Conception

It is possible to use OEC API functionality inside Excel for users with different levels of programming knowledge. Proposed levels:

1. Drag-n-drop values from OEC Trader to Excel
2. Drag-n-drop DDE links from OEC Trader to Excel
3. Manual construction advanced DDE links and requests
4. Excel add-in with set of user-defined functions to complement DDE functionality and support advanced commands in "electronic table" manner. For example, send order as "=SendOrder("Buy", A1, "ESU7", "Limit", A2)".
5. Integration OEC API into Excel.

DDE link

Formats

The main format of DDE commands:

- Support of native OEC namespace (accounts, contracts, etc.) and to support drag-n-drop operations.

OEC adaptation

General

OEC formats can be discovered via drop-n-drop operations: copy DDE links (see below) to Excel to view their format.

General pattern:

=**<username>|**<OEC view related topic>**!**<OEC subject>**?**<Column name>

, where

- OEC view related topic:
  - **tik** or **quote** for Quotes view
  - **acct** or **pos** for Average Positions view
  - **ord** for Orders view
  - **bal** for Account Summary (Balance) view
  - **fill** for fill details
  - **account** for account specifications
  - **cntr** for contract specifications
  - **dom** for DOM
  - **hgram** for histogram
  - **bars** for bar history

- OEC subject:
    - Contract for Quotes view (**ESU7**, for example)
    - <Account>_<Contract> for Average Positions (**TEST001_ER2U7**, for example)
    - Order ID for Orders view
    - Account for Total Account Summary (**TEST001**, for example) and <Account>_<Currency> for balance by currency (**TEST001_EUR**, for example)
    - Etc. Please see corresponding sections
- Column name is text in column header of corresponding view. (**Last**, **LastVol**, **Bid**, **Ask** in Quotes for example)

Examples of DDE links in OEC formats:

```
=test1|quote!'6EU7?Last'

=test1|pos!'TEST01_ER2U7?#Bought'

=test1|ord!'1237963?Qty'

=test1|bal!'TEST_USD?Open P/L'

Another way to obtain OEC data is a usage of filtered indexed format:
```

=**<username>|**<OEC view related topic>**!**id<N>[some filter]**?**<Column name>

All fields are the same as in the previous format, except the subject field. Now it describes the index of row in some filtered list and optionally – filter of this list. For example, =*test1|pos!'id0[TEST001]?Symbol'* returns the symbol name of first average position that has account "TEST001". The filter can be skipped: =*test1|ord!'id1?Order #'* returns ticket number of second order of TEST1 user. The syntax of the filter is:

```
[Column_name₁ <operator₁>] value₁ [AND [Column_name₂ <operator₂>]value₂
[AND…]]
```

Example, *Symbol = ESU7 AND State is Sent,Held,Working* filters all open ESU7 orders.

Sometimes column name and operator can be skipped. For example, [ESU7] filters for all ESU7 orders or positions depending on topic; [Sent,Held,Working] filters for all open orders and the above full filter can be written as [ESU7 AND Sent,Held,Working] with the same effect. Please see corresponding sections below to find out what columns can be used by default.

Account specifications: account

Description of account

Topic: account

Subject: account name

Columns: Account, CH, Category, Trader

Default filter columns: none

Balances: bal

Balance values (total or by currency). This is the same functionality as the "Account Summary" view in OEC Trader

Topic: bal

Subject: account name for total balance or <account name>_<currency> for currency balance

Columns: `Open P/L, Realized P/L, Total P/L, Cash, Net Liq, Rate`

Default filter columns: indexed list is not applied

Contract specifications: cntr

Description of contracts.

Topic: cntr

Subject: symbol

Columns: `Symbol, Base Contract, Expires, Description, Currency, Exchange, Group, Type, Start Time, Stop Time, Tick Size, Per Point`

Default filter columns: `Symbol, Base Contract, Group, Exchange, Currency, Type. Acceptable values of Type are E/Electronic/Pit`

DOM: dom

DOM values

Topic: dom

Subject: symbol

Columns: price, size

Additional parameter: index and side of level <index>_<Ask|Bid>

Default filter columns: not applied

Examples

 =TEST1|DOM!ESU7?price?0_Ask: first ASK price level of ESU7 DOM

=TEST1|DOM!ESU7?size?1_Bid: size of second BID price level of ESU7 DOM

Fills: fill

Fill details and state

Topic: fill

Subject: not applied

Columns: `ID, Quantity, Price, Comments, Timestamp, Active, Commission, Type, Symbol`

Default filter columns: `Type, Symbol, Active`

Histogram: hgram

Histogram values

Topic: hgram

Subject: symbol

Columns: price, size

Additional parameter: index of value inside histogram sequence

Default filter columns: not applied

Examples

 =TEST1|HGRAM!FDAXU7?price?0: first price level in FDAXU7 histogram

=TEST1|HGRAM!FDAXU7?size?1: size of second price level

Historical data: bars

Intraday historical data

Topic: bars

Subject: symbol

Special of column: <minutes>?<field>?<row>

<minutes> : size of bars, in minutes

<field>: Time, Volume, Open, High, Low, Close

<row>: index of row in bar sequence. 0 is the latest bar, 1 is previous bar, etc

Examples

=TEST1|bars!ER2U7?15?Open?0: open price of the latest ER2U7 15-minute bar

=TEST1|bars!ER2U7?5?Close?1: previous close price of ER2U7 5-minute bar

Orders: ord

Order details and state. The same as "Open Orders" and "Complete Orders"

Topic: ord

Subject: order ID

Columns: Order #, `State, Avg.Price, Side, Qty, Symbol, Price, Last.Cmd, Comments, Time, Account, Type, Pending Command, Total Qty, Filled Qty`

Default filter columns: `State, Symbol, Account, Side, Flags`

Positions: pos

Average positions details. This is the same functionality as the "Average Positions" view in OEC Trader

Topic: pos

Subject: <account>_<contract>

Columns: `Account, Symbol, #Prev, Prev.Price, #Bought, Avg. Buy Price, #Sold, Avg. Sell Price, Net Pos, Net Pos. Price, Open P/L, $ Open P/L, Realized P/L, $ Realized P/L, Total P/L, $ Total P/L, Initial Margin, $ Initial Margin, Maintenance Margin, $ Maintenance Margin`

Default filter columns: `Symbol, Account`

Examaple

= TEST1|pos!'TEST001_EMS7?#Prev'

= TEST1|pos!id0[EMS7]?Total P/L'

Real-time quotes: quote

Real-time quotes

Topic: quote

Subject: symbol

Columns: `Symbol, Last, LastVol, Bid, BidSize, Ask, AskSize, High, Low, Chg, Chg%, TotalVol, Open, Settle, Updated, Base Contract, Expires, Description, Currency, Exchange, Group, Type, Start Time, Stop Time, Tick Size, Per Point`

Default filter columns: `Symbol, Base Contract, Group, Exchange, Currency, Type`

Send Order: send

There is a special format for a Send Order request.

=<user>|send!'Side_Qty_Symbol_Type_Price_Price2_Flags_BY_Account_Comments'

BY_Account: The order will be sent to a specified account. 'BY' is a termination word that means "the next word is an account name"

Side: `Buy | Sell`

Type: `Market | Limit | Stop |StopLimit | MarketIfTouched | MarketToLimit | MarketOnOpen | MarketOnClose | MarketOnPitOpen | MarketOnPitClose`

Flags: `None | GTC | FOK | IOC | AON`

Price2, Flags and Comments are optional fields as well as the 'BY_Account' construction

Examples

=TEST1|send!'Buy_10_ESU7_Market'

=TEST1|send!'Buy_10_ESU7_Limit_1500.5'

=TEST1|send!'Buy_10_ESU7_StopLimit_1550_1600'

=TEST1|send!'Buy_10_ESU7_Market_GTC_BY_TEST001'

=TEST1|send!'Buy_10_ESU7_Market_Some Comments'

Send OCO orders: oco

There is a special format for a Send OCO Orders request

=<user>|oco!'$order_1$_OCO_$order_2$'

Where $order_1$ and $order_2$ are normal orders (see Send Order for reference)

Examples

=TEST1|send!'Buy_10_ESU7_Limit_1500_OCO_ Buy_10_ESU7_Stop_1600'

Send Bracket orders: bracket

There is a special format for a Send Bracket Orders request

=<user>|bracket!'order$_1$_LINKED_order$_2$'

=<user>| bracket!'order$_1$_LINKED_order$_2$_OCO_order$_3$'

Where order$_1$, order$_2$ and order$_3$ are normal orders (see Send Order for reference)

Examples

=TEST1|send!'Sell_10_ESU7_Market_LINKED_Buy_10_ESU7_Limit_1500_OCO_
Buy_10_ESU7_Stop_1600'

Cancel Orders

=<user>|cxl!'Filter'

=<user>|cxl!all

The first case cancels only the orders that meet to conditions of filter. The second case cancels all open orders.

The filter is the same as in [ord topic](#) + "Order #' that can be used by default.

Examples

=TEST1|cxl!ESU7

=TEST1|cxl!TEST001

=TEST1|cxl!Held

=TEST1|cxl!1356117

Reach Desired Position

=<username>|desired!'Symbol?desiredPosition?Account

The request sends a command to OEC Trader to buy or sell the selected symbol in a selected account to reach the selected position.

Example

=test1|desired!ESU7?10?TEST001: This will initiate a Buy 5 ESU7 Market order, if current net position is 5.

Drag-n-drop

The current version supports drag-n-drop operations from OEC Trader to Excel (from Quotes, Orders, Average Positions, Account Summary views). The user can drag a selected range of values as well as DDE links to these corresponding values. Proposed rules:

1. Simple drag-n-drop operation copies selected range of values
2. *Starting 'drag' with Ctrl key* will copy the selected range of values and column headers
3. *Finishing 'drop' with Ctrl key* makes the DDE link to dynamic values (prices, for example) and copies any static values (contract names, for example).

OEC Excel add-in and User-Defined Functions

General

An Excel add-in has been developed that includes a set of functions to simplify the automation of the DDE link construction within Excel. The set is divided to two categories: order manipulations (send and cancel requests) and table operations (dynamic loading of a growing table of orders and positions). This Excel add-in is optional and a user could work with DDE connectivity without it. The Excel add-in just helps to avoid the usage of non-business knowledge.
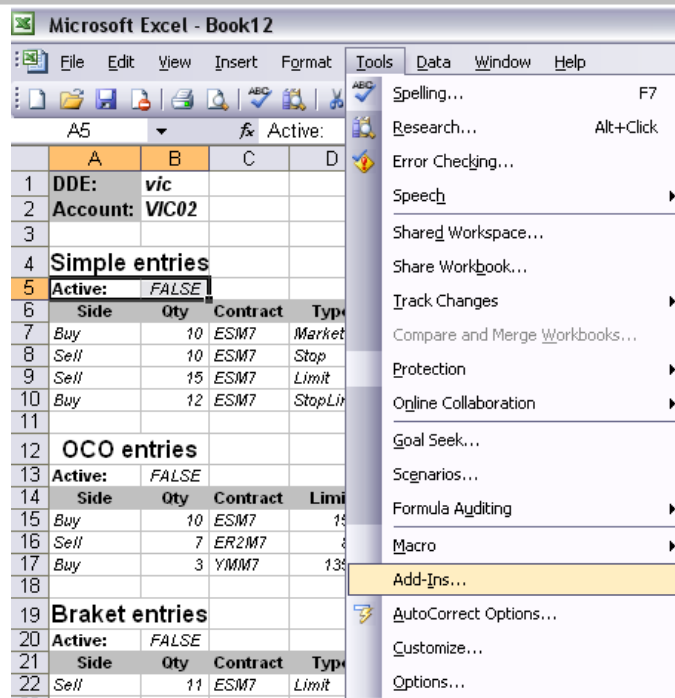
Installation

Excel 2003 bugfix

Excel 2003 has a bug that does not allow OEC Excel add-in to load. Before installing the OEC Trader Excel Add-in the user should update Excel 2003 via "Microsoft Update" site or download and install the following: http://www.microsoft.com/downloads/details.aspx?FamilyId=1B0BFB35-C252-43CC-8A2A-6A64D6AC4670&displaylang=en
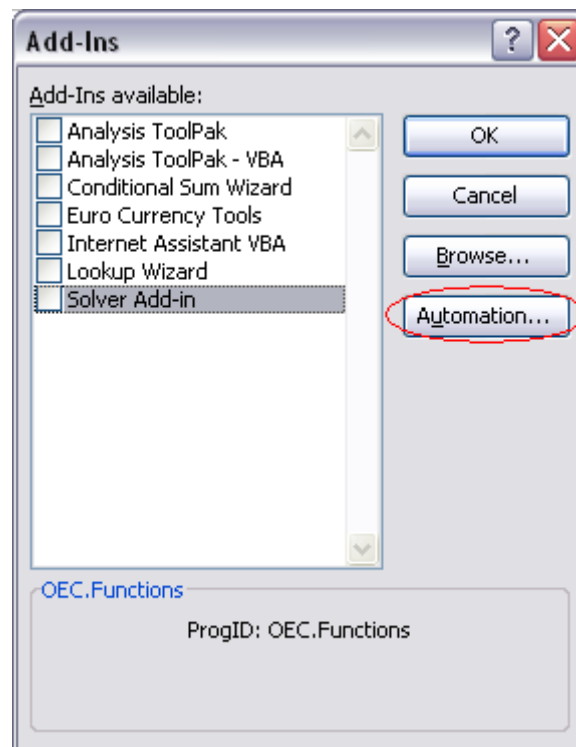
Add-in installation

The OEC Trader Excel Add-In installation adds itself to the Add-Ins list within Excel automatically. A user then can add and remove this add-in manually using the below steps:
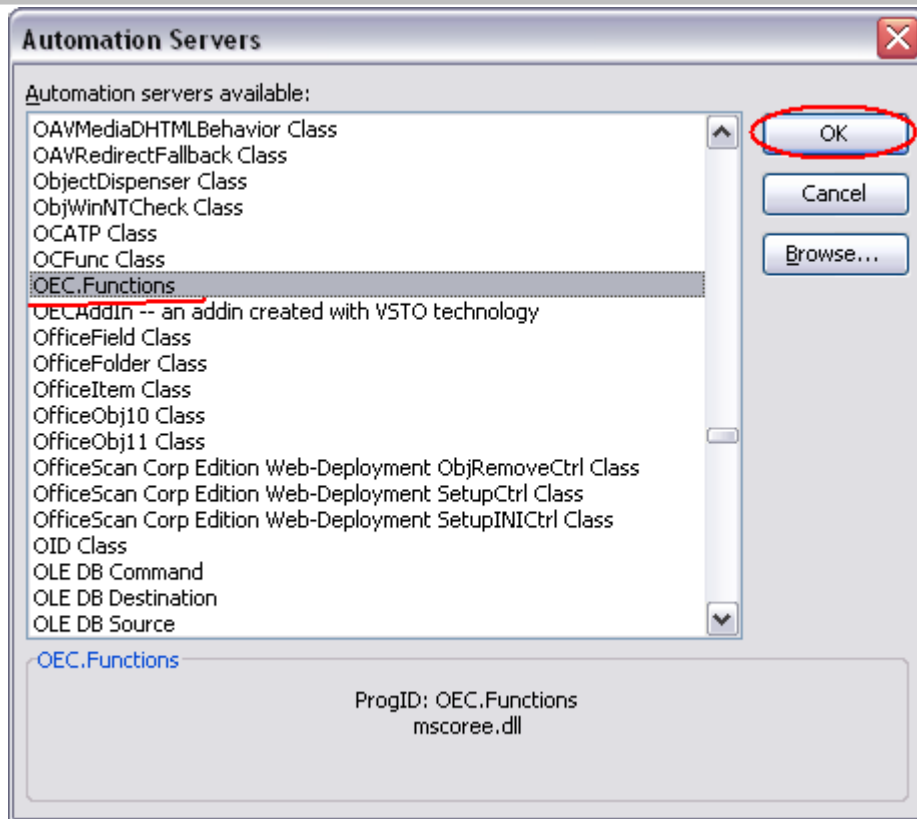
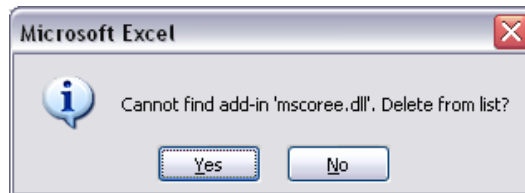1. In Excel open Add-Ins: Tools menu, Add-Ins…

2. Press the "Automation" button

3. Find the "OEC.Functions" item in the list and press 'OK'

4. Select "No" in next Excel warning dialog box.

5. Installation of the OEC Trader Excel Add-in complete.

Table functions

All table functions have one of the following two patterns:

1. SomeFunction(username, range of column names, count of visible rows, filter)

2. SomeFunction (username, range of column names, range of object identifies)

These functions fill up a table precisely under the *'range of column names'* with the DDE link. Column names play two roles here: header of table and source of the column names for automatically built DDE links. The length of table is controlled either through *'count of visible rows'* or *'range of object identifies'*. These functions with the first pattern generates an array of links like the following:

```
=username|<some topic>!'id<#row>[filter]?<corresponding column name>',
```

The second one generates the following:

```
=username|<some topic>!'<identify from range of object
identifies>'?'<corresponding column name>'
```

For example, we have a list of order columns in the range of cells A6:K6 and want to show the first 100 working orders. Place the following function somewhere **outside** of result table. For example, place *=Orders("TEST1", A6:K6, 100, "Working")* in B4. The result is an array of filled cells in range A7:K107 that will dynamically show the first 100 working orders.

However, if we want to fill the column with order IDs (A7:A15, for example) and want to show the details of these corresponding orders, we would use a different function (with second pattern):

=OrdersByID("TEST1", B6:K6, A7:A15)

Below is a table of available functions:

Function	Topic	Function (by identifies)	Topic
Orders	ord	OrdersByID	ord
Positions	pos	PositionsByID. ID is account_contract string	pos
Quotes	quote	QuotesBySymbol	quote
Accounts	account	AccountsBySpec	account
Contracts	cntr	ContractsByName	cntr
		Balances	bal

Fills	[fill](#)		

DOM, histograms and historical data functions

These functions have specific formats

```
DOM (username, contract, TRUE for ask or FALSE for bid, count of visible
rows, cell of top right corner of result table)

Histogram (username, contract, count of visible rows, cell of top right
corner of result table)

Bars (username, contract, size of bars in minutes, count of visible rows,
range of column names)
```

Order manipulation functions

Send

```
Send(username, side, quantity, contract, type, price, price2, flags, account,
comments, ready, cell to place DDE command)
```

The Send function concatenates parameters into a single DDE request and places it to a selected cell (last parameter), when the '*ready*' parameter is TRUE. Moreover, when order is confirmed, the DDE request of this cell is replaced to OrderID to avoid duplicate requests.

Please see the [Send](#) section that explains side, type and flags parameters (Price2, flags, account and comments are optional).

OCO

```
OCO(username, side, quantity, contract, limit price, stop price, stop price2,
flags, account, ready, cell to place DDE command)
```

This is the same as the [Send](#) function, but is constructed by simple a OCO DDE request: Limit and Stop/StopLimit pair of orders with the same side, quantity, contract, flags and account.

Bracket

```
Bracket(username, side, quantity, contract, type of main order, price of main
order, price2 of main order, price of Limit order, price of Stop order,
price2 ofStopLimit, flags, account, ready, cell to place DDE command)
```

It is the same as [Send](#) and [OCO](#) functions, but is constructed by a simple bracket DDE request: main order and linked order or OCO orders depending on price values (zero price skips corresponding order). All orders will have the same quantity, contract, flags and account. Linked orders will have opposite side to main order.

Cancel

```
Cancel(username, filter, ready, cell to place DDE command)
```

This Cancel function concatenates parameters into a single [cxl](#) DDE request and places it to a selected cell (last parameter), when the '*ready*' parameter is TRUE.

DesPos

```
DesPos(username, contract, desired position, account, ready, cell to place
DDE command)
```

This DesPos function concatenates parameters into a single [desired](#) DDE request and places it to a selected cell (last parameter), when the '*ready*' parameter is TRUE.

Sample

The OEC Trader Add-in Installation includes a sample Excel file that shows the usage of the most of required functions and simple strategies available.

Licensing trouble

DDE provides a lightweight bridge between OEC Trader and Excel. A user can implement in Excel strong business-related functionality, no more. All operational monitoring features are provided by OEC Trader. But it hides the OEC API usage behind OEC Trader: OEC server see OEC Trader connected, but an incorrect usage of OEC API can lead to the same troubles as native API developer.