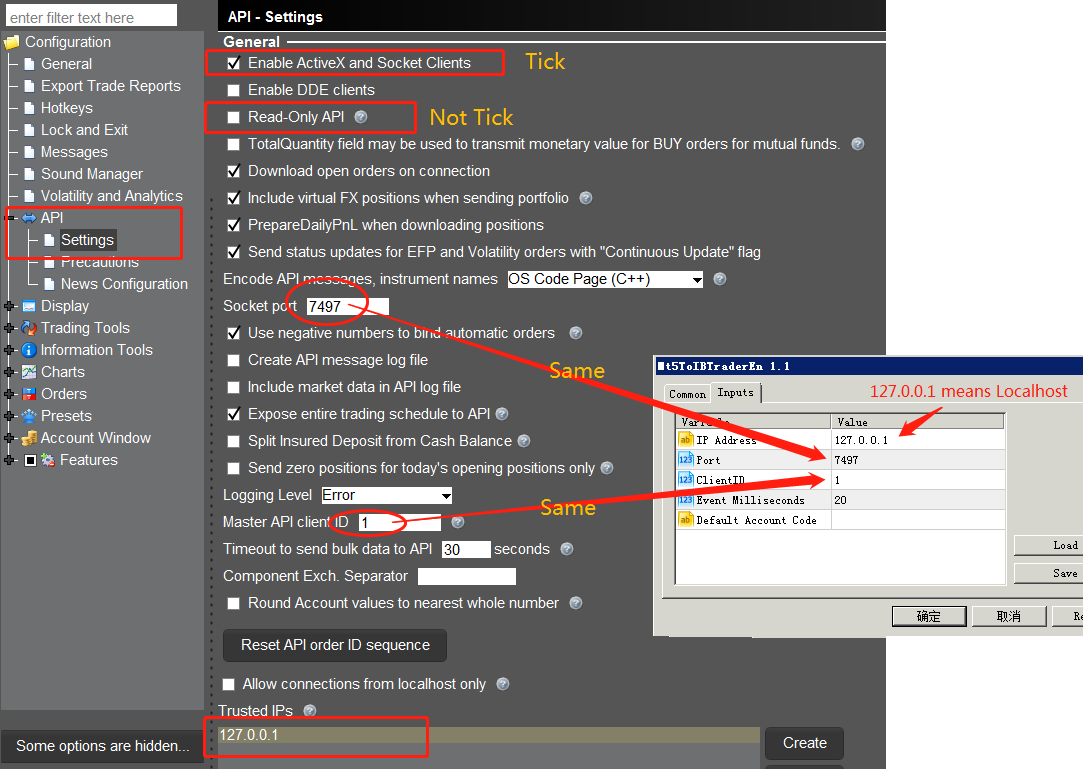
1. MT5 Settings

Add the IP Address to the MT5 **Allowed URLs** in 'Tools->Options->Expert Advisor'.



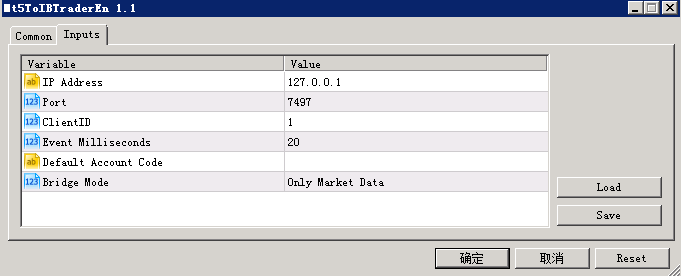
1. TWS Configuration

Find “Global Configuration” in Menu of TWS. Tick “Enable ActiveX and Socket Clients”. Delete the tick of “Read-Only Api”.



1. Input Parameters

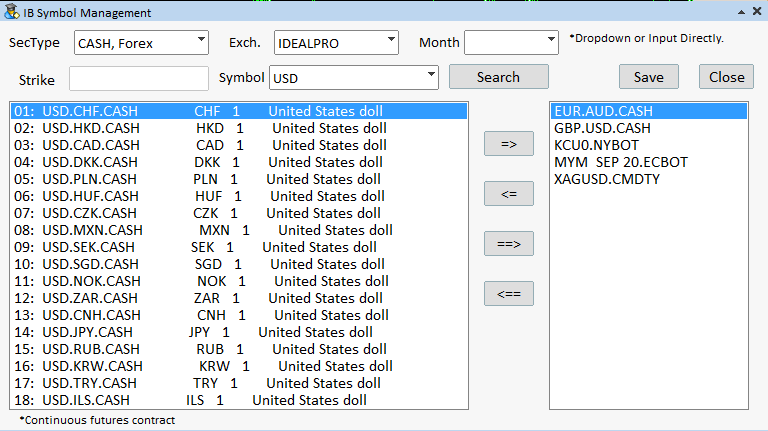
Drag “MT5ToIBTraderEn.ex5” to MT5 Chart. Fill the input parameters.



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| --- | --- |
| **Variable** | **Description** |
| IP Address | IP Address of host machine which TWS or IBGateway is opend.  Please fill “127.0.0.1” if both account are at the same computer. |
| Port | Socket Port.  Must be aligned with configuration in TWS. Please take the image in the above point iii as reference. |
| ClientID | Any positive integer.  It’s the identifier of connection to TWS. Please use different number if multiple connection to IB TWS are established. |
| Event Milliseconds | EventTimer. Time Interval of the program loop. |
| Default Account Code | Account code must be specified if the TWS account has multiple Account Code(e.g. U123456). The program will use the first one obtained if not filled in the field. |
| Bridge Mode | * **Market Mode**：Only receive data feed from IB TWS, including realtime market data and history data. Multiple connection of Market mode can be created for an IB Account Code. * **Trading Mode**：Receive orders, executions, positions from IB TWS and place orders to IB Accounts. Only one connection can be created for an IB Account Code. * **Both Trading and Market**：Full market and trading mode.   \*Note：  1. Please fill different Client ID for different connections to the same IB Account Code.  2. Since the mt5 program can only be run in the mode of single thread, the big data flow of the bridge may be blocked and delayed. So we suggest users to create the one connection of Trading Mode and multiple Market Mode. It is suggested to select less than five symbols for each market-mode connection. |

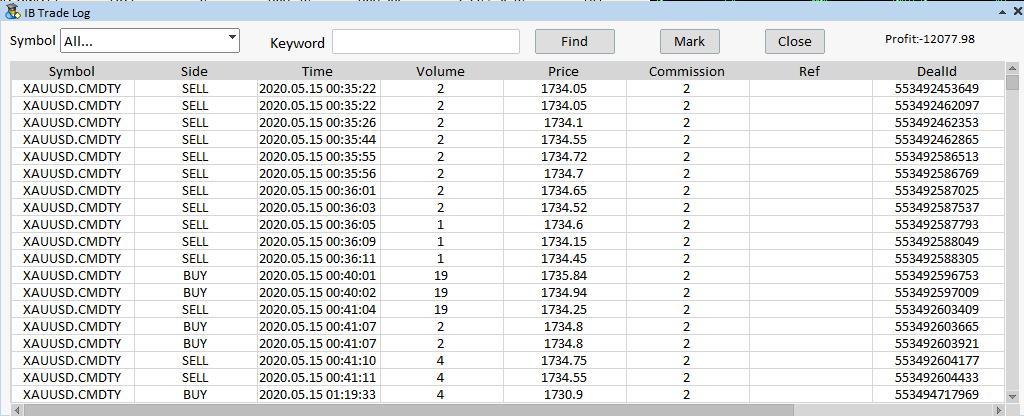
3. IB Symbol Management

After click “SymbolsSetup” in the chart control, then you can search IB Symbols and add to the watch list of MT5.



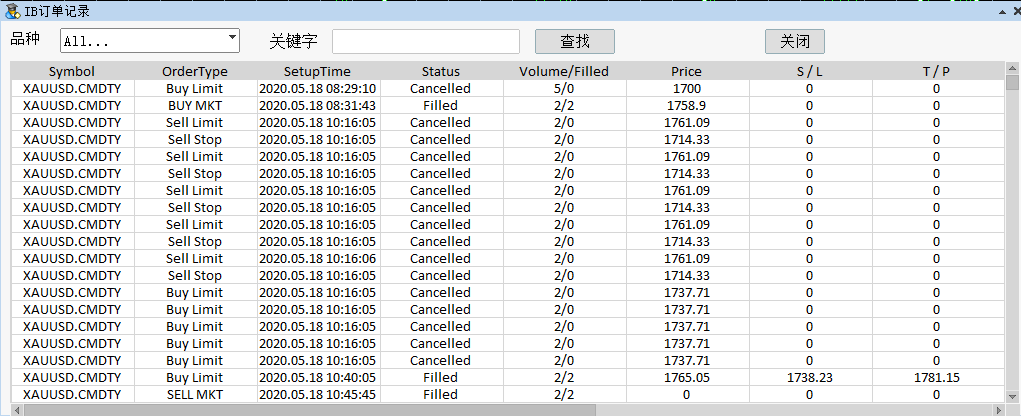
4. Trade Log

“TradeLog” will show the trade executions of IB Account as below. These records will be saved in local file MQL5/Files/ [xxx]\_deals.dat.



5. Orders

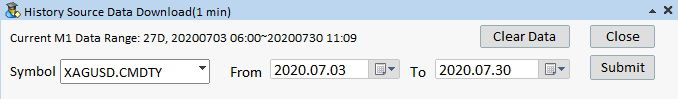
Click “Orders”, you will see order activities of IB accounts. These records will be saved in local file MQL5/Files/ [xxx]\_ historders.dat.



6. History Data Management

Normally, the program will download History data from IB TWS automatically. But sometimes, the progress may be interrupted and lead to incomplete data. In this situation, user can Click “Clear Data” on the panel, the program will re-download the data automatically.

Besides, users can download more data for back testing by customized periods.



7. Trading

i. Order Type

Supported order types are as below:

* MKT, Market Order
* LMT, Limit Order
* STP, Stop Order
* MTL, Market to Limit
* STP LMT, Stop Limit

ii. Basic trading function

* Buy
* Sell
* CloseAll: Close all the position of the **Selected Symbol**
* Cancel: Cancel all the pending orders of the **Selected Symbol**
* CancelGlobal: Cancel all the pending orders of the **account.**
* Stoploss/Takeprofit: Place Stoploss or Takeprofit Order simultaneously when click Buy /Sell

iii. Drag to Modify

* Drag Pending Order Line to Modify the Price
* Drag Position Line to Generate Stoploss or Takeproft Order

Note: Please select(double click) the line before dragging.



8. Making IB EAs

The attached file “Header\_MT5ToIB.mqh” has listed all the IB functions as reference.

Trading and Account Functions of MT5 can **not** send orders to IB account directly. We need to replace these function to IB functions.

Most of them can be simply add a prefix “IB\_” to MT5 functions, such as IB\_ AccountInfoInteger.

The account structure of IB is similar to the “Netting” mode of MT5 account, so the usage of functions will be similar to Netting mode of MT5.

For IB EAs made by IB functions, users can run “Strategy Tester” commonly with any charts, including those fed by IB data.

Besides, during the usage of IB function, please be noted position\_id(or position identifier) are always the Contract ID of the symbol.

Drag the IB EA to **IB Chart** for running after your EA finished.

More function details are listed as below:

1. Trading Functions

bool IB\_OrderSend(const MqlTradeRequest& request, MqlTradeResult& result)

bool IB\_OrderSendAsync(const MqlTradeRequest& request, MqlTradeResult& result);

bool IB\_OrderSend(const MqlTradeRequest& request, MqlTradeResult& result)

bool IB\_OrderCalcMargin(ENUM\_ORDER\_TYPE action, string symbol, double volume, double price, double &margin);

bool IB\_OrderCheck(const MqlTradeRequest& request, MqlTradeCheckResult& result);

bool IB\_OrderCalcProfit(ENUM\_ORDER\_TYPE action, string symbol, double volume, double price\_open, double price\_close, double &profit);

The usage of IB Trade Function were same with MT5 trading functions’.

1. Account Functions

long IB\_AccountInfoInteger(ENUM\_ACCOUNT\_INFO\_INTEGER property\_id);

double IB\_AccountInfoDouble(ENUM\_ACCOUNT\_INFO\_DOUBLE property\_id);

string IB\_AccountInfoString(ENUM\_ACCOUNT\_INFO\_STRING property\_id);

The usage of IB Account Function were same with MT5 account functions.

1. Position Functions

int IB\_PositionsTotal();

string IB\_PositionGetSymbol(int index);

ulong IB\_PositionGetTicket(int index);

bool IB\_PositionSelect(string symbol);

bool IB\_PositionSelectByTicket(long position\_id);

bool IB\_PositionGetDouble(ENUM\_POSITION\_PROPERTY\_DOUBLE property\_id,double &dou\_var);

double IB\_PositionGetDouble(ENUM\_POSITION\_PROPERTY\_DOUBLE property\_id);

bool IB\_PositionGetInteger(ENUM\_POSITION\_PROPERTY\_INTEGER property\_id, long &l\_var);

long IB\_PositionGetInteger(ENUM\_POSITION\_PROPERTY\_INTEGER property\_id);

bool IB\_PositionGetString(ENUM\_POSITION\_PROPERTY\_STRING property\_id, string &s\_var)

string IB\_PositionGetString(ENUM\_POSITION\_PROPERTY\_STRING property\_id);

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| --- | --- |
| **IB** | **Difference with MQL5** |
| IB\_PositionGetInteger | The Property of POSITION\_TICKET and POSITION\_IDENTIFIER return the Contract ID of IB. |

In addition to that listed in table above, the usage of other IB Position Functions ere same with MT5 functions.

1. Order Functions

int IB\_OrdersTotal();

ulong IB\_OrderGetTicket(int index);

bool IB\_OrderSelect(ulong ticket);

bool IB\_OrderGetDouble(ENUM\_ORDER\_PROPERTY\_DOUBLE property\_id, double &double\_var);

double IB\_OrderGetDouble(ENUM\_ORDER\_PROPERTY\_DOUBLE property\_id);

bool IB\_OrderGetInteger(ENUM\_ORDER\_PROPERTY\_INTEGER property\_id, long &long\_var);

long IB\_OrderGetInteger(ENUM\_ORDER\_PROPERTY\_INTEGER property\_id);

bool IB\_OrderGetString(ENUM\_ORDER\_PROPERTY\_STRING property\_id, string &string\_var);

string IB\_OrderGetString(ENUM\_ORDER\_PROPERTY\_STRING property\_id);

The usage of IB Order Function were same with MT5 functions.

1. History Function

bool IB\_HistorySelect(datetime from\_date, datetime to\_date);

bool IB\_HistorySelectByPosition(long position\_id)

bool IB\_HistoryOrderSelect(ulong ticket);

int IB\_HistoryOrdersTotal();

ulong IB\_HistoryOrderGetTicket(int index);

bool IB\_HistoryOrderGetDouble(ulong ticket\_number, ENUM\_ORDER\_PROPERTY\_DOUBLE property\_id, double &double\_var);

double IB\_HistoryOrderGetDouble(ulong ticket\_number, ENUM\_ORDER\_PROPERTY\_DOUBLE property\_id);

bool IB\_HistoryOrderGetInteger(ulong ticket\_number, ENUM\_ORDER\_PROPERTY\_INTEGER property\_id, long &long\_var);

long IB\_HistoryOrderGetInteger(ulong ticket\_number, ENUM\_ORDER\_PROPERTY\_INTEGER property\_id);

bool IB\_HistoryOrderGetString(ulong ticket\_number, ENUM\_ORDER\_PROPERTY\_STRING property\_id, string &string\_var);

string IB\_HistoryOrderGetString(ulong ticket\_number, ENUM\_ORDER\_PROPERTY\_STRING property\_id);

bool IB\_HistoryDealSelect(ulong ticket);

int IB\_HistoryDealsTotal();

ulong IB\_HistoryDealGetTicket(int index);

bool IB\_HistoryDealGetDouble(ulong ticket\_number, ENUM\_DEAL\_PROPERTY\_DOUBLE property\_id, double &double\_var);

double IB\_HistoryDealGetDouble(ulong ticket\_number, ENUM\_DEAL\_PROPERTY\_DOUBLE property\_id);

bool IB\_HistoryDealGetInteger(ulong ticket\_number, ENUM\_DEAL\_PROPERTY\_INTEGER property\_id, long &long\_var);

long IB\_HistoryDealGetInteger(ulong ticket\_number, ENUM\_DEAL\_PROPERTY\_INTEGER property\_id);

bool IB\_HistoryDealGetString(ulong ticket\_number, ENUM\_DEAL\_PROPERTY\_STRING property\_id, string &string\_var);

string IB\_HistoryDealGetString(ulong ticket\_number, ENUM\_DEAL\_PROPERTY\_STRING property\_id);

|  |  |
| --- | --- |
| **IB** | **Difference with MQL5** |
| HistorySelectByPosition | Can only search records of current position. No historical records will be selected if no position for the symbol. |

In addition to that listed in table above, the usage of other IB Position Functions ere same with MT5 functions.

1. Others

bool IB\_IsConnected(); // Connecting status

datetime IB\_TimeCurrent(); //Timestamp of IB TWS

1. IB EA Library

Similar to the MQL5 Trading Liberia, you can find “IB EA Trading Library” in the attachments, which contained in the directory “IB\_Trade”. These may help users to make their EAs easier.

Classes include：

* CAccountInfo
* CTrade
* CPositionInfo
* COrderInfo
* CHistoryOrderInfo
* CDealInfo

9. IB EA Samples

Three samples were attached for reference.

1. MACD Sample.mq5
2. Moving Average.mq5
3. Mean Reversion.mq5