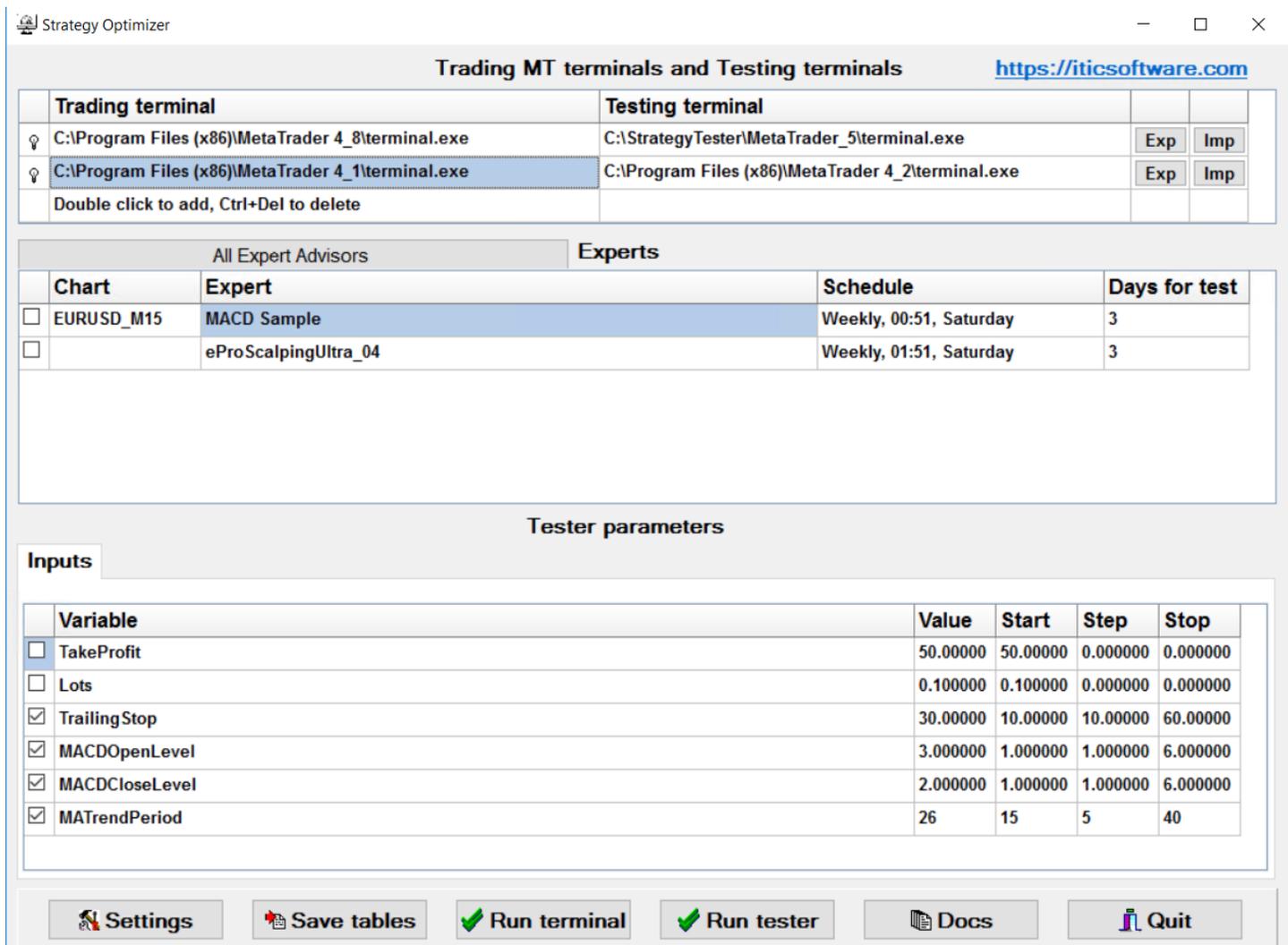


Strategies Auto Optimizer

The Strategies Auto Optimizer software helps you improve the performance of your expert advisors (EAs), which are working in MT4 or MT5 terminal. The Strategies Optimizer allows you to re-optimize your expert advisors' input parameters in the fully automated mode at a designated time. After the Strategies Optimizer gets the new input parameters, it restarts the MT4 or MT5 terminal near to rollover time and new parameters take effect. The optimization procedure, including MT4 or MT5 terminal restart, might be started immediately on your demand as well.

1. To use the software, you need to install two MT4 or MT5 terminals: one is your trading terminal, and the other one is the optimization terminal.
2. You can install the terminals in any folder (e.g., C:\StrategyOptimizer).
3. Run the StrategyOptimizer.exe file.



The screenshot shows the Strategy Optimizer application window. It features a title bar with the text 'Strategy Optimizer' and standard window controls. The main content area is divided into several sections:

- Trading MT terminals and Testing terminals:** A table with columns for 'Trading terminal' and 'Testing terminal'. It lists two terminal configurations with 'Exp' and 'Imp' buttons for each.
- All Expert Advisors / Experts:** A table with columns for 'Chart', 'Expert', 'Schedule', and 'Days for test'. It lists two expert advisors: 'MACD Sample' and 'eProScalpingUltra_04'.
- Tester parameters:** A table with columns for 'Variable', 'Value', 'Start', 'Step', and 'Stop'. It lists parameters like 'TakeProfit', 'Lots', 'TrailingStop', 'MACDOpenLevel', 'MACDCloseLevel', and 'MATrendPeriod' with their respective values.
- Inputs:** A section for defining input parameters, which is currently empty.
- Bottom Panel:** A row of buttons for 'Settings', 'Save tables', 'Run terminal', 'Run tester', 'Docs', and 'Quit'.



4. **First of all, you need to populate the “Trading MT terminals and Testing terminals” table (referred to as “Terminals” from this point on).** In order to add a row, double-click where indicated. Once the row is added, the program will show a File search dialog for the trading terminal. After the trading terminal has been defined, double-click on the next cell to the right and select the testing terminal in the next File search dialog box. You can add several “Trading terminal – Testing terminal” pairs, but approach this with care – too many terminals can make a testing schedule overly complex.

You can change the terminal selection. Just double-click on the cell and select the terminal.exe file in the File search dialog.

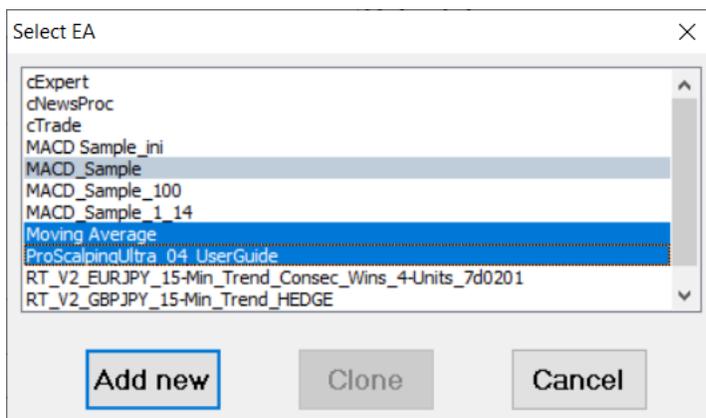
Keep in mind, that the Trading terminal and Testing terminal might refer to the same file. It has sense when the user has a single license for an EA which has to be optimized. In this case, the optimization procedure will open the same terminal in turn for optimization and for trading.

You can delete any row from the table by selecting it and hitting Ctrl + Delete on your keyboard.

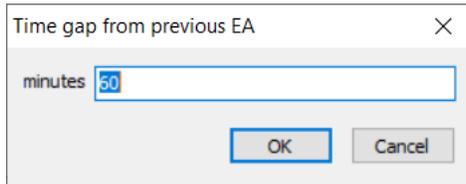
The Exp and Imp buttons are used for storage- and transport-related purposes. This will be covered in greater detail further below.

5. **Once the terminals are defined, you can add EAs from the EA folder of the trading terminal to the “Experts” table.** This table contains all the EAs, which will perform trading tasks in the trading terminal. Periodically, they will also run in the testing terminal in optimization mode. The optimization start is defined with the schedule set in the “Schedule” column. History data depth for optimization (in days) is set in the “Days for test” column. When the optimization process is finished, the program takes the optimal EA parameter values and changes the EA input values for the trading terminal accordingly.

To add an EA to the “Experts” table, double-click where indicated. The dialog window will appear:



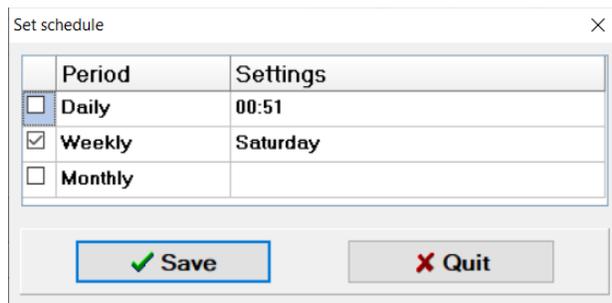
The list in the window contains all the EAs that are listed in the trading terminal. Highlight the desirable strings in the list and click the “Add new” button. The window will then close, and the program will prompt you to enter the time you want to elapse between the previous EA start and the next one. As optimization is a time-consuming process, you might determine this period of time by trial and error. Your next optimization process will only start once the previous one is completed.



After the “Time gap from previous EA” window has been closed, the “Experts” table will be replenished.

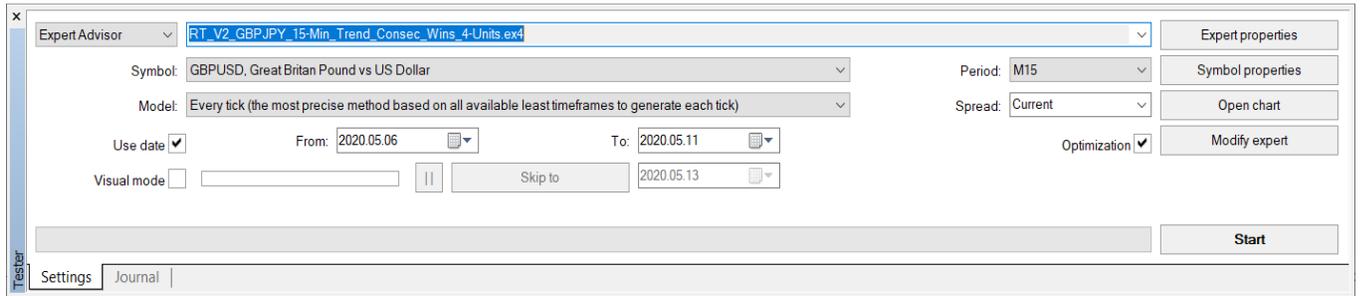
Keep in mind that **some EAs use references to scripts, indicators and library files**. EA vendors warn their users in such cases. As the Strategy Optimizer runs two MT4 or MT5 terminals with same EAs, it copies EA files from the trading terminal Experts folder to testing terminal Experts folder. **If EA uses any files in Scripts, Indicators or Include folders, you need to copy such files from appropriate trading terminal folder to the appropriate testing terminal folder manually, i.e. with File explorer or similar program.**

6. **MT4 or MT5 terminal profiles.** If you use profiles for charts management, you need to restart terminal after profile is changed. Restart is not necessary if Strategy Optimizer has access to the source file of your EA (.mq4 file only, not available for MT5) and is allowed to change the source file.
7. **To adjust the optimization schedule**, double-click on any cell in the “Schedule” column. The schedule setting window will then appear as shown below:

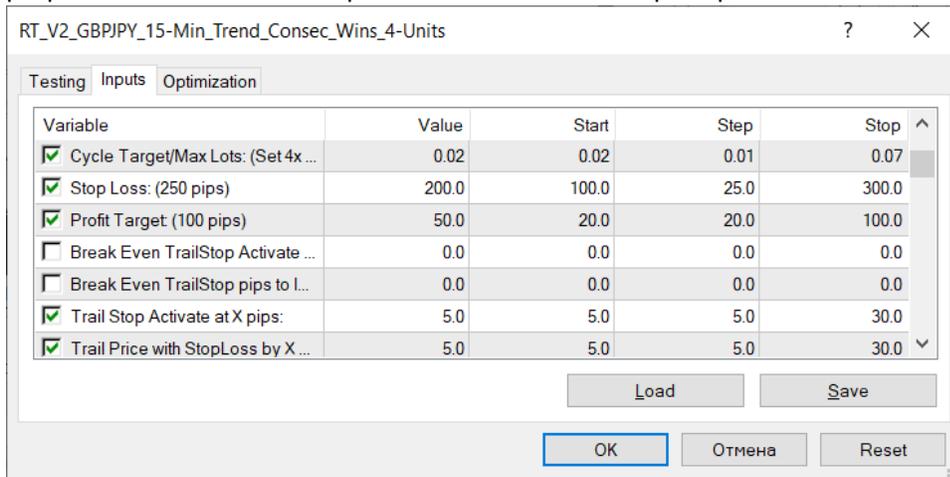


As can be expected, clicking on the “Save” button will cause the content in the “Experts” table cell to change accordingly.

8. **Fill the “Inputs” table** in the “Tester parameters” window section. This table contains a list of variables, which are marked with an #include annotation in the EA source file. The “Inputs” table columns resemble the columns of the “Expert properties” – “Inputs” table of the MT4 or MT5 terminal in “Strategy tester” regime. If the “Inputs” table is empty after you add an EA to the “Experts” table, the program can populate it with the content from the “Expert properties” – “Inputs” table after you start the tester terminal with the “Run tester” button and perform optimization. Here is the ‘Strategy tester’ windows appearance, which you have to prepare:



You have to define the input parameters variation range and the steps of changing them. Press 'Expert properties' and select the 'Inputs' tab. Define Start-Step-Stop values and set checks near the variable names:



Keep in mind, that the more variables you set to change during optimization procedure, the more time procedure will take. So, if the full variables list is long, search for advices from EA producer or experienced users. Do the optimization procedure several times with different inputs settings, referring to 'Result' tab after each procedure.

Pass	Profit	Total trades	Profit factor	Expected Payoff	Drawdown \$	Drawdown %	Inputs
593	2.07	6	14.80	0.35	12.45	0.12	maximum_lot=0.06; stoploss=300; takeprofit=40; trailingstop_activate=5; trail...
520	2.07	6	14.80	0.35	12.45	0.12	maximum_lot=0.05; stoploss=300; takeprofit=40; trailingstop_activate=5; trail...
171	16.06	5	2.31	3.21	42.80	0.43	maximum_lot=0.04; stoploss=275; takeprofit=40; trailingstop_activate=25; tra...
232	13.49	18	2.27	0.75	51.75	0.52	maximum_lot=0.07; stoploss=125; takeprofit=100; trailingstop_activate=5; tra...
355	4.03	16	1.90	0.25	11.95	0.12	maximum_lot=0.02; stoploss=100; takeprofit=40; trailingstop_activate=5; trail...
456	1.76	4	1.80	0.44	5.55	0.06	maximum_lot=0.02; stoploss=175; takeprofit=20; trailingstop_activate=10; tra...
578	3.74	18	1.71	0.21	20.93	0.21	maximum_lot=0.02; stoploss=100; takeprofit=80; trailingstop_activate=5; trail...
565	3.74	18	1.71	0.21	20.93	0.21	maximum_lot=0.02; stoploss=100; takeprofit=40; trailingstop_activate=5; trail...
546	3.74	18	1.71	0.21	20.93	0.21	maximum_lot=0.02; stoploss=125; takeprofit=20; trailingstop_activate=5; trail...

'Profit' can be regarded as the main optimization parameter, but 'Total trades' is important as well: if only a few trades were profitable, it could mean not a consistent pattern, but just good luck. When optimization will run automatically, the optimization results will be filtered and ordered accordingly. See below the 'Program settings' paragraph.

Once the optimization is completed, close the tester terminal and see how the "Inputs" table has been populated. You can then click the "Save settings" button. You will be able to change the values to define the Start, Step, and Stop parameters for future testing at a later time.

The Inputs table can be updated at any time; the changes will be used with the next optimization process. The table content is stored in files, which names contain the EA name. So even account change can't confuse input settings. But current EA settings are stored in files with names like chart*.chr with EA name and symbol name inside. Probably any chart layout manipulation can affect the chart*. The files numeration and confuse optimization procedure. So, the files verification procedure is implemented in 3 cases:

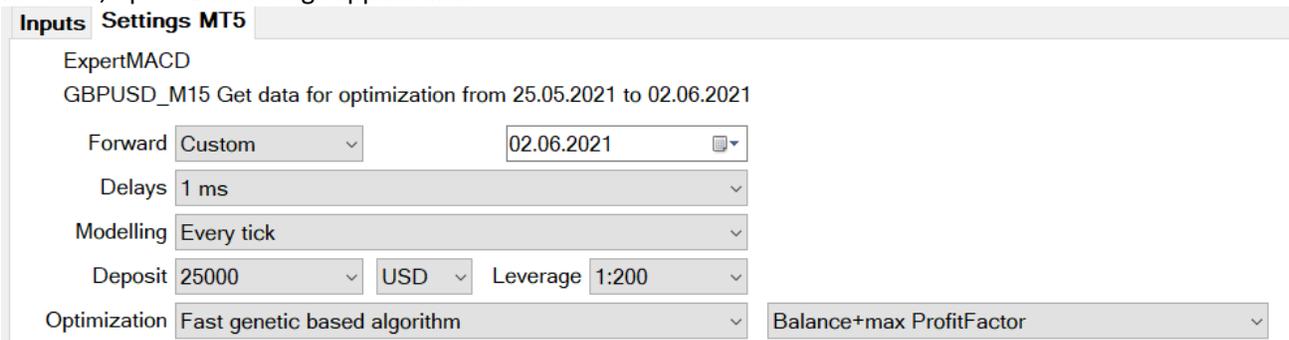
- On program start
- At the Terminals table, row selection
- At trading terminal stop while StrategyOptimizer is running.

Files verification procedure includes the optimized variable values verification. Variables optimized values are stored in CSV files, which StrategyOptimizer refreshes after each optimization procedure. During verification, the program takes the newest record from the appropriate CSV file and puts variable values to chart*.chr file. If the operation is provided while the trading terminal is running, the program invokes the terminal restart.

Though verification makes it's positive job, the good practice is to put all charts, attach all EAs to charts, restart the trading terminal, then start StrategyOptimizer.

9. **Fill the “Settings” table in the “Tester parameters” window section.**

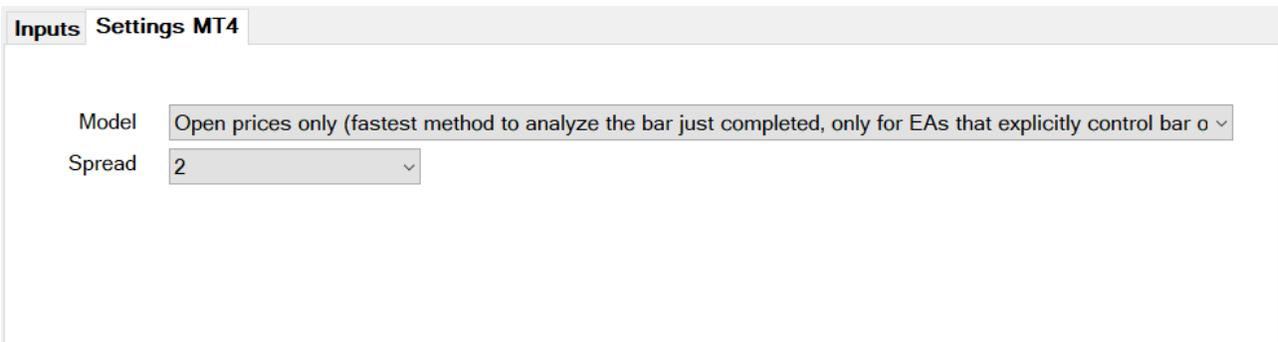
For MT5, optimizer settings appear like:



The screenshot shows the 'Settings MT5' window for the ExpertMACD strategy. The parameters are as follows:

- ExpertMACD
- GBPUSD_M15 Get data for optimization from 25.05.2021 to 02.06.2021
- Forward: Custom (dropdown), 02.06.2021 (calendar icon)
- Delays: 1 ms (dropdown)
- Modelling: Every tick (dropdown)
- Deposit: 25000 (dropdown), USD (dropdown), Leverage: 1:200 (dropdown)
- Optimization: Fast genetic based algorithm (dropdown), Balance+max ProfitFactor (dropdown)

For MT4:



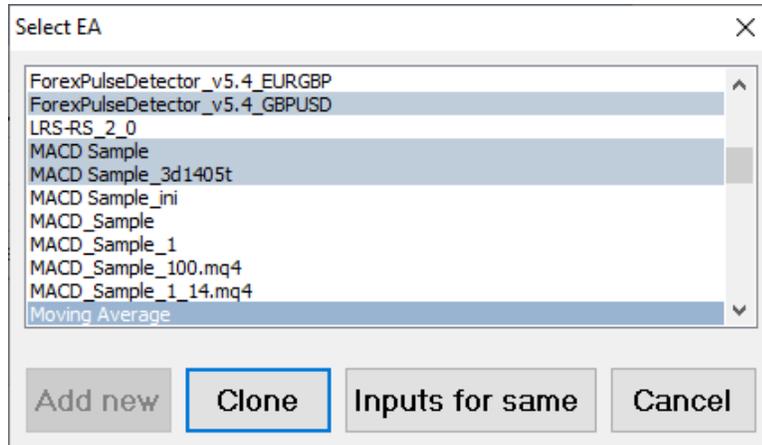
The screenshot shows the 'Settings MT4' window. The parameters are as follows:

- Model: Open prices only (fastest method to analyze the bar just completed, only for EAs that explicitly control bar o (dropdown))
- Spread: 2 (dropdown)

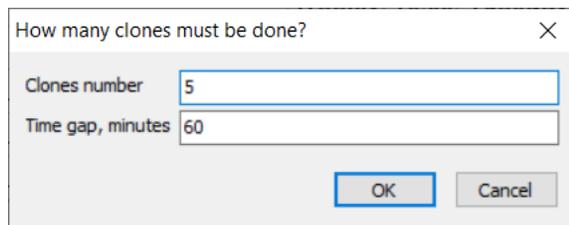
10. **Cloning EAs with all the parameters.** If you want to perform optimization with the same EA but with several symbols, you will need several EA operations with the same parameters but different schedules. The way to do this is by cloning. This process resembles adding an EA to the “Experts” table. Double-click somewhere in the



“Experts” table to bring up the dialog window, but be sure to select the EA that you want to be cloned (the EA will be highlighted in gray). The “Clone” button will then be activated:



Once you click the “Clone” button, the program will ask you to specify the number of clones you want and the amount of time that should pass between different EA operations.



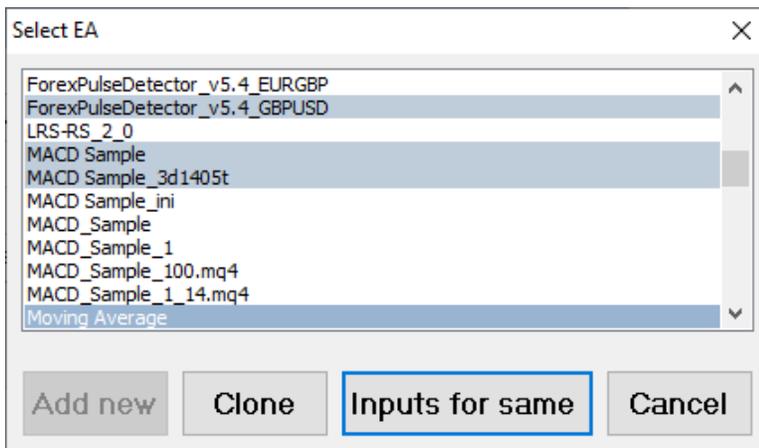
When you click on OK, the “Experts” table will be replenished with EAs that have similar names. They will have the same inputs and schedules, and a predefined time interval. If the variable name contains the word 'MAGIC' (case insensitive), it is incremented during cloning.

Experts				
Chart	Expert	Schedule	Days for test	
<input checked="" type="checkbox"/>	eProScalpingUltra_04	Weekly, 01:51, Saturday	3	
<input type="checkbox"/>	eProScalpingUltra_04_7d0251t	Weekly, 02:51, Saturday	3	
<input type="checkbox"/>	eProScalpingUltra_04_7d0351t	Weekly, 03:51, Saturday	3	
<input type="checkbox"/>	eProScalpingUltra_04_7d0451t	Weekly, 04:51, Saturday	3	
<input type="checkbox"/>	eProScalpingUltra_04_7d0551t	Weekly, 05:51, Saturday	3	
<input type="checkbox"/>	eProScalpingUltra_04_7d0651t	Weekly, 06:51, Saturday	3	

Inputs				
Variable	Value	Start	Step	Stop
<input checked="" type="checkbox"/> MagicNumber	1	1	0	0
<input type="checkbox"/> pd_LotDynamic	0.000000	0.000000	0.000000	0.000000
<input type="checkbox"/> pd_Lot	0.400000	0.400000	0.000000	0.000000
<input checked="" type="checkbox"/> TakeProfit	100	50	10	100
<input checked="" type="checkbox"/> StopLoss	400	200	50	400
<input type="checkbox"/> ECN	1	0	1	1
comment	Pro Scalp			

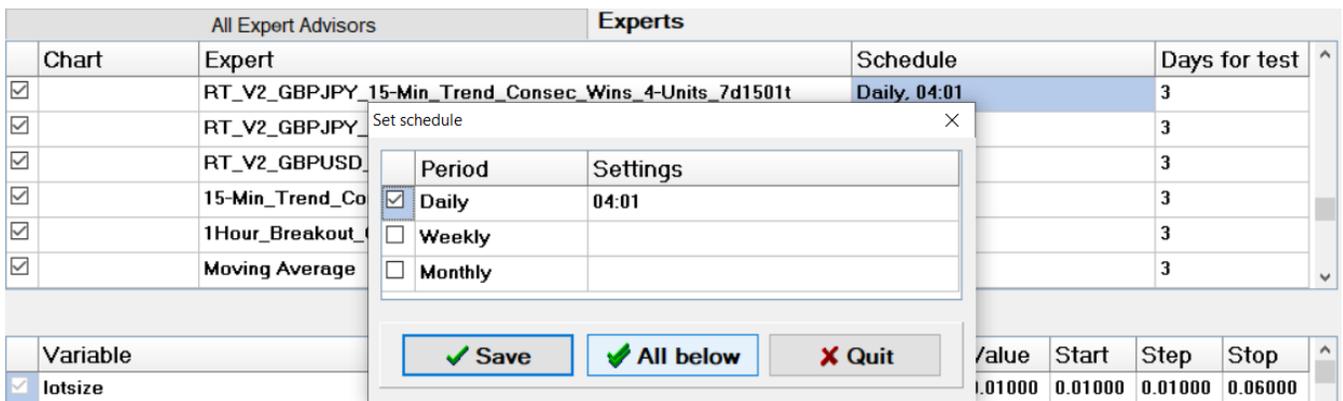
The EA files will simultaneously appear in the EA folder of the trading terminal, while the tester setting files will be found in the “tester” folder of the testing terminal.

- Group setting of input variables for cloned EAs.** After cloning was performed, you can change input variables for similar EAs and spread the new values to them. The procedure resembles the cloning: double click on Experts table on the name of EA, which has prepared inputs list, then press “Inputs for same” button:



Only variables, which are checked in the Inputs table, are copying. If a variable has neither check nor Start- Step- Stop values, it is regarded as a comment and is copied anyway.

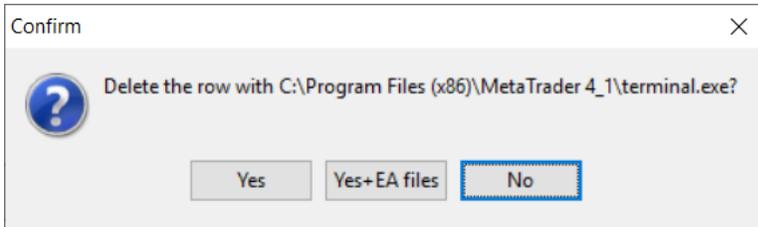
- Group scheduling.** You can set the new schedule with uniform intervals between EAs in ‘Experts’ table. Set checks for the EAs group in the leftmost column, then double click in the ‘Schedule’ column.



If you press ‘All below’ button, program will ask about time interval between schedule rows, and then change schedules uniformly starting from the first marked row.

- Export parameters of a trading – testing terminals pair.** For certain rows of the “Terminals” table, all the contents that you see can be extracted in a zip file. Press the “Exp” button in the table. The program will ask you where you want the zip file to be placed (the default location is C:\Users\\AppData\Local\BJF\StrategyOptimizer). You will be prompted twice to approve the creation of temporary files and folders, following which a zip file will be created. The file is then ready to be transported to another Strategy Optimizer operation. You can also use it for backup purposes in case of an emergency.

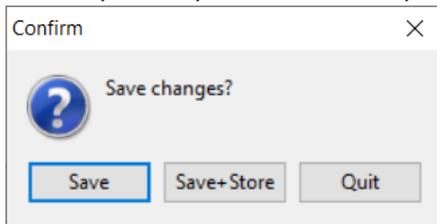
14. **Import parameters of a trading – testing terminals pair.** If you have a zip file with Strategy Optimizer export results, you can fill the “Experts” and “Inputs” tables simply by clicking the “Imp” button. The program will ask you for the zip file location and, possibly, for your approval to perform some file operation. The “Experts” table will then be populated, and the EA files will be added to the EA folder of the trading terminal. The tester setting files will be added to the “tester” folder of the “testing terminal”.
15. **Row deletion.** You can delete rows in the “Terminals” and “Experts” table. Select the row you want to remove and hit Ctrl + Delete. The program will ask you for confirmation:



Clicking “Yes” will delete the table row only. Clicking “Yes + EA files” will also delete the EA files in the “Experts” table, removing them from the EA folder of the selected trading terminal and the ini files from the “tester” folder of the selected testing terminal.

If you click on the “Yes + EA files” button for the “Experts” table row, only one EA file and one ini file will be deleted.

16. **Save changes warning.** If you have made any changes and did not click the “Save settings” button, the program will ask you, do you want to save your changes when you attempt to close the window:



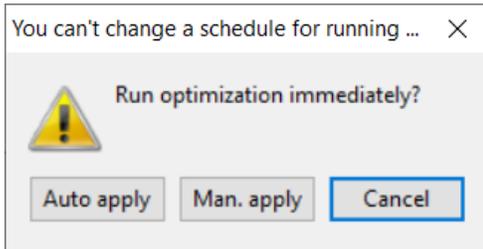
The option to “Save + Store” means that the program will additionally create a zip file for the parameters of the trading – testing terminals pair (see p.9).

17. **Terminal and EA activity indication.** Left column in the “Terminals” table contains the bulb images. If trading terminal runs, the bulb is lighting up  , if no – the bulb is dark 

In “Experts” table, the “Chart” column shows, what visible chart is linked to EA which name the “Expert” column contains. If “Charts” column cell is blank, then EA is not linked to any chart or chart is not visible in the current profile, hence EA does not work even if the trading terminal runs.

If terminal runs and EA is linked (thus EA is running), any changes of this EA (renaming, schedule, days for test or inputs settings changes) are prohibited.

18. **Optimization immediate start.** If you double click on the schedule cell in a row with running EA, the program will propose to start optimization immediately:



If you choose **“Auto apply”** or **“Man.(Manual) apply”**, the optimization procedure will be started: testing terminal will run and launch optimization for EA which is shown in **“Experts”** column, on the chart which is shown in **“Chart”** column.

If optimization results are sufficient and **“Auto apply”** was pressed, then backward optimization result file (.htm for MT4 or .xml for MT5) passes the sorting accordingly to Settings (see p.22), and the best input values are selected from the topmost record of result file. These values are stored to appropriate .chr file, and with EA restart procedure are applied as optimal EA settings.

If **“Man. apply”** was pressed, then best record selection and new inputs application are made in the **“Print choice”** window by mean of manual choice in documents preview windows (see p.23).

After the best optimization results are applied, their values are recorded to csv file, which is located in the trading terminal work folder in \MQL4\Files\Reports\ subfolder, and has the name like EA.

If an optimization time is as close to current date as before the term which schedule declares (Day, Week or Month), the name in **“Chart”** column is highlighted with light green color.

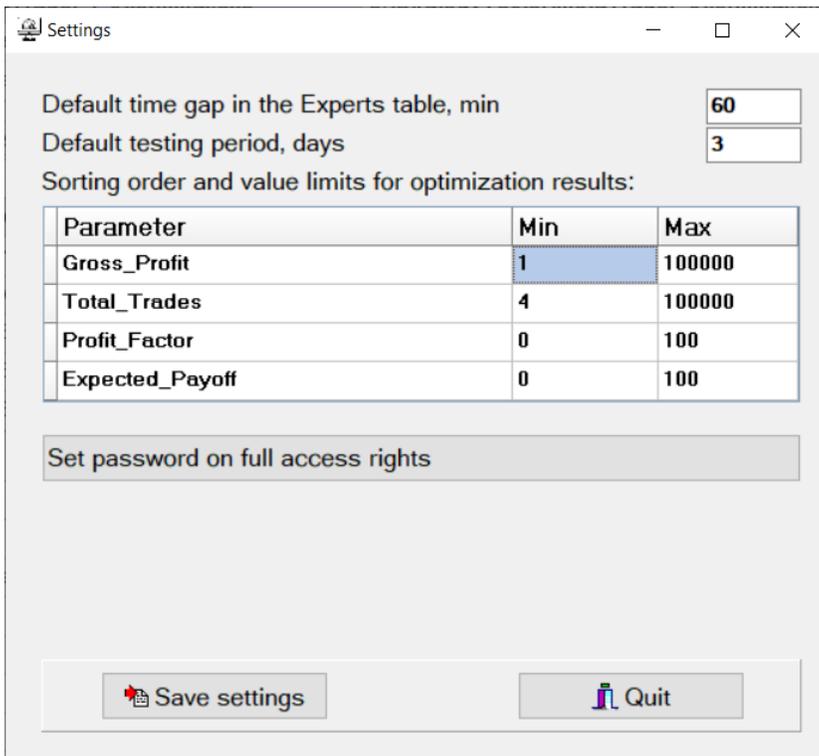
19. Optimization starting by ‘Profit line’ indicator feedback. You can use the ‘Profit line’ indicator to analyze the EA trading efficiency. Just indicator registers several losing trades in a row (the trades number is the indicator parameter), it creates a signal, and StrategyOptimizer starts the optimization procedure.

20. Sorting in the Experts table. If you press the Experts table column headings, you will sort table rows after that column: for Chart and Name columns - alphabetical sort, for Schedule column - date-time sort, considering that Monday is a day #1 and Sunday is a day #7.

21. Filtering in the Experts table. The button over Experts table allows filter EAs in the table: once you click and sink it down (make blue), you will see only EAs, which are active in the currently chosen MT4 or MT5 terminal profile.

If you put the button up (click again and make it gray), you will see all EAs, which were chosen in Experts table.

22. Program settings. When you press the **“Settings”** button, the window appears:

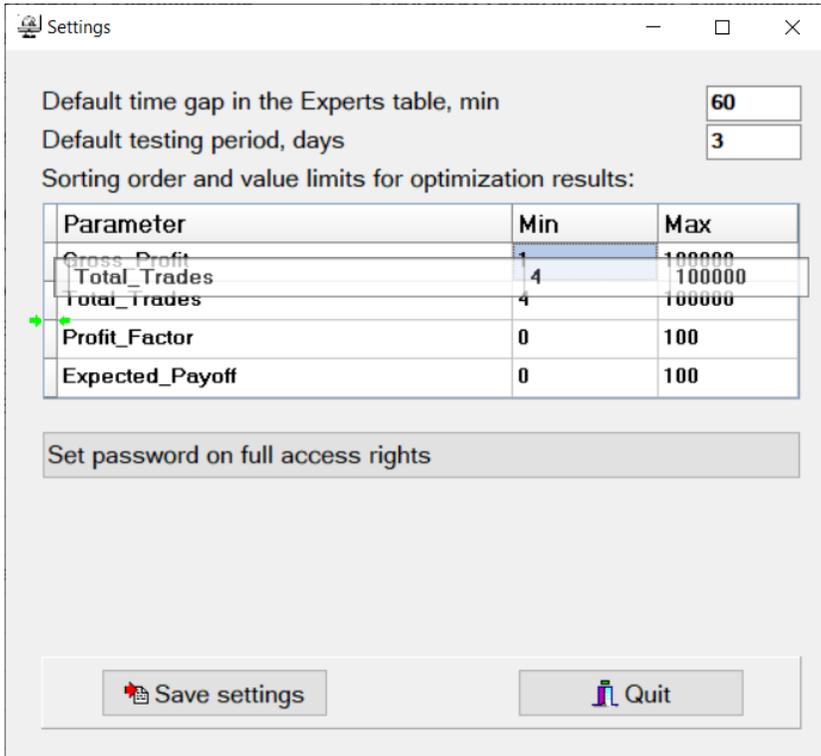


“**Default time gap in the Experts table**” sets the period in minutes, which separates a previous EA from the next while Experts table is filling.

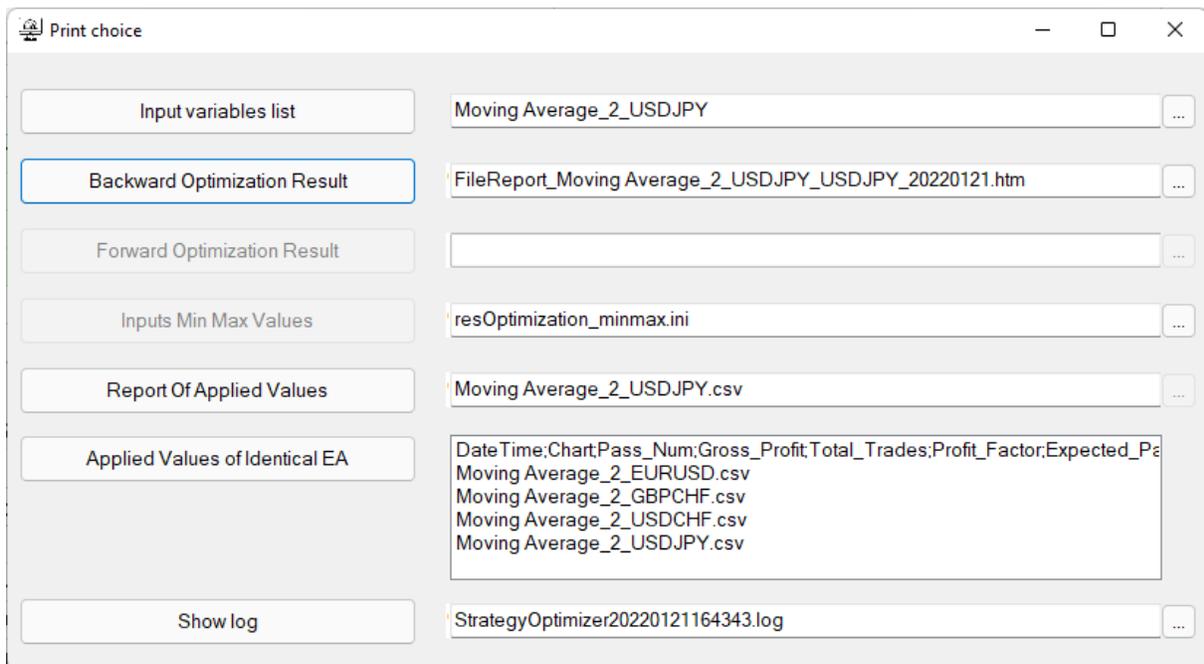
“**Default testing period**” defines, how many business days will be taken for the back testing when the Testing terminal will do the optimization procedure.

After “**Experts**” table is filled, both parameters could be redefined for each table’s row.

“**Sorting order and value limits for optimization results**” defines how a content of optimization data report file will be filtered and sorted to extract the best optimization result. If you want to change the sorting order, take the leftmost cell in a row and drag-drop the row on a proper place:



23. **Documents: preparing, printing and usage for manual operations.** The “Print choice” window is shown after “Docs” button is pressed.



Each button on the left side invokes the document ready to be printed, like this:

Preview

100% 1 of 1 Close

Input variables for ExpertMACD

Mark	Name	Value	Start	Step	Stop
V	Inp_Signal_MACD_PeriodFast	12	12	1	120
V	Inp_Signal_MACD_PeriodSlow	24	24	2	240
V	Inp_Signal_MACD_PeriodSignal	9	9	1	90
V	Inp_Signal_MACD_TakeProfit	50	50	5	500
V	Inp_Signal_MACD_StopLoss	20	20	2	200

Page 1 of 1

Preview

100% 1 of 4 Close

Backward Optimization Result

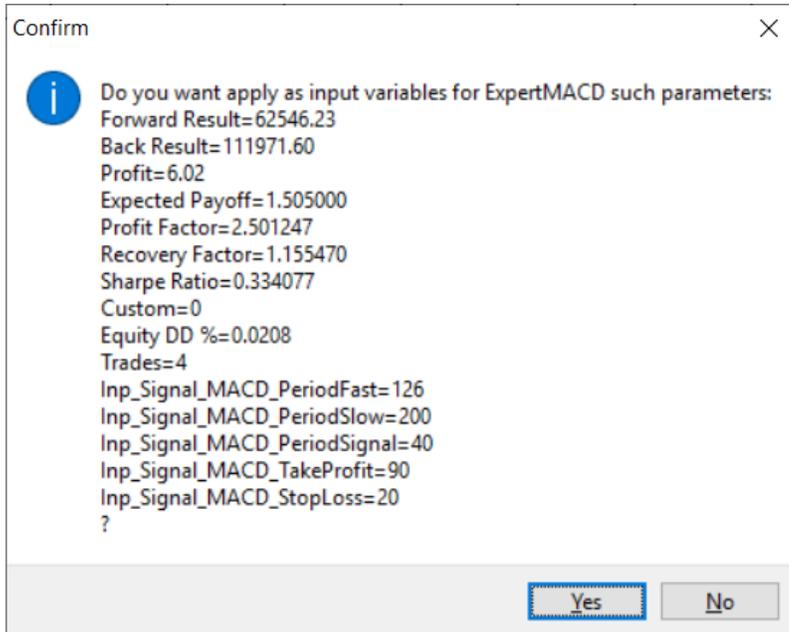
for ExpertMACD, file FileReport_ExpertMACD_GBPUSD_20200625.xml

Pass	Result	Profit	Expected Payoff	Profit Factor	Recovery Factor	Sharpe Ratio	Custom	Equity DD %	Trades	Inp_Signal_MACD_PeriodFast	Inp_Signal_MACD_PeriodSlow	Inp_Signal_MACD_PeriodSignal	Inp_Signal_MACD_Take Profit	Inp_Signal_MACD_Stop Loss
2965	109429.84	10.16	2.540000	4.375415	1.079702	0.603109	0	0.0376	4	12	20	25	80	30
924	102731.97	12.46	3.115000	4.107232	1.172154	0.477315	0	0.0425	4	12	20	5	140	20
1086	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	5	210	20
1117	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	5	360	20
1150	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	5	200	20
1285	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	25	160	20
1303	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	40	200	20
1389	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	5	450	20
1509	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	40	210	20
2241	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	35	350	20
2427	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	20	310	20
2517	99798.46	11.99	2.997500	3.990025	1.127940	0.473454	0	0.0425	4	12	20	10	240	20
1808	97801.24	11.67	2.917500	3.910224	1.065753	0.460265	0	0.0438	4	12	20	30	200	20
2486	97801.24	11.67	2.917500	3.910224	1.065753	0.460265	0	0.0438	4	12	20	15	380	20
2276	96655.89	11.83	2.957500	3.864407	1.661517	0.392014	0	0.0285	4	48	190	25	160	20
2429	95499.52	11.78	2.945000	3.818182	1.983165	0.390093	0	0.0237	4	48	160	35	160	20
2044	88566.08	11.46	2.865000	3.541020	1.609551	0.377548	0	0.0285	4	48	160	25	160	20
1080	87067.06	9.95	2.487500	3.481297	0.899638	0.372810	0	0.0442	4	12	80	5	140	20
633	83795.83	9.80	2.450000	3.350120	1.223471	0.517738	0	0.0320	4	24	190	90	70	40
970	80818.19	9.64	2.410000	3.271481	1.245478	0.399064	0	0.0309	4	54	130	30	140	20

Page 1 of 4

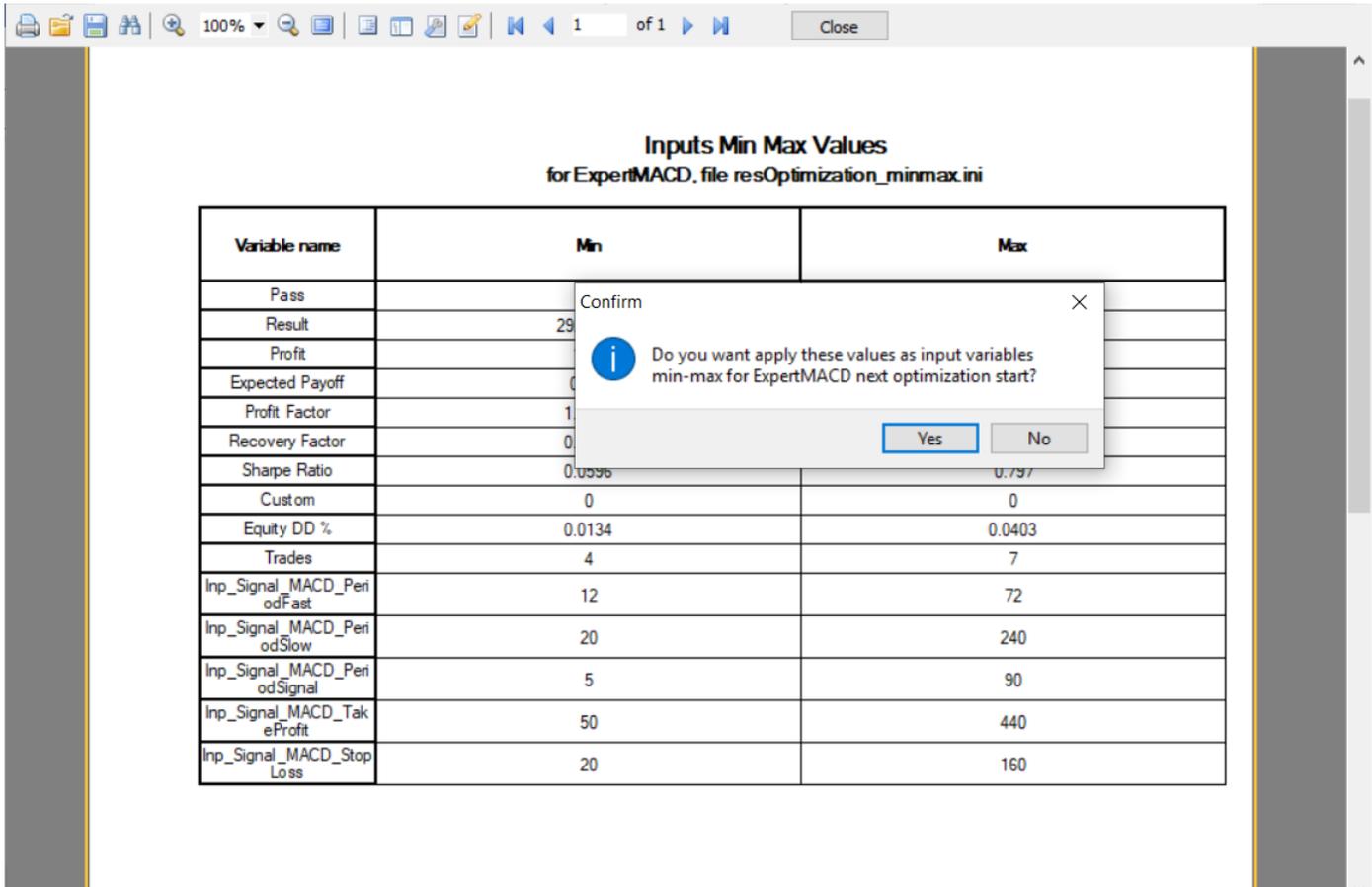
Document name is self-explanatory. In fact, all the documents except "Input variables", contains visualization of report file, of which the name is shown on right from button. File choice is possible with ... button, but on default program selects the latest reports for MT4 or MT5 terminal and EA, which are currently selected in the "Terminals" and "Experts" tables.

Looking to **“Backward optimization result”** or **“Forward optimization result”**, a user can double click to leftmost column and choose a table row with desirable test results. Program will propose to apply EA settings on the input variable values which this row contains:



If you press **“Yes”**, program will prepare EA parameters, then restart EA (or start, if EA is not running) with one-minute delay.

Looking to **“Inputs Min Max Values”**, a user can double click to the leftmost column and actualize the input values accordingly to the values, which were received from **“Backward optimization result”**:



Inputs Min Max Values
 for ExpertMACD, file resOptimization_minmax.ini

Variable name	Min	Max
Pass		
Result	29	
Profit		
Expected Payoff		
Profit Factor	1	
Recovery Factor	0	
Sharpe Ratio	0.0036	0.797
Custom	0	0
Equity DD %	0.0134	0.0403
Trades	4	7
Inp_Signal_MACD_PeriodFast	12	72
Inp_Signal_MACD_PeriodSlow	20	240
Inp_Signal_MACD_PeriodSignal	5	90
Inp_Signal_MACD_TakeProfit	50	440
Inp_Signal_MACD_StopLoss	20	160

Confirm [X]

Do you want apply these values as input variables min-max for ExpertMACD next optimization start?

[Yes] [No]

If you press “Yes”, program will set “Start” and “Stop” variables values in the “Inputs” table, taking the values from “Min” and “Max” document’s columns.

“**Report of Applied Values**” is a reference report, no actions inside.



Preview

100% of 1 Close

Report Of Applied Values
for ExpertMACD, file ExpertMACD.csv

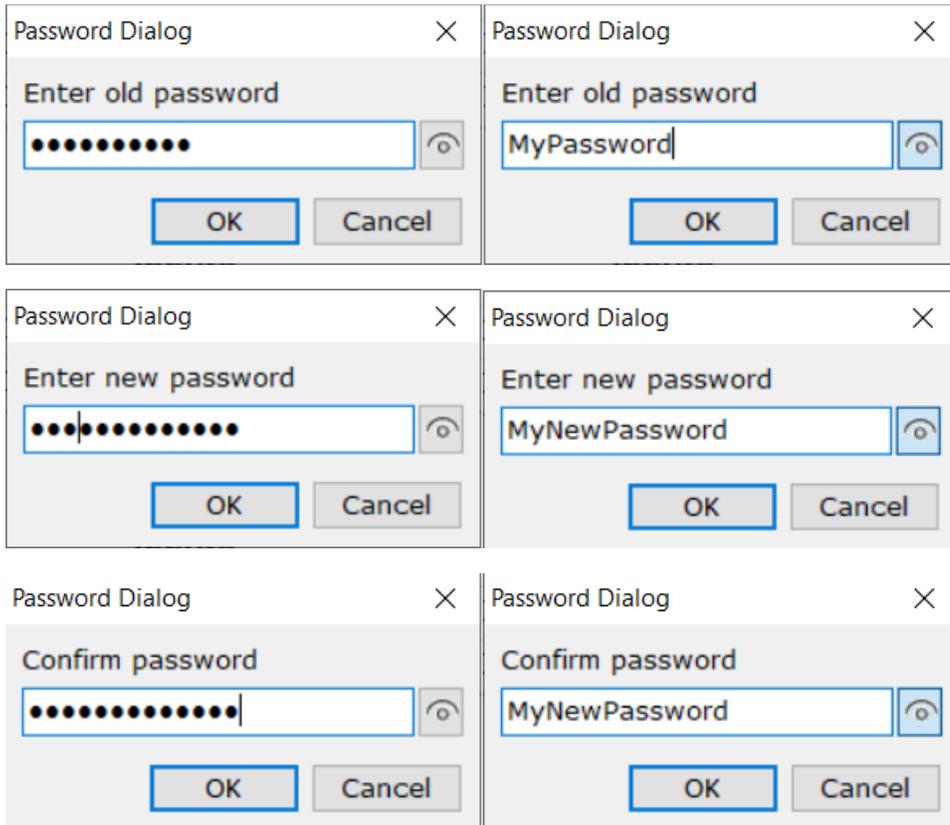
Date Time	Chart	Forward Result	Back Result	Profit	Expected Payoff	Profit Factor	Recovery Factor	Sharpe Ratio	Custom	Equity DD %	Trades	Inp_Signal_MACD_PeriodFast	Inp_Signal_MACD_PeriodSlow	Inp_Signal_MACD_PeriodSignal	Inp_Signal_MACD_TakeProfit	Inp_Signal_MACD_StopLoss
2020.06.26 10:42		50194.70	39925456.20	4.05	1.012500	2.007463	0.448009	0.245629	0	0.0362	4	18	50	25	80	20
2020.06.26 11:02		50194.70	39925456.20	4.05	1.012500	2.007463	0.448009	0.245629	0	0.0362	4	18	50	25	80	20
2020.06.26 11:10	GBPUSD, M15	50194.70	39925456.20	4.05	1.012500	2.007463	0.448009	0.245629	0	0.0362	4	18	50	25	80	20
2020.06.26 11:23	GBPUSD, M15	50194.70	39925456.20	4.05	1.012500	2.007463	0.448009	0.245629	0	0.0362	4	18	50	25	80	20

Page 1 of 1

“Applied values of identical EA” can be used, when several EAs work with different symbols. User can compare which EA gives a better result.

24. Password for the full rights access. On default, user may omit the password work. But password on the program start can separate users, who have read only rights, from users, who are allowed to work with the program settings.

Enter to the “**Settings**” window, press “**Set password on full access right**” button, and you will enter to obvious dialog (left image – hidden symbols, right image – shown symbols, when the Eye button is down):



Once you’ve finished adjusting your settings for all the EAs, you can run the StrategyOptimizer program. The EAs can then be launched in the trading terminal according to the “**Experts**” table. The program will perform optimization based on the schedule prescription, find the optimal inputs, and update the EA settings in the trading terminal. Once that is done, the trading terminal will then be restarted.

Please let us know if you have any questions. Good luck!

Customer Support:

Web: iticsoftware.com



Email: cs@itics.ca

Telegram Channel: <https://t.me/bjftg>