

# RTR Momentum Trend Expert Advisor Manual (1.03)

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RTR Momentum Trend USDJPY FX+  
RTR Momentum Trend Gold Metals+  
RTR Momentum Trend BTCUSD Crypto+  
RTR Momentum Trend NASDAQ Stocks+



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- DM me on MQL5.com
- RetailTradingRealities.com
- contact@RetailTradingRealities.com

## Description

### RTR Momentum Trend Expert Advisor for MT5.

The Expert looks for a Trend and Momentum.

It is Multi-Time Frame (MTF), it uses 3 time frames; Highest Period, Middle Period and Lowest Period.

There is a 2 Time Frame (TF) option as well.

The Higher Period – is the anchor timeframe, the expert will look for a trend and momentum on this TF.

The Middle Period – looks for a pullback (ignored if 2-TF option is true)

The Lowest Period – is the chart that you attach the EA to (important). Stop Losses and Take Profits are calculated from this Chart.

This is a top down system, Higher time frame confirmation, Lower time frame entries, Higher time frame exits. Small stop losses and larger take profits.

Momentum - Expert Buy when Higher time frame is already in a well-established up trend. Expert Sell *vice versa*.

**RTR Momentum Trend Expert Advisor** works best, using diversification, that its' intended use. EA placed on multiple tickers, on multiple timeframes. That way we smoothen the equity curve, reduce drawdown, have more trades, better for our statistics. It is suited to tickers that trend.

#### Indicators used:

- **RTR Trend ©**, a custom in house indicator, is a standard deviation of price indicator, with a few extra filters, and better MA Smoothing.
- Volatility Bands (standard deviations)
- Multiple moving averages.
- Angle of SMA,
- ATR, Average True Range.
- % of ADR, Average Daily Range.
- So yes, there are lot of calculations.

#### Philosophy:

**RTR Momentum Trend EA** is inspired by the works of author Michael Covell, traders Richard Dennis, William Eckhardt, and Richard Donchian - Trend Followers. However this EA executes trades on lower timeframes, does not rely on the trailing stop for Take Profits (there is a trailing stop), makes no attempt to time the markets.

Trend Following has been unpopular in mainstream financial publications for some time.

“If there was a strategy that I would want to employ right now, if someone put a gun to my head, I’d say simple trend-following strategies,” Jones said. “They are not too popular today. ... They will probably do very well in the next five to 10 years.”

Paul Tudor-Jones 03/05/2022 CNBC Interview <https://www.cnbc.com/2022/05/03/paul-tudor-jones-says-he-cant-think-of-a-worse-financial-environment-for-stocks-or-bonds-right-now.html>

I am predicting that trend following is back, new divergences caused by recent higher interest rates, means old correlation models won't work. We have only just recently come out of a 14 year worldwide low interest rate regime in 2022. This EA is for traders who are fans of trend following.

**RTR Momentum Trend EA Features:**

- > Magic Number (Expert unique ID).
- > Max Spread Filter.
- > Custom Comment.
- > 3 Time Frame / 2 Time Frame option.
- > Direction - Long only / Short only modes.
- > Position sizing; Fixed Lot, Percent Risk, Fixed Dollar Amount.
- > Profit Threshold, (a multiple of Stop Loss).
- > Day of Week Filter.
- > Time of Day Filter.

**Other :**

- > Online/PDF Manual.
- > . set Expert Set files.
- > You must Read the Manual, for RTR Momentum Trend EAs' intended use.
- > Max, 10 Activations.
- > Works on MT5 Hedging accounts (not Netting).
- > Assumes US \$Dollar deposit account.

How does **RTR Momentum Trend EA** compares with **Grid/Martingale** :

**Advantages/Disadvantages:**

- > No Grid/Martingale.
- > Every Trade has a Stop Loss.
- > Take Profit a lot larger than Stop Losses.
- > Low Leverage is perfect. 25:1 is more than enough.
- > Adds into winners (not losers)
- > Good results on Multiple Time Frame settings.
- > No negative progressive lot size increments.
- > After a loss, next trade risk will be smaller and so on.
- > Ugly Upward Equity curve. (Diversification can smoothen out equity curve - read manual.)
- > Low Win Rate 20%.
- > In a Drawdown 80% of the time.
- > Minimum \$10,000 personal Account or Prop Account (on Lowest Risk Setting)
- > Perfect for Darwinex Accounts.

If you like what you see, do not **Buy Now**, download the Demo first, use the MT5 Optimizer using your Brokers tick data, Read the EA Manual (all of it). Rent it, then if satisfied purchase the full package. Once the EA is activated MQL5.com cannot give a refund. MQL5.com handles all sales / refund process.

## Welcome

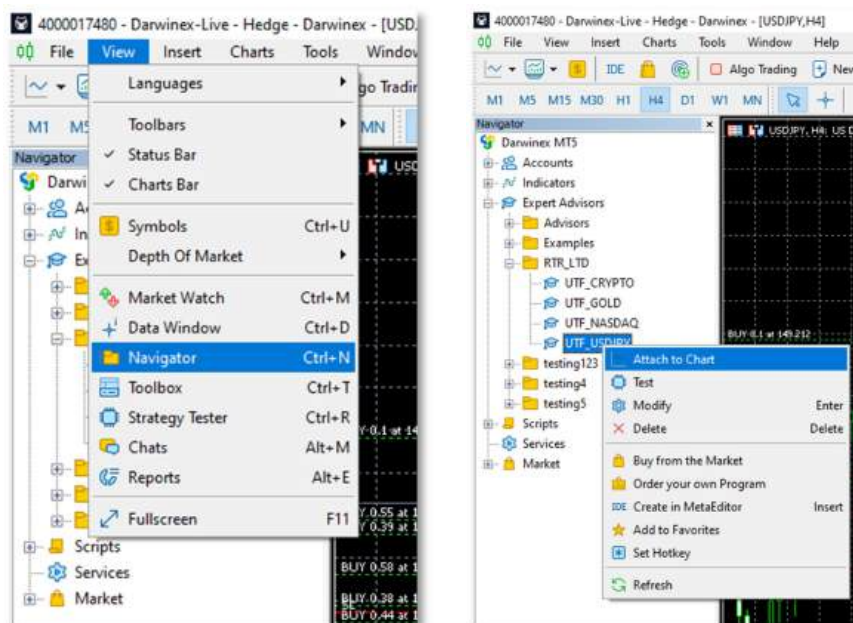
Thank You for downloading the Demo of RTR Momentum Trend © Expert Advisor (EA) for MT5.

This guide will demystify the strategy, the EA settings and if you have not used EAs or MT5 before, this manual will be an educational introduction to the MT5 Strategy Tester and Optimizations.

## Attach EA to Chart

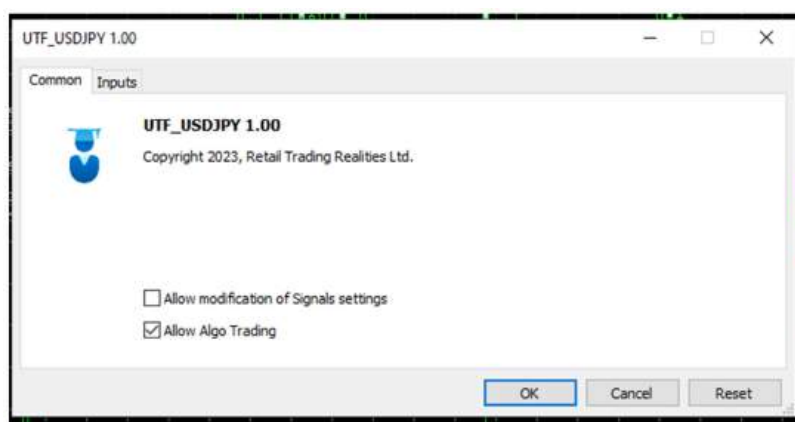
MT5 Terminal>File>New Chart> USDJPY

MT5 Terminal> View > Navigator > to find EA

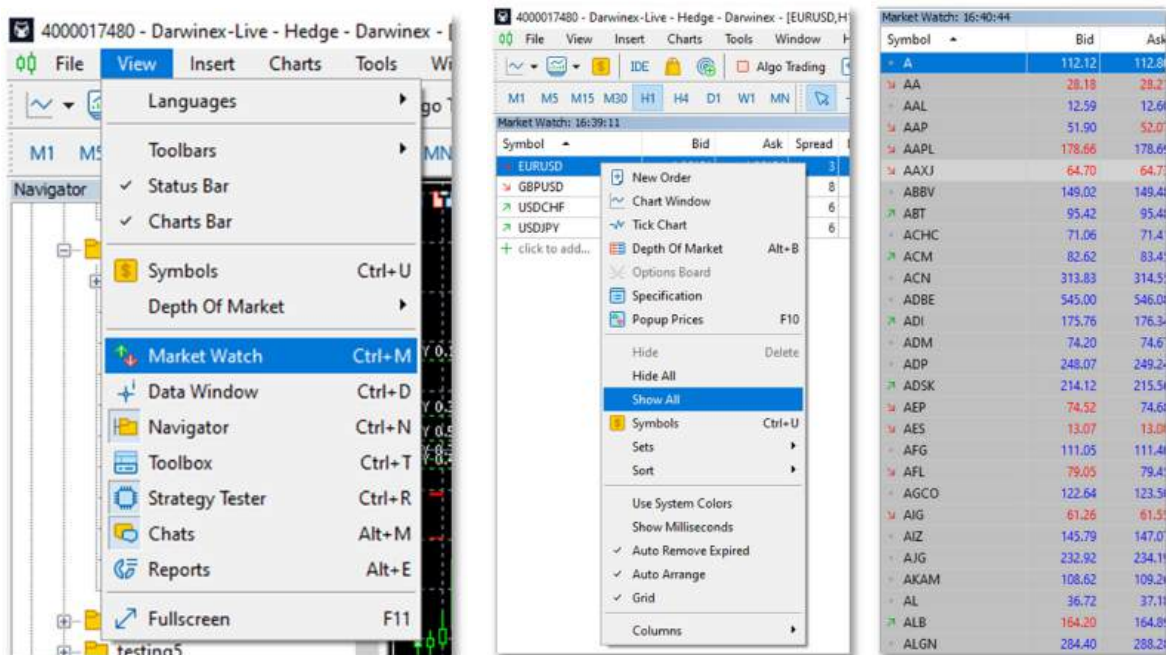


Either: Drag and Drop EA to Chart or Select EA Right click > “Attach to Chart”.

Under the Common Tab, click ‘Allow Algo Trading’.



If you cannot find your Ticker Symbol, MT5 Terminal > View > Market Watch...> right click any ticker inside Market Watch > Show All,



After you have all your desired symbols, return to Market Watch> right click any ticker > Hide All.

This way Market Watch is not running in the background using up CPU resources, looking at ticker quotes you are not interested in.

(Also While you are in Market Watch > Right Click any ticker> Columns > Spread. Shows all Bid-Ask spread in points.)

You must Attach EA to the chart period, which matches the **Lowest Period** in EA Settings. So if Lowest Period = M15, you must attach EA to M15 chart.

### **.set Files (Expert Set Files), How 2 load**

.set files have saved settings, pre-sets.

.set files will only work for the EA it was designed for.

I have provided a zipped folder of .Set files, see <https://MQL5.com/en/users/PKSN/Publications>.

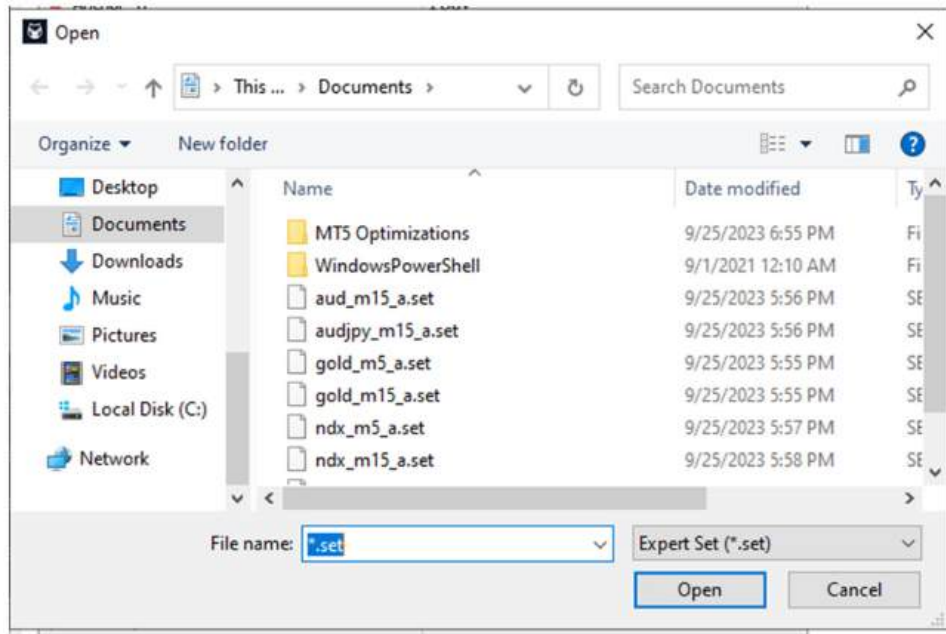
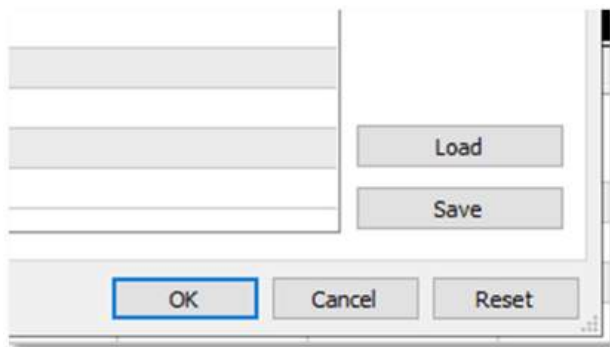


Simply double click on the EA (Teacher Hat Icon) in the top right hand corner, of the chart.

EA Settings will open up > Inputs Tab

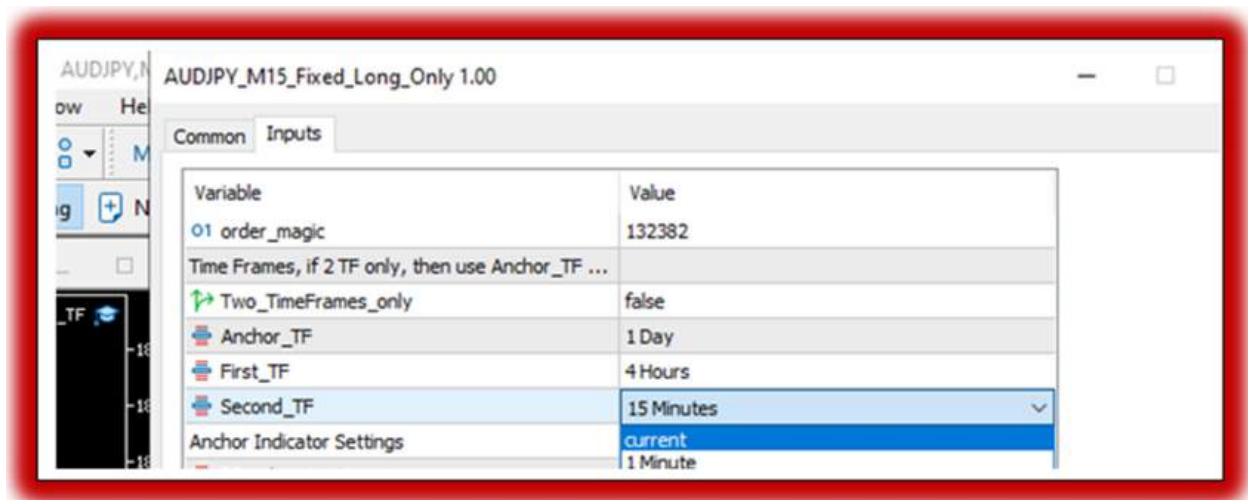
Scroll to the bottom of these settings, click 'Load'.





If you want to save your own .set file, click Save. I like to name it like so  
 "lowest\_timeframe\_Symbol\_3TF" → "m15\_NDX\_3TF" meaning EA is attached to Chart Period M15,  
 Nasdaq NDX CFD, 3 Time Frame setting.

**Warning Do Not Set any chart period = 'current'**



When switching charts, if a signal has just been executed, the algo will make new trades, based on the time frame you switched to. If the EA is meant to be on the 15 minute chart, then set Lowest Period ('Second\_TF' in this example to '15 minutes'), never '**current**'.

#### *How the EA is coded, OnBar( ) vs OnTick( )*

```
//+-----+
//| Expert tick function
//+-----+
void OnTick()
{
```

This EA, is coded **OnBar()** , some programmers call it **NewBar()**, what that means is the script/code is executed once on the Open of every new candlestick (bar). This is a more reliable when it comes to Back testing and true outcomes. The **RTR Momentum Trend Expert** executes code on every new bar opening of input '**Lowest Period**'.

```
//+-----+
//| Expert tick function
//+-----+
void OnTick()
{
//--- //Lowest Time Frame f or this EA is 15 minutes
//new local variable to hold the current open time of the furthest right bar
datetime rightBarTime = iTime(_Symbol, Second_TF,0);
// check if furthest right bar has the same open time as our global variable
if(rightBarTime != gBarTime)
{
// set the global variable to be the time of the next bar
gBarTime = rightBarTime;
//call our OnBar() function
OnBar();
}
```

This is in contrast to MT5 default for executing code **OnTick()**, On Tick means the code **tries** to execute on every new price quote that come in. Each new change in price quote, is called a '**tick**'. It **tries**, because if a code is being executed and a new tick comes in, while that code/script is being processed, the MT5 terminal will not execute the code again until a new tick comes in. That is it skips the tick that

came in while the code was being processed in a Live Market. However when running a back test in the Strategy Tester, MT5 assumes at every tick the code will get executed.

Most martingale/grid, tick Scalping EAs on the market place are coded '**OnTick()**', which can be problematic, in a real live trading .

[https://www.mql5.com/en/docs/event\\_handlers/ontick](https://www.mql5.com/en/docs/event_handlers/ontick) - it's really not that interesting.

### *How the EA is coded – Magic Numbers*

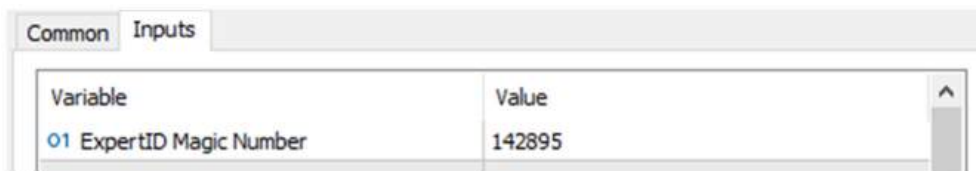
Almost all EAs have an Expert ID called Magic Numbers.

Set this in the Inputs option of your EA.

Magic Numbers should be at least 6 digits long.

They should be integers (no decimals) i.e 1234567890.

No Characters AaBbCcZz!"?^%. otherwise EA will catch an Error.



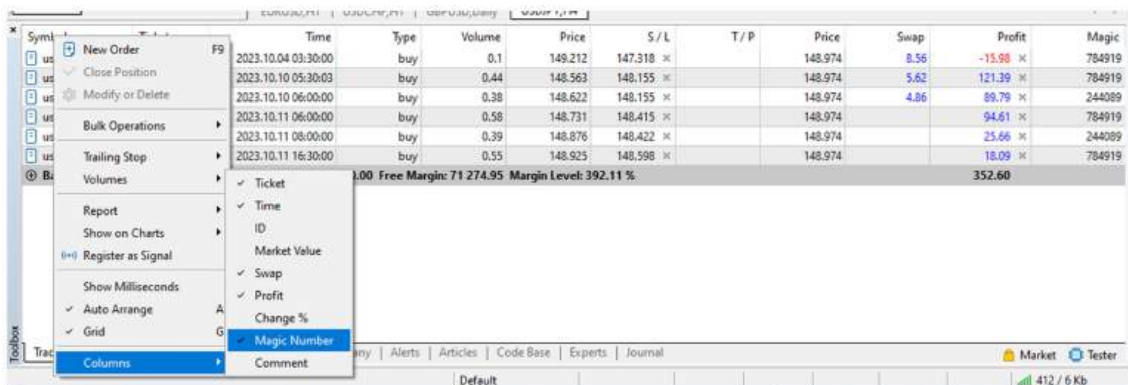
Magic Numbers are important so MT5 terminal can distinguish, which trades belong to which strategy.

A strategy is - every time you attach an EA to a Chart. **Every time you attach an EA to a Chart, make sure you give it a new Magic Number** i.e. 7879532, 6547023, 999111.

You also need to keep note, of which strategy has what Magic Number.

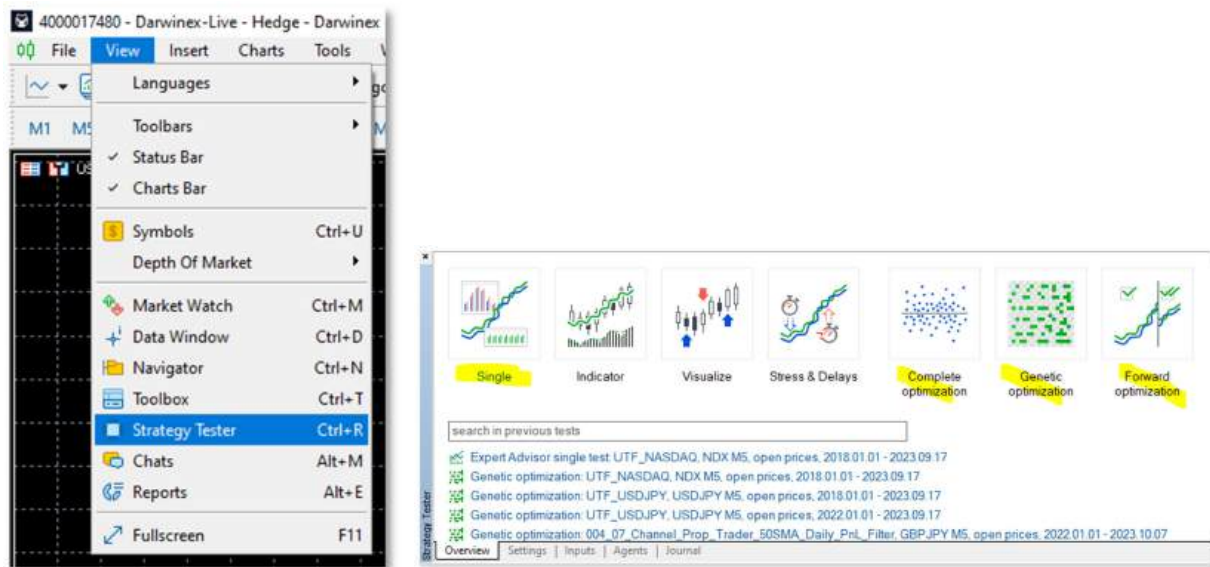
Magic Numbers are important to this EA, users are expected to have multiple strategies. The **RTR Momentum Trend Expert** Magic numbers are used to monitor, adjust and close out positions. So if 2 or more strategies have the same Magic number, all trades will be closed out at the same time **and we don't want that!**

To view Magic Numbers of your trades, in the MT5 Terminal > View> Toolbox > Trade (Tab )> right click cursor anywhere on the Trade Tab > Columns > Magic Number.



## Strategy Tester & Optimizer in MT5 – What is it?

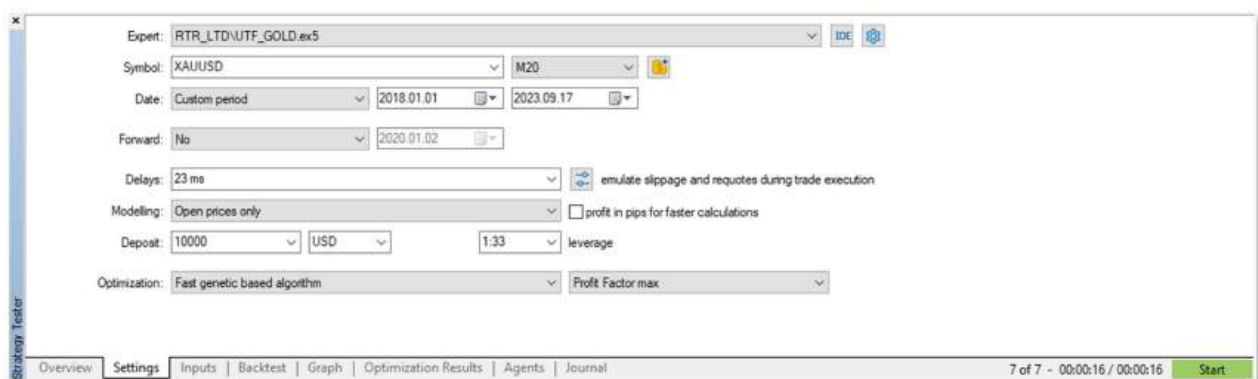
MT5 Terminal > View > Strategy Tester




To back test an Expert Advisor, you can run a **Single tests**, and Optimizations in MT5 Strategy Tester.

**Optimizations** will look at the input parameters (see Inputs Tab of Expert) you have selected and all the values you wanted the EA to be tested for. It will test all possible combinations of settings. Be careful it is recommended you choose only up to 3 inputs for optimization. The more inputs selected the more chance of **'curve fitting'**.

If you choose too many inputs and step settings, i.e. 2,000 combinations, MT5 will revert to a 'genetic algorithm', to find best settings, it won't test every combination. It will test a sample and try to find the best settings using their in-house secret algo.



Choose Symbol and the Chart Period you would have placed the Expert Advisor on, if it were live trading.

The Yellow Dollar sign Icon  is very important, to new users of MT5 strategy tester.

You will need to click on this Icon, to change the selected Symbols' defaults for a correct back test. Its' default is either; (No Leverage) 'CFD' and 'Forex No Leverage'. Here you will change it to '**CFD Leverage**' or '**Forex**'.

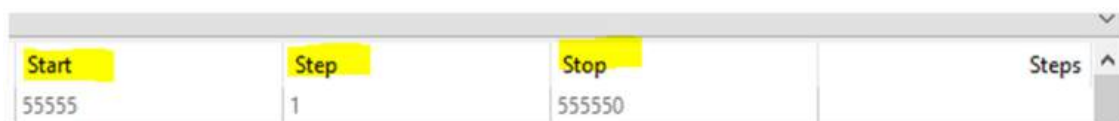


You can also change the default Direction from 'Full Access' to 'Long only' or 'Short Only', this change in direction set here, will only work for back tests and optimizations, this will not change in Live or Demo trading.

**Modelling Data:** using Open Prices (the **RTR Momentum Trend Expert** is coded On Open Prices – OnBar() ), or simulated ticks called 'Every Tick', 'Every tick based on Real Ticks' include Broker historical Bid-Ask Spread, there is also a 1 minute bar option for the data.

Note: Back tests that have Real Tick selected will take a lot longer than on 'Open prices' modelling.

I suggest Optimizations using 'Open Prices', then Run Single Back test using 'Real Ticks'.



### START, STEP, STOP:

START, is the first value of the input that will be tested.

STEP, is the increment, it will add to the previous value of the input that was tested, and will run a new test.

STOP, is the Last value of the input that will be tested for.

So in this Example we have selected only 1 input for Optimization, **Profit Threshold**.

We Start at 8, STEP (increment)= 2, FINISH at 20.

We will test Profit Threshold at; 8, 10, 12, 14, 16, 18, 20.

And there are 7 Passes (8 to 20).

Select expert... View previous optimization results

Variable	Value	Start	Step	Stop	Steps
<input type="checkbox"/> ExpertID Magic Number	671894	55555	1	555550	
<b>Time Frames, if 2 TF only, Middle Period will be ignored</b>					
<input type="checkbox"/> 2 TimeFrames Only	false	false		true	
<input type="checkbox"/> Highest Period	1 Day	current		1 Month	
<input type="checkbox"/> Middle Period - ignored when 2 TimeFrames = true	1 Hour	1 Hour		4 Hours	
<input type="checkbox"/> Lowest Period - must attach EA to this chart	20 Minutes	15 Minutes		1 Hour	
<b>Stop Lot Sizes</b>					
<input type="checkbox"/> Fixed Lot size e.g 1.32 lots, ignored if 'Risk %' is used	0.1	0.1	0.01	1.0	
<input type="checkbox"/> 'Risk %' per Trade 1.00 = 1% Risk, 0.50 is half%	1.0	0.01	0.001	0.1	
<b>Fixed \$Dollar Amount, Leave as 0 if not intended to use</b>					
<input type="checkbox"/> Fixed \$Dollar Amount per Trade.	0	0	1	10	
<b>Take Profit Multiplier</b>					
<input checked="" type="checkbox"/> Profit Threshold	10.0	8	2	20	7
<b>Direction - Both, Long only, Short only</b>					
<input type="checkbox"/> Direction	Both	Both		Short_Only	
<b>Custom Trade Comment</b>					
<input type="checkbox"/> custom comment					
<b>Spread Filter</b>					
<input type="checkbox"/> Maximum Spread	60	30.0	3.0	300.0	
<b>Day of Week Filter</b>					
<input type="checkbox"/> Sunday	true	false		true	
<input type="checkbox"/> Monday	true	false		true	
<input type="checkbox"/> Tuesday	true	false		true	
<input type="checkbox"/> Wednesday	true	false		true	
<input type="checkbox"/> Thursday	true	false		true	
<input type="checkbox"/> Friday	true	false		true	
<input type="checkbox"/> Saturday	true	false		true	
<b>Hour of Day Filter</b>					
<input type="checkbox"/> Start operation hour	00:00	00:00		23:00	
<input type="checkbox"/> Last operation hour	23:00	00:00		23:00	

Overview | Settings | Inputs | Optimization Results | Agents | Journal 112 of 112 - 00:05:26 / 00:05:26 Start

Select expert... View previous optimization results Select criterion

Pass	Result	Profit	Total trades	Profit factor	Expected payoff	Drawdown %	Recovery factor	Sharpe ratio	Profit_Threshold
0	1.81	51104.62	318	1.81	160.71	34.14	3.53	1.68	8
1	1.85	70448.05	339	1.85	207.81	30.16	3.05	1.54	10
2	2.23	203867.70	347	2.23	587.51	26.42	3.48	2.07	12
3	1.59	52245.76	401	1.59	130.29	47.01	0.95	0.91	14
4	1.59	70564.82	417	1.59	169.22	47.07	0.98	0.96	16
5	1.74	135499.55	439	1.74	308.66	47.09	1.05	1.08	18
6	1.44	93071.71	454	1.44	205.00	47.47	1.00	0.82	20

Overview | Settings | Inputs | Optimization Results | Agents | Journal 7 of 7 - 00:00:11 / 00:00:11 Start

Source: [https://www.metatrader5.com/en/terminal/help/algotrading/strategy\\_optimization](https://www.metatrader5.com/en/terminal/help/algotrading/strategy_optimization)

## How 2 optimize this EA using 'Open prices' in MT5 Strategy Tester

I would only optimize for a maximum of 3 inputs:

- Middle Period (ignored when in 2 timeframe mode),
- Lowest Period,
- Profit Threshold (this must always be a selected input in an optimisation)

I would keep **Higher Period** fixed equal to Daily D1 or Week W1.

Optimizing for the other inputs such as Direction and Day of Week, Hour of Day filters, will be discussed in the next section.

I optimise using the following settings pictured here,

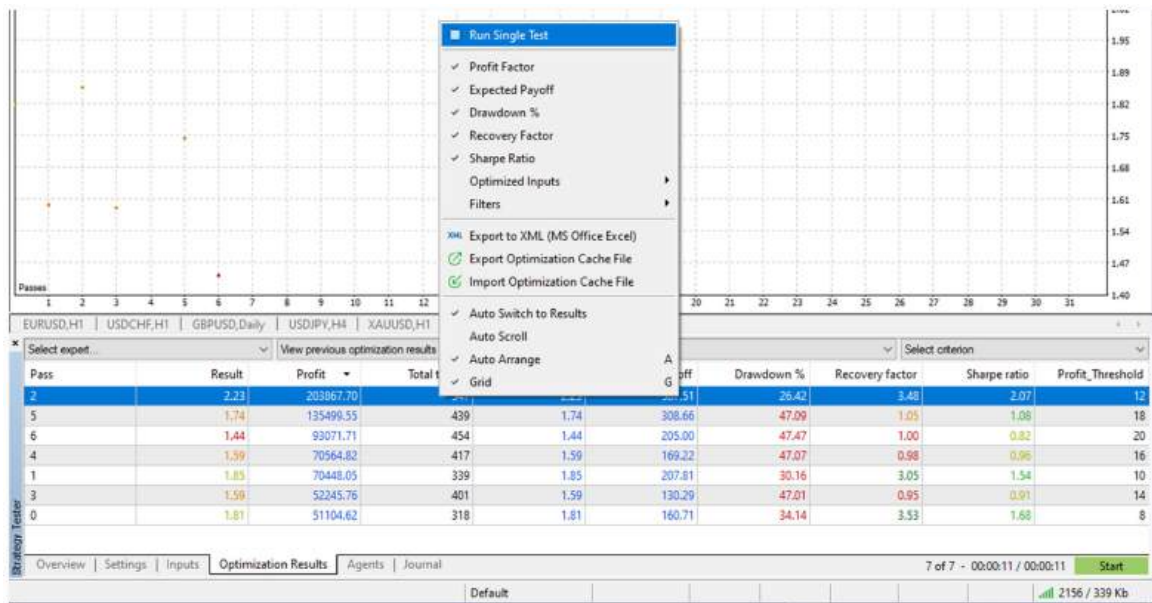
**Modelling:** Open Prices or 1 minute OHLC bars

**Slippage:** choose 30ms,( my VPS has a Ping of 8ms) ,this is ignored when using Open Prices modelling, but will be used later in Single Tests.

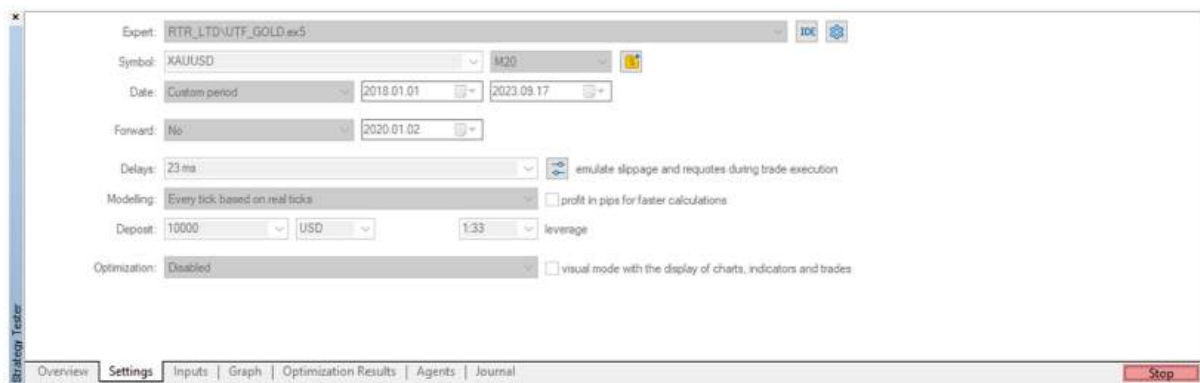


Select 'Fast Genetic Algorithm' and 'Profit Factor'.

If my Ticker has several profitable results in the optimiser, I will choose a handful of results and Run Single Tests using **"Every Tick Using Real Ticks"**, just right click on the result and "Run Single Test".



**"Every Tick Using Real Ticks"** is the historical data feed from your broker, with Bid-Ask Spread at every tick, where there are gaps in the data it will be filled with "Every tick" which are simulated from 1-minute OHLC Bars . (For more info MQL5.com help section should have the entire science of it).



History Quality	98%	Ticks	434245738	Symbols	1
Bars	101186				
Initial Deposit	10 000.00				
Total Net Profit	149 301.00	Balance Drawdown Absolute	536.29	Equity Drawdown Absolute	184.89
Gross Profit	287 504.26	Balance Drawdown Maximal	21 248.30 (11.77%)	Equity Drawdown Maximal	44 196.64 (26.44%)
Gross Loss	-138 203.26	Balance Drawdown Relative	38.49% (10 963.69)	Equity Drawdown Relative	40.16% (11 778.80)
Profit Factor	2.08	Expected Payoff	437.83	Margin Level	505.66%
Recovery Factor	3.38	Sharpe Ratio	2.79	Z-Score	-13.37 (99.74%)
AHPR	1.0088 (0.88%)	LR Correlation	0.89	OnTester result	0
GHPR	1.0082 (0.82%)	LR Standard Error	18 234.50		
Total Trades	341	Short Trades (won %)	95 (26.32%)	Long Trades (won %)	246 (26.02%)
Total Deals	682	Profit Trades (% of total)	89 (26.10%)	Loss Trades (% of total)	252 (73.90%)
		Largest profit trade	12 085.77	loss trade	-2 482.83
		Average profit trade	3 230.38	loss trade	-544.15
		Maximum	12 (84 021.61)	consecutive losses (\$)	36 (-9 576.61)
		Maximal	84 021.61 (12)	consecutive loss (count)	-21 133.30 (11)
		Average	5	consecutive losses	13

The 'Every tick using real ticks', will take some time, as it is more detailed. This result will always be worse than Open Prices Modelling; here we had Open Prices \$203k vs Real Tick \$149k profit, from a \$10k deposit. Do not fear too much, I have actually found the real executions are near to Open Prices modelling. However we have to think of worst case scenarios, rather than be too hopeful.

### Optimization - use StrategyQuant.com's 'Quant Analyzer 4' to filter Days and Hours

<https://StrategyQuant.com> > download and install Free version of 'Quant Analyzer 4'. I do recommend eventually purchasing the Pro Version for any one serious about algorithmic trading.

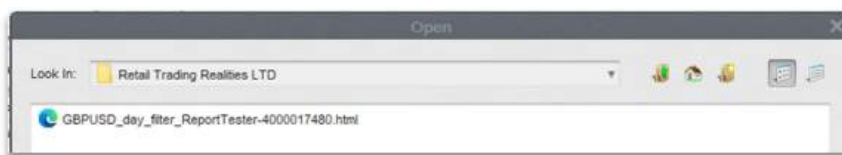
Export your Report from MT5 Strategy Tester by right clicking anywhere on the 'Backtest Tab', make sure it is **.html** file.

(MyfxBook.com, also has an excellent analysis tool unfortunately does not work for MT5.)

'Quant Analyzer 4' will provide extra Statistics for your strategy, such as Monte Carlo simulation, Analysis by direction, merge tests into a Portfolio, too many to mention, they have it covered.



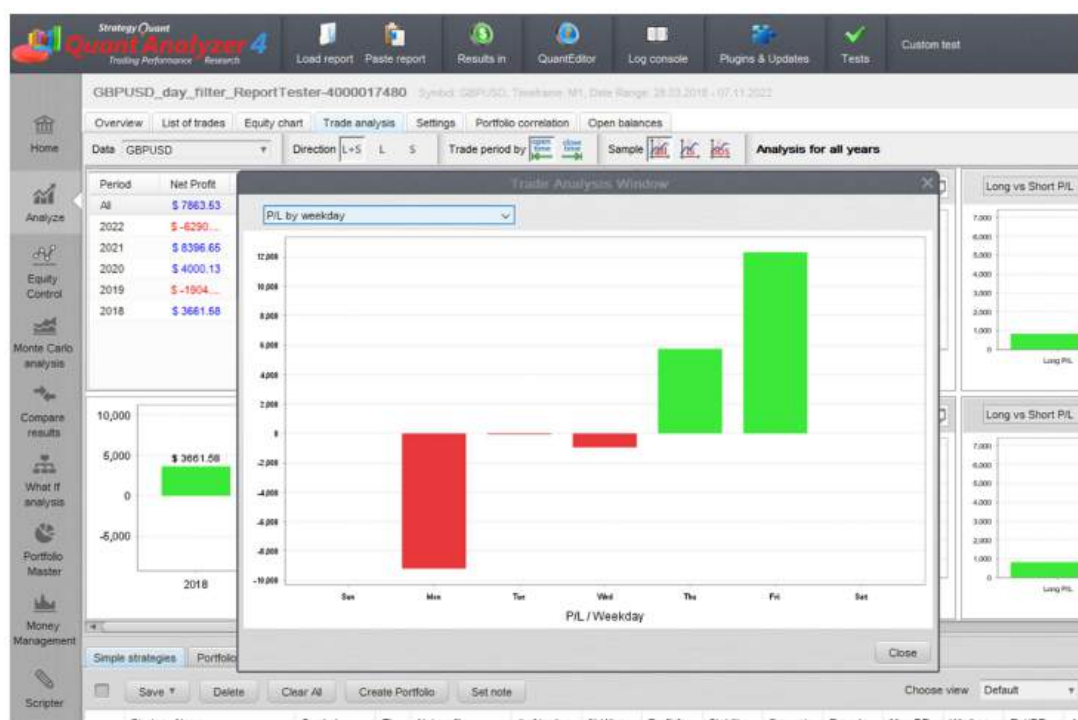
Click this, locate your .html file and follow the instructions.



We want Trade period by open time.

Example GBPUSD back tests were successful with a 5yr return of **78.63%**, however Trades opened on Monday, Tuesday, Wednesday we unprofitable and gave us Drawdowns. All of our profitable trades came from Thursday and Friday. So we return to our EA Inputs and make Monday, Tuesday, Wednesday = **False**. And Run our Tests Again. We now have a better returns, better drawdowns as well.





GBPUSD Optimizations (before Filtering Days).

Pass	Result	Profit	Total trades	Profit factor	Expected payoff	Drawdown %	Recovery factor	Sharpe ratio	Profit_Threshold
6	1.27	28435.37	452	1.27	62.91	49.84	0.85	0.58	20
5	1.24	21127.26	452	1.24	46.74	49.85	0.76	0.51	18
2	1.13	7218.43	416	1.13	17.35	48.01	0.48	0.31	12
4	1.13	7770.50	462	1.13	16.82	51.05	0.46	0.26	16
3	1.06	2982.94	442	1.06	6.75	52.89	0.22	0.14	14
0	1.04	1572.58	371	1.04	4.24	38.23	0.22	0.13	8
1	1.03	934.31	392	1.03	2.38	65.59	0.08	0.06	10

## Filter Day Inputs:

Variable	Value	Start	Step	Stop	Steps
<input type="checkbox"/> Maximum Spread	50.0	50.0	5.0	500.0	
<b>Day of Week Filter</b>					
<input type="checkbox"/> Sunday	false	false		true	
<input type="checkbox"/> Monday	false	false		true	
<input type="checkbox"/> Tuesday	false	false		true	
<input type="checkbox"/> Wednesday	false	false		true	
<input type="checkbox"/> Thursday	true	false		true	
<input type="checkbox"/> Friday	true	false		true	
<input type="checkbox"/> Saturday	false	false		true	
<b>Hour of Day Filter</b>					
<input type="checkbox"/> Start operation hour	00:00	00:00		23:00	
<input type="checkbox"/> Last operation hour	23:00	00:00		23:00	

Overview | Settings | **Inputs** | Backtest | Graph | Optimization Results | Agents | Journal

7 of 7 - 00:00:07 / 00:00:07 **Start**

GBPUSD Optimizations (after Filtering Days), all results are better:

Pass	Result	Profit	Total trades	Profit factor	Expected payoff	Drawdown %	Recovery factor	Sharpe ratio	Profit_Threshold
5	2.11	51843.20	192	2.11	270.02	44.66	2.73	1.43	18
4	2.10	50758.20	190	2.10	267.15	44.63	2.46	1.47	16
2	2.08	32206.59	182	2.08	176.96	26.21	2.36	1.60	12
6	2.04	50578.69	192	2.04	263.43	44.66	2.27	1.35	20
1	1.91	19906.35	180	1.91	110.59	15.75	3.83	1.63	10
3	1.82	26793.86	188	1.82	142.52	44.60	1.82	1.14	14
0	1.69	13716.99	164	1.69	83.64	15.71	3.28	1.72	8

New Single Test on same settings, with new Daily filters:



Monte Carlo simulation in a few clicks using 'Quant Analyzer 4':



Both MT5 and FXBlue.com have an hourly and daily trades summary statistics, however they only report on when trades were **closed**. Which is not helpful, we want to know when to open trades.

#### *Optimization - use 'Quant Analyzer 4' to filter Direction.*

You can use **Quant Analyzer 4** to filter for direction.

I would not filter for direction on tickers that were unprofitable in a standard test that used both directions.

#### *How this EA is intended to be used – multiple strategies*

The **RTR Momentum Trend ©** Expert Advisor, is intended be used across multiple tickers/symbols and multiple time frames. The reason for this is that we should never rely on 1 ticker symbol, back tests are no promise of future results.

Diversification, the more **RTR Momentum Trend ©** strategies we add to our **MT5 Terminal**, we must lower our risk on each strategy, we must never have more than 20-to-1 leverage at any time, so that includes if all strategies are executing trades on the same day. Diversification reduces maximum drawdown.

#### *Diversification – reduces drawdown Portfolio example*

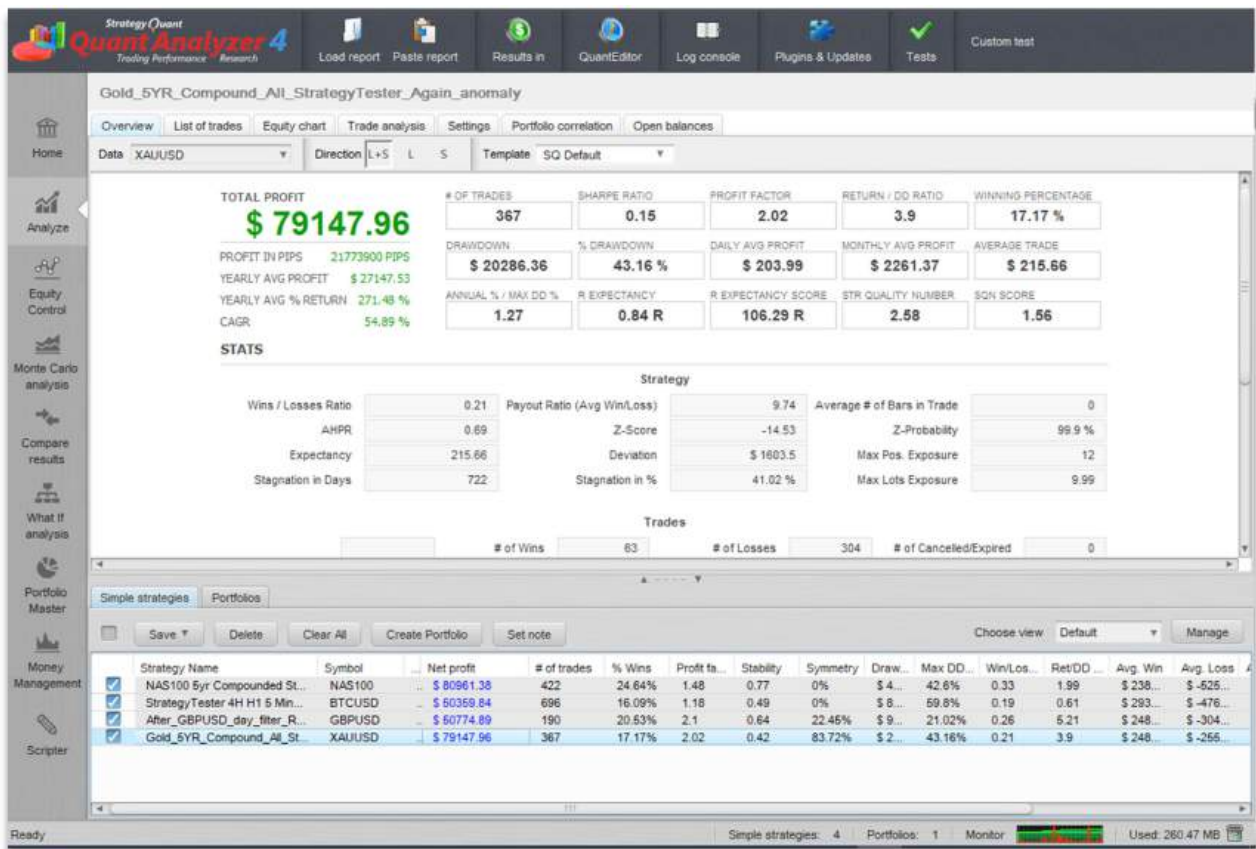
The more uncorrelated strategies added is likely to reduce drawdown.

Using 'Quant Analyzer 4' in a few clicks you can create portfolios, see your new reduced maximum drawdown.



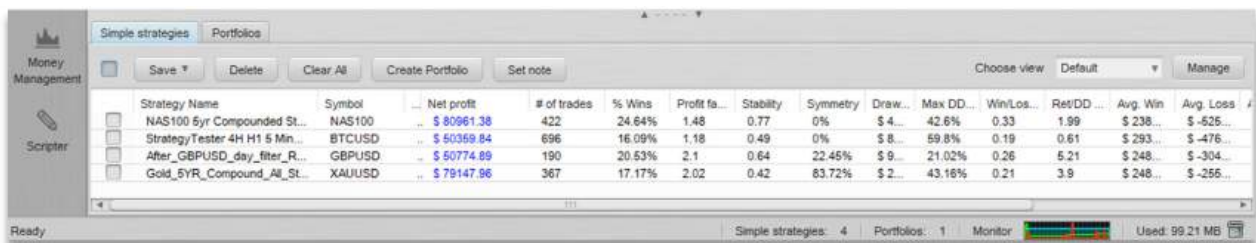
As explained before, load around 4 to 5 MT5 Strategy Tester tests (.html files) into **Quant Analyser 4**. (Make sure they all cover the same Date Time period - they don't have to but better).

I have loaded 4 strategies NAS100, BTCUSD, GBPUSD and lastly XAUUSD (GOLD).



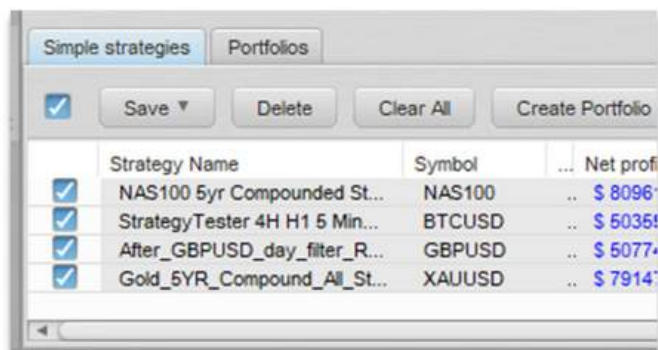
As you can see above image, the last Strategy I loaded was XAUUSD.

Now focus on the bottom Panel



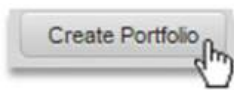
aw...	Max DD...	Wi
4...	42.6%	0
8...	59.8%	0
9...	21.02%	0
2...	43.16%	0

Notice **Max DD %** of all strategies is 59.8%, mean average DD is 41.65%



Select All (strategies you want in the portfolio)





Click this, it will merge all 4 strategies and take you to the Portfolios Tab.

Now it is a portfolio with **Max DD of 24.9%**, a reduction from an average of 41.65%.

Simple strategies Portfolios											
<input type="checkbox"/>	Save ▾	Portfolio ▾	Delete	Clear All	Set note						
	Strategy Name	Symbol	Ti...	Net profit	# of trades	% Wins	Profit fa...	Stability	Symmetry	Drawdo...	Max DD...
<input type="checkbox"/>	Portfolio (1)	Portfolio,A...	...	\$ 261244.07	1675	18.99%	1.46	0.8	42.2%	\$ 785...	24.9%

Simple strategies Portfolios						
<input type="checkbox"/>	Save ▾	Portfolio ▾	Delete	Clear All	Set note	
	Strategy Name	Symbol	Ti...	Net profit	# of tra	
<input type="checkbox"/>	Portfolio (1)	Portfolio,A...	...	\$ 261244.07	1675	

Double Click this blue text \$261244.07 (Net Profit)

Now the XAUUSD (Gold) overview is no longer showing, now it is the **Portfolio Overview, CAGR 49.75%**:

Strategy Quant **Quant Analyzer 4** Trading Performance Research

Load report Paste report Results in QuantEditor Log console Plugins & Updates Tests Custom test

Portfolio (1) Symbol: Portfolio, Timeframe: unknown, Date Range: 05.01.2018 - 15.12.2022

Overview List of trades Equity chart Trade analysis Settings Portfolio correlation Open balances

Data Portfolio Direction L+S L S Template SQ Default

<b>TOTAL PROFIT</b>	<b>\$ 261244.07</b>	# OF TRADES	1675	SHARPE RATIO	0.13	PROFIT FACTOR	1.46	RETURN / DD RATIO	3.32	WINNING PERCENTAGE	18.99 %
PROFIT IN PIPS	1061178311.4 PIPS	DRAWDOWN	\$ 78570.48	% DRAWDOWN	24.9 %	DAILY AVG PROFIT	\$ 234.72	MONTHLY AVG PROFIT	\$ 4354.07	AVERAGE TRADE	\$ 155.97
YEARLY AVG PROFIT	\$ 52255.05	ANNUAL % / MAX DD %	2	R EXPECTANCY	0.37 R	R EXPECTANCY SCORE	124.61 R	STR QUALITY NUMBER	3.51	SON SCORE	1.07
YEARLY AVG % RETURN	130.64 %										
CAGR	49.75 %										

**STATS**

Wins / Losses Ratio	0.23	Payout Ratio (Avg Win/Loss)	6.23	Average # of Bars in Trade	0
AHPR	0.13	Z-Score	-29.39	Z-Probability	99.9 %
Expectancy	155.97	Deviation	\$ 1816.41	Max Pos. Exposure	20
Stagnation in Days	271	Stagnation in %	15.05 %	Max Lots Exposure	162.97

**Strategy**

Trades

# of Wins	318	# of Losses	1357	# of Cancelled/Expired	0
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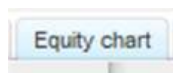
Simple strategies Portfolios

☐ Save ▾ Portfolio ▾ Delete Clear All Set note

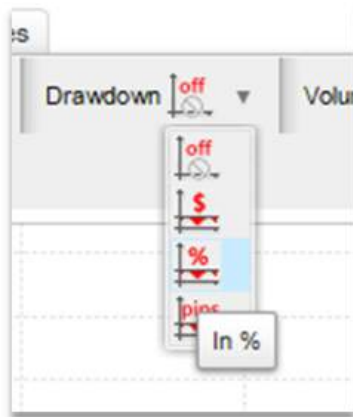
Choose view Default with N... Manage

	Strategy Name	Symbol	Ti...	Net profit	# of trades	% Wins	Profit fa...	Stability	Symmetry	Drawdo...	Max DD...	Win/Los...	Ret/DD...	Avg. Win	Avg. Loss	Avg
<input type="checkbox"/>	Portfolio (1)	Portfolio,A...	...	\$ 261244.07	1675	18.99%	1.46	0.8	42.2%	\$ 785...	24.9%	0.23	3.32	\$ 261...	\$ -419...	0

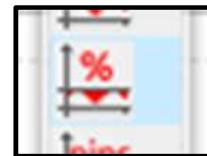
Ready Simple strategies: 4 Portfolios: 1 Monitor Used: 106.06 MB



> Click Equity Chart Tab

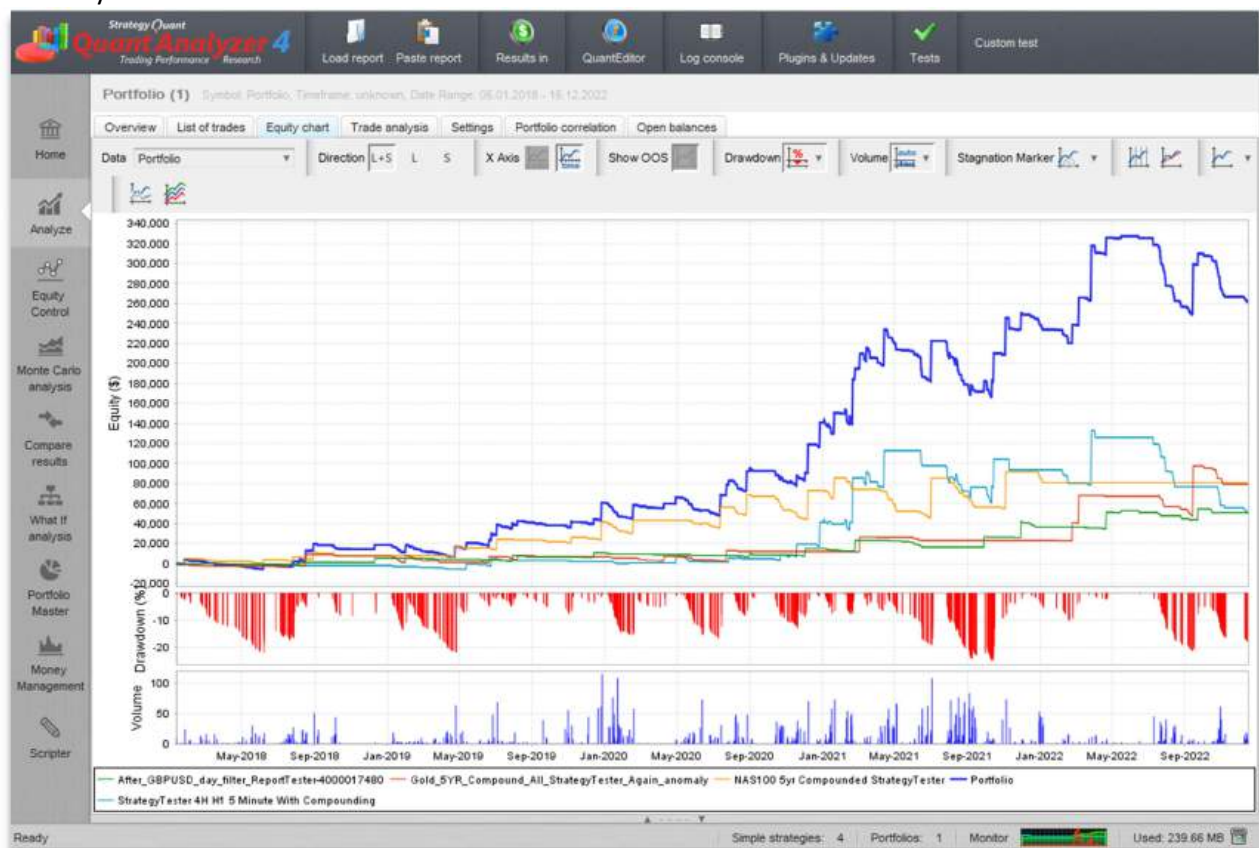


Turn on Drawdown, Select %



to see % DD in a time series.

And 'Hey Presto!'



About those '**uncorrelated strategies**' > Click on Portfolio Correlation Tab, to see if you strategies a positively or negatively correlated (we want negative correlation in diversification, otherwise too much risk).

### *How to use with prop firms*

Since Prop Firms no longer have a time limit, how I would use this for prop firms, is to look at my predicted Maximum Drawdown over at least a 5 year back test. And divide that by the Maximum Loss permitted by the prop firm, 10% for most, so if my maximum predicted DD is 24.9%, then I will divide my risk percent per trade further by 3.00, though this would be very slow.

You can also look at your back tests and see where your portfolio of strategies, peak at draw downs , in the previous example drawdown stayed under 18%, so getting in when DD is at 9% and then copy those trades to your prop account, once that DD Threshold has been met. *Does that make sense?*

(I have a more suitable M5/M15 Intraday EA for the GBPUSD pair for Prop Firms, it has been on a low DD winning streak since January 2022. I will put it up for rent. So check my MQL5 profile.)

### *Psychology – mentally dealing with drawdowns*

This strategy has a low win rate, around 20%, which means you spend 80% of your time in a draw down, you can have a series of losses, consecutive losses, especially when you have multiple strategies. They can be all losing at the same time. Winning Streaks come quickly. So if you get cold feet or shaken out during the drawdown and stop trading the EA, what is likely to happen is that you will miss the winning streak. **This EA does not Attempt to time the market.**

Hopefully you have optimised, back tested and imported those tests into a program like 'Quant Analyzer 4', combined them as portfolios and **know what to expect** in terms of series of losses, Average DD and Maximum DD.

### EA Settings:

Variable	Value
<input checked="" type="checkbox"/> ExpertID Magic Number	142895
<b>Time Frames, if 2 TF only, Middle Period will be ignored</b>	
<input checked="" type="checkbox"/> 2 TimeFrames Only	false
<input checked="" type="checkbox"/> Highest Period	1 Day
<input checked="" type="checkbox"/> Middle Period - ignored when 2 TimeFrames = true	4 Hours
<input checked="" type="checkbox"/> Lowest Period - must attach EA to this chart	5 Minutes

If 2 TimeFrames Only = true, then **Middle Period will be ignored**. You only have to optimise for Highest and Lowest Period.

The Lowest Period is also, the Chart you must attach the EA to. So in this example above Lowest Period is 5 minutes. Attach this EA to M5 chart. **Warning never set any period to “current”.**

Stop Lot Sizes	
<input checked="" type="checkbox"/> Fixed Lot size e.g 1.32 lots, ignored if 'Risk %' is used	0.1
<input checked="" type="checkbox"/> 'Risk %' per Trade 1.00 = 1% Risk, 0.50 is half%	1.0
Fixed \$Dollar Amount, Leave as 0 if not intended to use	
<input checked="" type="checkbox"/> Fixed \$Dollar Amount per Trade.	0

- **Fixed lot size**, will be skipped over if ‘Risk% per Trade’ or ‘Fixed Dollar amount’ is true (>0.0)
- If you do not want to use **Risk %** (percentage of Account Balance) must set it to 0.00
- If you do not want to use **Fixed \$Dollar Amount** per trade set it to 0.

### How to set - Risk percentage %,

‘Risk % per trade’ is the recommended setting for this EA, it equal to percentage of Account Balance. I have included other options, ‘Fixed Lot size’ and ‘Risk Dollar amount’, i.e. if you want to risk \$200 a trade.

A Strategy is every time you attach the EA to a Chart. So if I have 7 charts with an attached EA, I have 7 strategies.

How to set each EA ‘Risk %’ percentage settings:

Number of Strategies	Risk_percent % (recommended settings)		Risky Settings (are double the recommended)
1	0.5		1.0
2	$0.5 \div 2 = 0.25$		0.5
3	$0.5 \div 3 = 0.167$		0.333
4	$0.5 \div 4 = 0.125$		0.25
7	$0.5 \div 7 = 0.071$		0.142
$n$	$0.5 \div n = \dots$		$1.0 \div n = \dots$



The Risky setting of initial 1.0%, is the maximum risk I am willing to use on this EA. I would not use the risky setting on STOCKS as there are Gap up and Gap downs.

#### *Fixed Lot Size, \$Fixed Dollar Amount.*

You will have to set this yourself, just know that you can have 6 open trades on each strategy and we want to keep leverage well under 25-to-1.

I don't want you to use this, but was suggested by my testers. I feel that using risk percentage of balance is the best, because it stakes more as the strategy earns profits and stakes less when the strategy is losing. The whole point of automated trading is to do less. Using these options one would have to re-calculate often.

#### *Magic Numbers (Expert ID)*

Every time I attach the EA to a new chart, I must give it a new unique Magic number. Any whole number (integer) at least 6 digits. 123456789. (No Letters or characters).

#### *Direction – Both/Long/Short*

Just set the Direction.

In the Experts Tab of ToolBox on MT5, you will get a printed message, indicating that:

"SELL Trades Only, symbol=USDJPY, period=M30, magic=123456", when the Expert tries to Buy. (*Vice Versa*). Depending on what Direction you have set it to.

#### *How to set Maximum Spread filter, with examples.*

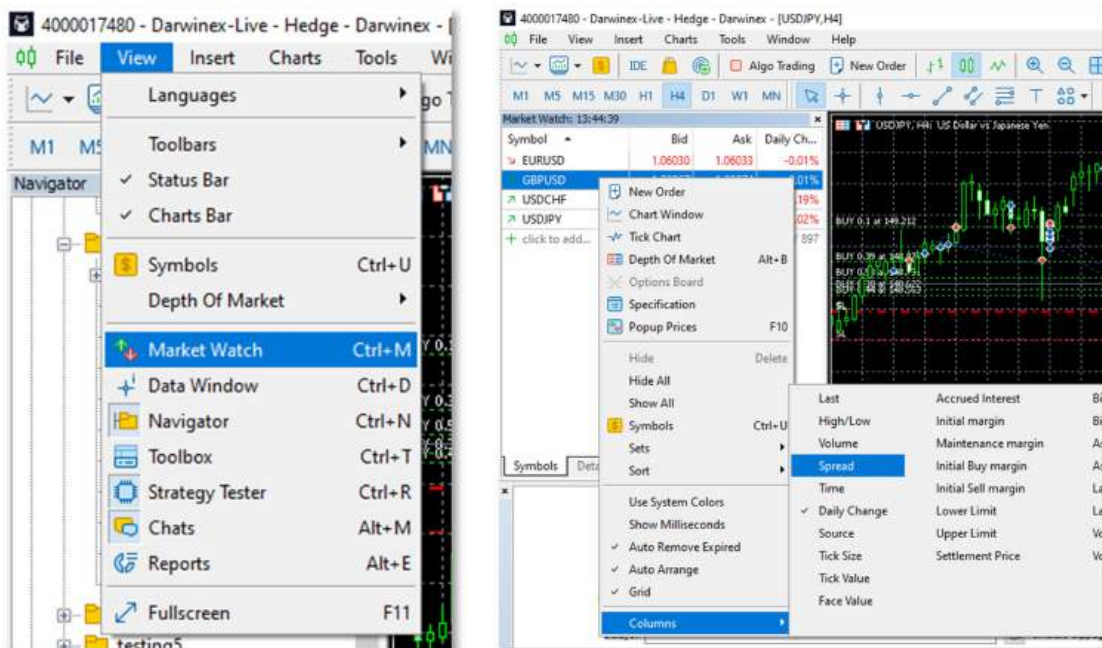
The Brokers I am using is Darwinex and RoboForex (for Crypto).

Setting the Maximum Spread is sensitive to your broker. I like to use maximum of =  $3 \times$  **normal spread**.

Normal spread is just an approximation, of spreads during London-NY trading hours.

#### *How to find your spread in MT5 Market Watch.*

MT5> View> Market Watch, right click any ticker> Columns > Spread,



Market Watch: 13:46:37				
Symbol	Bid	Ask	Spread	Daily Change
EURUSD	1.06025	1.06028	3	-0.02%
GBPUSD	1.22865	1.22871	6	0.01%
USDCHF	0.90306	0.90313	7	-0.18%
USDJPY	148.683	148.689	6	-0.01%
+ click to add...				4 / 897

Here spread GBPUSD = 6 so, set Maximum Spread Filter =  $3 \times 6 = 18$ .

This will help you find average spreads: <https://www.myfxbook.com/forex-broker-spreads>

## Optimized Results Examples

USDJPY ,

Date: 01 Jan 2018 – 15 Sep 2023

Deposit: \$10,000

Delays : 23ms (only used when Real Ticks selected)

Modelling: On Open Prices

**Fixed Inputs** : 2 Time Frame = True, Direction = Long Only, Risk percent =1.0% , Middle Period = ignored n/a, No Day/Time Filters, MAX spread filter 25.

### Optimized Inputs:

Highest Period = 1 Day, 1Week . 2 passes

Lowest Period = M30, H1, H2, H3, H4 . 5 passes

Profit Threshold = 8, 10, 12, 14, 16, 18. 6 passes

Total of **60 passes**.

Pass	Result	Profit	Total trades	Expected payoff	Drawdown %	Sharpe ratio	Anchor_TF	Second_TF	Profit_Threshold
51	2.14	251898.59	321	784.73	33.59	2.28	1 Week	30 Minutes	18
41	2.04	151063.24	309	488.88	33.58	2.10	1 Week	30 Minutes	16
50	2.51	133186.97	414	321.71	36.14	1.57	1 Day	30 Minutes	18
40	2.37	107177.96	385	278.38	36.13	1.65	1 Day	30 Minutes	16
30	2.31	104707.25	382	274.10	26.46	1.75	1 Day	30 Minutes	14
31	1.91	80766.73	300	269.22	33.57	1.76	1 Week	30 Minutes	14
23	3.02	64679.02	155	417.28	16.45	2.74	1 Week	1 Hour	12
20	1.98	50938.86	367	138.80	23.48	1.40	1 Day	30 Minutes	12
22	3.08	49823.88	197	252.91	14.64	1.90	1 Day	1 Hour	12
43	2.06	46528.77	188	247.49	57.79	1.30	1 Week	1 Hour	16
21	1.73	43703.37	296	147.65	33.57	1.41	1 Week	30 Minutes	12
53	2.09	42490.47	187	227.22	57.78	1.16	1 Week	1 Hour	18
11	1.73	41993.49	300	139.98	33.58	1.59	1 Week	30 Minutes	10
32	2.46	36672.21	213	172.17	26.16	1.35	1 Day	1 Hour	14
12	2.81	36631.42	187	195.89	35.20	1.86	1 Day	1 Hour	10
1	1.74	36184.13	283	127.86	33.57	1.72	1 Week	30 Minutes	8
13	2.58	35727.19	151	236.60	28.50	2.23	1 Week	1 Hour	10
33	2.01	35134.56	174	201.92	57.80	1.40	1 Week	1 Hour	14
0	1.72	33475.29	322	103.96	49.92	1.60	1 Day	30 Minutes	8

The top result yielded a profit of **\$251k** from a deposit of **\$10k**, however we need to do a **‘Every Tick using Real Tick Test’** single Back Test, we will need at least 95% tick data history quality.

Real Tick test with broker historical bid-ask spread:



History Quality	99%	Ticks	280603016	Symbols	1
Bars	71157	Initial Deposit	10 000.00	Total Net Profit	231 036.82
Gross Profit	455 118.16	Gross Loss	-224 081.34	Balance Drawdown Absolute	6 271.55
Profit Factor	2.03	Recovery Factor	2.03	Balance Drawdown Maximal	110 558.90 (33.46%)
AHPR	1.0058 (0.58%)	GHPR	1.0052 (0.52%)	Equity Drawdown Absolute	4 342.40
Expected Payoff	379.99	Margin Level	2024.37%	Equity Drawdown Maximal	113 831.28 (33.76%)
Sharpe Ratio	1.56	Z-Score	-17.84 (99.74%)	Equity Drawdown Relative	70.64% (13 614.77)
LR Correlation	0.73	OnTester result	0		
LR Standard Error	54 981.24				
Total Trades	608	Short Trades (won %)	0 (0.00%)	Long Trades (won %)	608 (22.86%)
Total Deals	1216	Profit Trades (% of total)	139 (22.86%)	Loss Trades (% of total)	469 (77.14%)
Largest profit trade	33 238.79	loss trade	-3 598.35		
Average profit trade	3 274.23	loss trade	-472.28		
Maximum	24 (14 006.66)	consecutive losses (\$)	55 (-2 673.20)		
Maximal	191 056.08 (14)	consecutive loss (count)	-109 392.91 (42)		
Average	5	consecutive losses	16		

Entries by hours (Asia,Europe,USA) | Entries by weekdays | Entries by months

Overview | Settings | Inputs | Backtest | Graph | Optimization Results | Agents | Journal

**Conclusion:** \$231k profit with, 99% History Quality data, less than \$251k open prices modelling. A good result, using low leverage less than 20-to-1.

- Download the Demo and Repeat the above Optimization, *Try it yourself*.

## NASDAQ -NDX CFD Example

Expert: RTR\_LTD\UTF\_NASDAQ.ex5

Symbol: NDX

Date: Custom period 2018.01.01 2023.09.17

Forward: No 2020.01.02

Delays: 23 ms emulate slippage and requotes during trade execution

Modelling: Open prices only profit in pips for faster calculations

Deposit: 10000 USD 1.200 leverage

Optimization: Fast genetic based algorithm Profit Factor max

Overview | Settings | Inputs | Backtest | Graph | Optimization Results | Agents | Journal

Variable	Value	Start	Step	Stop	Steps
<input type="checkbox"/> ExpertID Magic Number	142895	142895	1	1428950	
<b>Time Frames, if 2 TF only, Middle Period will be ignored</b>					
<input type="checkbox"/> 2 TimeFrames Only	false	false		true	
<input type="checkbox"/> Highest Period	1 Day	1 Day		1 Week	
<input checked="" type="checkbox"/> Middle Period - ignored when 2 TimeFrames = true	4 Hours	1 Hour		4 Hours	4
<input checked="" type="checkbox"/> Lowest Period - must attach EA to this chart	15 Minutes	15 Minutes		1 Hour	4
<b>Stop Lot Sizes</b>					
<input type="checkbox"/> Fixed Lot size e.g 1.32 lots, ignored if 'Risk %' is used	0.1	0.1	0.01	1.0	
<input type="checkbox"/> 'Risk %' per Trade 1.00 = 1% Risk, 0.50 is half%	1	1.0	0.1	10.0	
<b>Fixed \$Dollar Amount, Leave as 0 if not intended to use</b>					
<input type="checkbox"/> Fixed \$Dollar Amount per Trade.	0	0	1	10	
<b>Take Profit Multiplier</b>					
<input checked="" type="checkbox"/> Profit Threshold	10	8	2	18	6
<b>Direction - Both, Long only, Short only</b>					
<input type="checkbox"/> Direction	Long_Only	Both		Short_Only	
<b>Custom Trade Comment</b>					
<input type="checkbox"/> custom comment					
<b>Spread Filter</b>					
<input type="checkbox"/> Maximum Spread	50	50.0	5.0	500.0	
<b>Day of Week Filter</b>					

Overview | Settings | **Inputs** | Backtest | Graph | Optimization Results | Agents | Journal

00:05:08 / 00:05:08 **Start**

Pass	Result	Profit	Total trades	Profit factor	Expected pay...	Drawdown %	Recovery fact...	Sharpe ratio	First_TF	Second_TF	Profit_Threshold
19	1.56	46244.16	412	1.56	112.24	21.44	3.04	1.24	4 Hours	15 Minutes	10
35	1.34	37307.22	458	1.34	81.46	39.43	1.22	0.89	4 Hours	15 Minutes	12
16	1.43	36308.03	516	1.43	70.36	45.77	2.49	0.90	1 Hour	15 Minutes	10
51	1.33	34137.48	504	1.33	67.73	39.38	1.20	0.68	4 Hours	15 Minutes	14
18	1.32	26066.91	419	1.32	62.21	49.25	1.20	0.92	3 Hours	15 Minutes	10
48	1.20	26055.68	604	1.20	43.14	49.10	0.75	0.58	1 Hour	15 Minutes	14
7	1.36	24723.86	353	1.36	70.04	32.60	1.48	1.05	4 Hours	20 Minutes	8
34	1.19	21607.45	466	1.19	46.37	58.92	0.59	0.69	3 Hours	15 Minutes	12
50	1.18	21276.67	513	1.18	41.47	60.92	0.62	0.54	3 Hours	15 Minutes	14
6	1.29	20635.07	341	1.29	60.51	45.28	1.00	0.97	3 Hours	20 Minutes	8
17	1.28	18944.91	441	1.28	42.96	50.26	1.26	0.73	2 Hours	15 Minutes	10
67	1.28	18903.52	536	1.28	35.27	39.35	1.02	0.41	4 Hours	15 Minutes	16
32	1.15	18713.92	569	1.15	32.89	49.17	0.68	0.57	1 Hour	15 Minutes	12
23	1.21	15792.63	395	1.21	39.98	45.11	0.92	0.59	4 Hours	20 Minutes	10
5	1.24	14756.89	365	1.24	40.43	35.21	1.10	0.73	2 Hours	20 Minutes	8
39	1.23	13882.62	417	1.23	33.29	32.57	1.21	0.48	4 Hours	20 Minutes	12
3	1.21	13067.95	426	1.21	30.68	40.84	1.24	0.67	4 Hours	15 Minutes	8
64	1.14	12211.26	652	1.14	18.73	64.00	0.53	0.31	1 Hour	15 Minutes	16
38	1.15	10784.46	417	1.15	25.86	49.32	0.67	0.42	3 Hours	20 Minutes	12
33	1.12	10543.76	497	1.12	21.21	57.45	0.47	0.41	2 Hours	15 Minutes	12

Overview | Settings | Inputs | Backtest | Graph | **Optimization Results** | Agents | Journal

00:05:08 / 00:05:08 **Start**

We select top result \$46k profit for Real Tick Back Test:

Expert:	RTR_LTD\UTF_NASDAQ.ex5			IOE	IO
Symbol:	NDX	MS			
Date:	Custom period	2018.01.01	2023.09.17		
Forward:	No	2020.01.02			
Delays:	23 ms	<input type="checkbox"/> emulate slippage and requotes during trade execution			
Modelling:	Every tick based on real ticks	<input type="checkbox"/> profit in pips for faster calculations			
Deposit:	10000	USD	1:200	leverage	
Optimization:	Fast genetic based algorithm	Profit Factor max			

Overview | **Settings** | Inputs | Backtest | Graph | Optimization Results | Agents | Journal

00:05:08 / 00:05:08 **Start**





History Quality	96%	Ticks	290432311	Symbols	1
Bars	394521	Initial Deposit	10 000.00	Total Net Profit	44 711.93
Gross Profit	125 975.34	Gross Loss	-81 263.41	Balance Drawdown Absolute	1 468.99
Profit Factor	1.55	Expected Payoff	108.52	Equity Drawdown Absolute	1 510.40
Recovery Factor	3.01	Sharpe Ratio	1.76	Balance Drawdown Maximal	12 071.80 (18.08%)
AHPR	1.0045 (0.45%)	LR Correlation	0.89	Equity Drawdown Maximal	14 839.72 (21.48%)
GHPR	1.0041 (0.41%)	LR Standard Error	6 287.66	Balance Drawdown Relative	36.36% (6 607.62)
				Equity Drawdown Relative	40.92% (14 780.34)
Total Trades	412	Short Trades (won %)	0 (0.00%)	Long Trades (won %)	412 (25.24%)
Total Deals	824	Profit Trades (% of total)	104 (25.24%)	Loss Trades (% of total)	308 (74.76%)
		Largest profit trade	5 314.33	loss trade	-847.93
		Average profit trade	1 211.30	loss trade	-261.85
		Maximum	13 (18 146.71)	consecutive losses (\$)	44 (-6 529.09)
		Maximal	18 146.71 (13)	consecutive loss (count)	-12 018.78 (19)
		Average	5	consecutive losses	13

Overview | Settings | Inputs | Backtest | Graph | Optimization Results | Agents | Journal

00:05:08 / 00:05:08 Start

**Conclusion:** Real Tick was less than \$46k vs \$44k profit, a good result.

## How to setup EA with a Windows Server VPS

Windows Server 2012/2019/2022

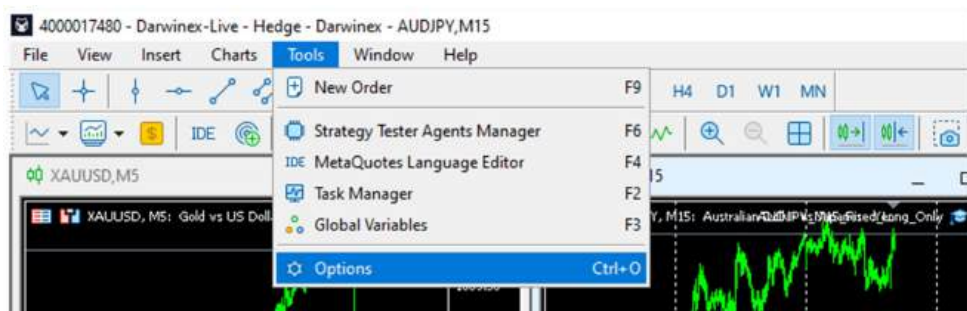
Summary: Windows Server 2012 – is like Windows 7 PC, Windows Server 2019/2022 – is like Windows 10 PC.

I use ForexVPS.net, FTMO users can get 20% off, one must log in to FTMO for this and get the discount code from User Area.

My Affiliate link: <https://www.forexvps.net/?aff=47433>

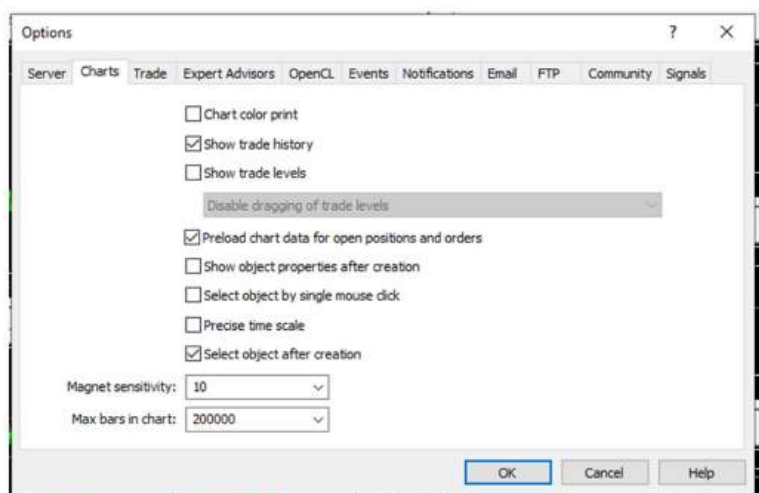
I also recommend <https://www.mql5.com/en/vps>, fastest ping.

Download and Install your MT5 like you would on a Windows 10/11 PC.

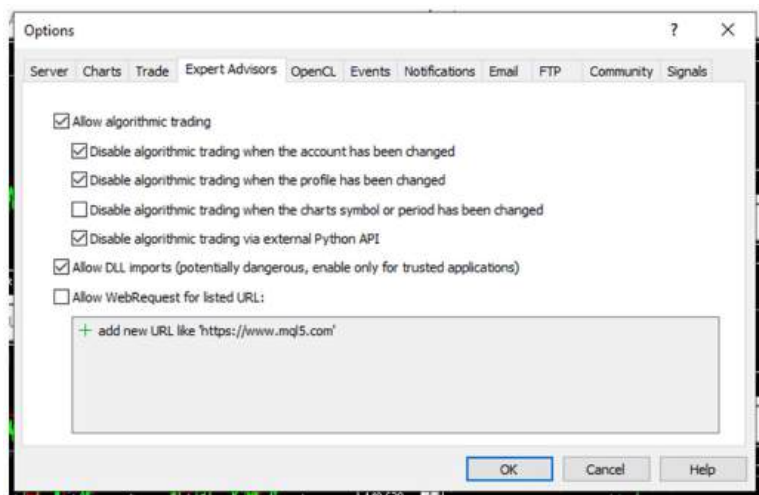


**Copy my Settings:**

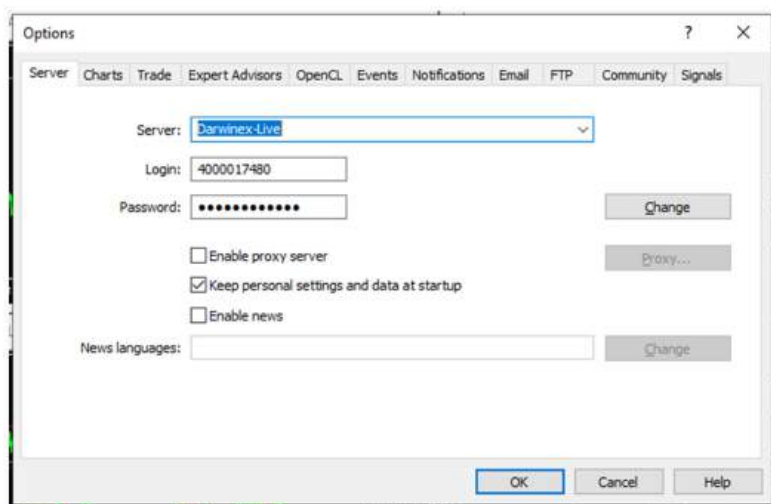
MT5 Terminal > Tools> Options > Charts



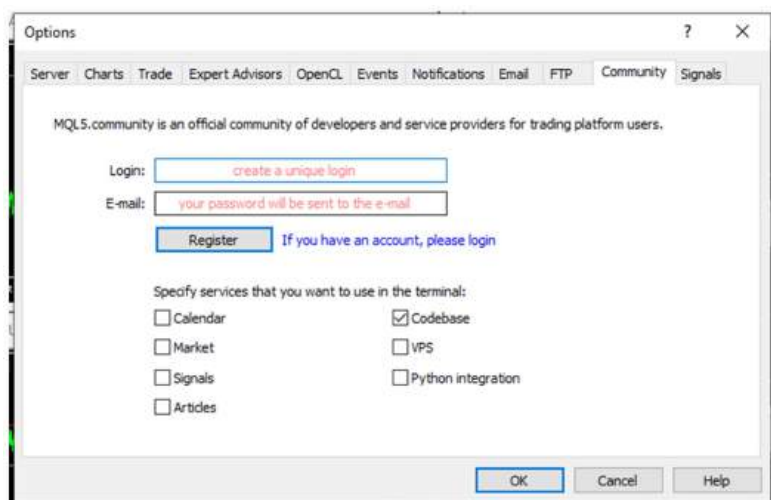
MT5 Terminal > Tools> Options > Expert Advisors



MT5 Terminal > Tools> Options > Server



MT5 Terminal > Tools> Options > Community





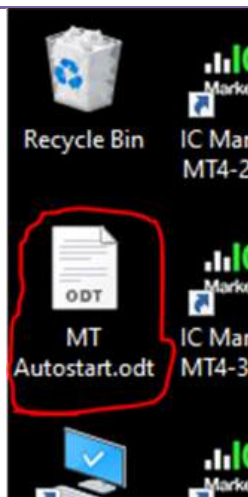
### Final VPS step:

Once you have all Charts, Time Frames and Symbols you want use in view, go to View>Market Watch> right click any ticker, click > **'Hide All'**.

This will stop MT5 reading quotes in the background, from tickers/symbols the EA is not trading on.



### MT4/5 AUTO START for VPS:



I am using ForexVPS.net, and they have this feature, where you can use their .exe program to Auto-Start all of your MT4/5 Terminals every time the server restarts. Remember You will have to restart your Server every now and then, but also your VPS provider will restart servers for maintenance.

You will have to enable this manually by reading the steps in the .ODT text file (usually on the Desktop).

Other Forex VPS providers also have this feature (nearly all of them).

You won't need to do this if you have a server provided by MetaQuotes from MQL5.com .

Do not use a Linux server with MT4/5.

## Resources

### *RetailTradingRealities.com*

I have no affiliation with the following, just value their content.

<https://www.trendfollowing.com/>

Author Michael Covel, is the historian and a devoted champion of Trend Following.

<https://alphaarchitect.com/2015/08/avoiding-the-big-drawdown-with-trend-following-investment-strategies/>

Alpha Architect article on trend following and diversification, Wesley Gray, PhD

<https://www.cis.upenn.edu/~mkearns/finread/trend.pdf>

Cole Wilcox, Eric Crittenden, Blackstar Funds, LLC, Does Trend Following Work on Stocks? (TLDR: Yes)

<https://www.youtube.com/@Darwinexchange>

Darwinex, UK FCA broker, Martyn Tinsley, has the best algo optimization series on YouTube.

<https://www.mql5.com/en/articles>

Keep up to date with the latest libraries and features of MT5.

<https://www.youtube.com/@FinancialWisdom>

A retail trend follower, he reads a lot of Finance books and presents a bite-size summary.

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