



FX-SCANNER – AUTOMATED FOREX TRADING

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FOREWARD

Early in 2011 the first versions of FX-Scanner went live with a strategy similar to sample strategies provided (outbreak1.set). The dedicated account immediately went into profit and continues to be profitable. This sample strategy was developed as part of the FX-Scanner development process however I no longer trade it.

At the time of writing the morning breakout strategy no longer seems to be profitable however this opportunity may return and it is certainly worth periodic back testing of the strategy in case the opportunity returns.

While I strongly recommend against trading this sample strategy live it does offer an excellent example of how FX-Scanner strategies work and can be a starting point for searching the market for similar trading opportunities.

I have a number of dedicated PCs running FX-Scanner with MT4's strategy tester continuously looking for trading opportunities. As MT4 is not designed to utilise multiple processors I run an instance of MT4 for each CPU core. This will allow full CPU utilisation. As a result of this type of analysis I have found numerous profitable trading strategies and now so can you.

I am confident that you will find FX-Scanner a powerful tool for quickly developing, optimising and trading strategies. My FX-Scanner trading account balance leaves me with no doubt that you have purchased a product that gives you every opportunity to become a successful automated trader.

Best Regards

FX-Scanner - Lead Developer

June 2011

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INTRODUCTION

Automated trading in the Forex market is achieved by software known as an Expert Advisor or a Forex Robot by the marketers. This software runs on the very popular Meta Trader Platform (MT4). In the last few years, the market has been flooded with new Forex robots. The marketers claim that all you need to do is install the software on your MT4 chart and it will start making money for you while you sleep. The truth is that very few if any will produce ongoing results. Why? The market changes and you need to be able to adapt. Of course these "off the shelf" robots cannot adapt to a changing market. The solution is you need to understand how your automated trading strategy works and how to continually adapt it to changing market conditions. FX-Scanner allows you to do this without the need to write a new Expert Advisor for every strategy and without the need to be a programmer.

Firstly you need to install MT4 on your PC. If you don't already have a copy provided by your broker you can obtain a demo copy here:-

- <https://my.alpari.co.uk/en/mtdemo/>

Details on how to load Expert Advisors can be found on you tube

General information on the MQL programming language

- <http://docs.mql4.com/>

A note of warning FX-Scanner has been optimised for performance and to work with MT4. As a result some FX-Scanner functions may not be intuitive so it is vital that you read this guide completely.

The sample strategy supplied with FX-Scanner is a sample of how you can develop strategies with FX-Scanner. They are not intended to be traded with real money.

This guide's primary means for describing the functionality of FX-Scanner is by example. Once you have completed this case study you should be able to fully utilise the FX-Scanner by referring to the details provided in the FX-Scanner Parameters section.

INSTALLATION

The following files are provided with the FX-Scanner package. Copy these files into these MT4 subfolders.

- FXScanner.ex4 \experts (Pro Version)
- FXScanLite \experts (Lite Version)
- breakout.set \experts\presets
- breakout2.set \experts\presets (Pro Version Only)
- FXScanExternal.ex4 \experts\libraries (Pro Version Only)
- FXScanExternal.mq4 \experts\libraries (Pro Version Only)
- FXScanSLTP.mq4 \experts\indicators
- FXScanGenOsc.mq4 \experts\indicators
- FXScanBolBandsOsc.mq4 \experts\indicators
- FXScanCCI.mq4 \experts\indicators
- FXScanEnvOsc.mq4 \experts\indicators
- FXScanRSI.mq4 \experts\indicators
- FXScanWPR.mq4 \experts\indicators

FILE DESCRIPTIONS

- FXScanner.ex4 and FXScanLite are the main application files loaded from MT4
- FXScanExternal.ex4 is an optional code module for those interested in writing code to use in conjunction with an FXScanner strategy.
- FXScanSLTP is an indicator used by FXScanner for dynamic Stop Loss and Target Profit settings. The FXScanner Parameters section describes its use in more detail. This indicator can be modified or replaced by a custom indicator.
- FXScanGenOsc is a generic indicator that can be used to normalise the outputs of other indicators such that they appear on the chart indicating the same values as used by FXScanner.
- In addition are a number of sample indicators such as FXScanBolBandOsc which shows how Bollinger Bands can be used with FX-Scanner.

FXSCANGENOSC

The following table describes the input parameters for FXScanGenOsc.

Parameter	Description
Name	This is the name of the indicator you wish to access eg MACD
ParamCount	This is the number of parameters that the indicator specified above uses. In the case of MACD this value will be 3
ParamX	These are the parameters that are sent to the indicator. For MACD the Param1 to Param3 would be Fast, Slow and Signal
Mode	This must correspond with the index used by one of SetIndexBuffer function within the indicator, usually 0.

Offset	This is used to normalise indicator output to a nominal -100 to 100 range. If an indicator inherently outputs within a range 0 to 100 the offset would be -50 and the Multi (multiplier) would be 2. The offset is applied first.
Multi	This multiplies the indicator output. It can be used to bring an indicator output into a nominal -100 to 100 range. The MACD is an example of an indicator that would need to be multiplied to bring into the nominal range. This number can also be negative.

OVERVIEW

FXScanner works by scoring the results of a number of user selected indicators. Once the predetermined score has been achieved the software will initiate a trade. There are numerous market indicators available and there resultant signals cover various numerical ranges and formats.

FXScanner normalises these various signals typically into a -100 to 100 range however these are not fixed limits. When the signal exceeds a predetermined value, say 70, a buy position will be opened whereas -70 will initiate a sell position.

STATUS FIELD

Each indicator option has a status value and setting this value is critical to the function of FX-Scanner. This value is used to enable and determine how the indicator will be integrated into the strategy. The status field nominates whether the indicator will be

1. Used for a single position or multiple position entry
2. Whether the indicator result is optional or mandatory
3. Whether the indicator will be used to trade entry or exit

If your strategy uses 3 indicators however only 2 are required to initiate a trade the optional status can be selected. This can be used to setup indicators using AND / OR logic.

The following table describes the various settings used for the status field:-

Version	Status	Description
All	(Blank)	Indicator Disabled
All	e	Single position strategy – Optional (Also initial position only for multi position strategy – Pro Version)
All	E	Single position strategy – Mandatory (Also initial position only for multi position strategy – Pro Version)
Pro	Ee	Initial Position Mandatory and subsequent positions optional
Pro	ee	Initial and subsequent positions optional
Pro	eE	Initial Position Mandatory and subsequent positions optional
Pro	EE	Initial and subsequent positions Mandatory
All	x	Exit strategy – Optional
All	X	Exit strategy – Mandatory

You can also disable indicators by using the settings below. You can use this feature to allow the MT4 strategy tester optimization function to try different indicators to see which produces the best results.

- Any indicator with a period setting set to 0
- MACDX_Slow set to 0
- Stochastic_K set to 0
- PSAR_Step set to 0
- CustX_TimeFrame or ExternX_TimeFrame set to less than 0

ON CHART INFORMATION

```

----- FX-Scanner v1.00 -----
Strategy Name = Scalper Version = 4.00
Magic = 55716940 (Auto) GMT Shift = 1 (Manual)
GMT = 2010:01:04 01:50:05 Spread = 2.6 (2.7)
Trade Hrs = 22->6 (-MTWT-)
Current Positions (L/S)= 0/0 Max = 3/0
Stop Loss= 150 / Take Profit= 25 Lots = 0.10

----- Entry Indicator Results -----
Entry      = 0 / 0.00 M
MACD1      = 0 / 42.46   0.00 / 26.00 M
MACD2      = -1 / -14.49 - 1.00 / -25.00 M
CCI         = 1 / 91.35   0.00 / 9999.00 M

-----
Open Score  = 0 Required Score = 4 (4/1)
-----

```

Line	Description
1	Heading FX-Scanner and the version of FX-Scanner.
2	The Strategy name and version number are used for the Trade Comments and also for the auto magic number. The first 3 letters of the strategy name and the version number are used to generate the unique magic number. Digits from the version number less than 1 decimal places or greater than 99 are discarded.
3	Magic number and GMT shift are displayed including whether the number has been automatically generated or manually set.
4	The hours where the strategy trades followed by the day of the week with the first letter of the day being displayed if it trades on that day. Otherwise a '-' indicates a day that is not traded
5	Current Positions open "Long Positions / Short Positions" followed by the maximum number of positions the strategy allows (both long and short)
6	Stop Loss and Take Profit positions. These may vary if the FXScanSLTP indicator is used to size the Stop Loss and Take Profit positions. The amount of Lots to be traded is also indicated
7	Heading --- Entry Indicator Results ----
8->	For each indicator used in the strategy a line is generated on the display. The first number indicates the current score, 1=buy, -1=sell. This number is followed by the result of the indicator. This should match the indicator as loaded onto the chart. The next two numbers are the Minimum and Maximum values between which a buy or sell score can be achieved. Finally a 'M' or 'O' is displayed which indicates whether the result is Mandatory or Optional
Score	The Open Score is the current total of the buy and sell scores of the listed indicators. The required score is also displayed for single position and multiple position strategies respectively.
Exit	If the strategy employs an exit strategy the results of the related indicators are displayed in the same format as the entry indicators with an Exit Score also displayed.

This guide's primary means for describing the functionality of FX-Scanner is by example. Once you have completed this case study you should be able to fully utilise the FX-Scanner by referring to the details provided in the FX-Scanner Parameters section. There are videos that cover the same material as covered by this section and should be used in conjunction.

www.fx-scanner.com

You have heard that there was a great breakout trading opportunity on GBP/USD before the European market opens. The case study will explore how FX-Scanner can be used to look for, optimise and trade this opportunity.

Start by loading the MT4 strategy tester and set the expert advisor to FXScanner or FXScanLite. For Symbol select GBPUSD and a Period of M15. Set the date range of 2010.01.01 to 2010.12.31. Hit the Expert Properties and select the Inputs tab. Now hit reset to set all the defaults.

Work your way down the General Settings and ensure it is set appropriate to your Broker. Check Fields such as MaxSpread, ECNBroker. Then set the OpenScore to 1.

We are looking for an opportunity that exists at 6:00 UTC before Market Open on the European Market so let's set the TradeHourStart = 6, and Stop=-1. We will leave the Stop Loss and Profit Targets at an arbitrary value of 40 at this stage.

Let's use the momentum indicator to get started. The Pro version has Momentum as an inbuilt indicator but Lite version doesn't so let's set it up as a custom indicator. The process we will use can be used with many indicators available with MT4 and from various sources on the internet.

Set Custom1_Status = "E" which sets the indicator for "Trade Entry" and Custom1_Name = "Momentum". The Momentum indicator only has one parameter which is the period so we set Custom1_ParaCount = 1 and Custom1_Param1 = 60. This sets the Momentum period to 60.

The Momentum indicator typically returns value ranges from 95 to 105 centred at 100 however FXScanner nominally expects indicator return values to range from -100 to 100 centred about 0. This can easily be fixed by setting Custom1_Offset = -100 and Custom1_Multi=100. This gets the Momentum return value and subtracts 100 then multiplies it by 100 resulting in a return values ranging from -100 to 100 centred around 0.

Now let's set Custom1_Min=0 and Custom1_Max=100. FX-Scanner will now enter a trade if the Momentum is between these values and the time is between 6:00 and 6:59 UTC. Enable visual mode for now and hit start. You should see FX-Scanner start entering trades. Rather than watch this proceed for the entire year hit Stop, disable visual mode and hit Start again. The strategy tester results should be profitable. You have developed your first FX-Scanner strategy.

Now try it again from 2010 till current. You will notice that after April 2011 this strategy is no longer profitable.

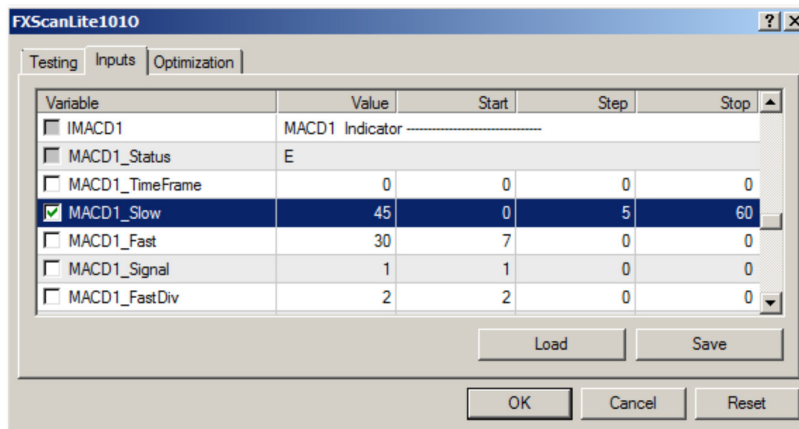
Let's try to improve the performance of this strategy with MACD as it's always a useful indicator. The standard MACD parameters are the Fast, Slow and Signal periods however using the strategy tester to try to optimise Fast and Slow can cause overlaps and illogical results. FX-Scanner provides a MACD1_FastDiv setting which calculates the fast value by dividing the slow value by the MACD1_FastDiv value. It is enabled when it has a value of greater than 0. When enabled the MACD1_Fast value is ignored. Set MACD1_FastDiv to

2 for now and this value can always be optimised in future. In the case of Slow = 60 the Fast will be calculated to =30.

The MACD typically returns very low values so for simplicity we set the MACD_Multi = 10000. You can also use negative values to reverse the logic of the indicator. We will also leave the MACD1_Signal = 1.

Use the following settings in expert properties:-

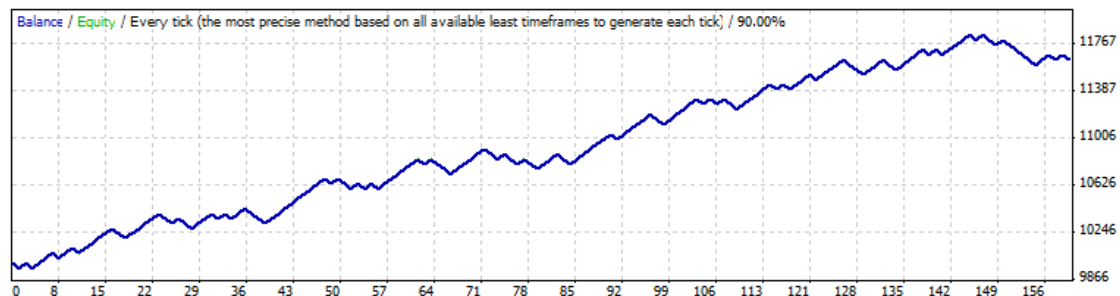
Variable	Value	Start	Step	Stop
MACD1_Status	E			
MACD1_Slow		0	5	60
MACD1_FastDiv	2			
MACD1_Min	0			
MACD1_Max	100			
MACD1_Multi	10000			



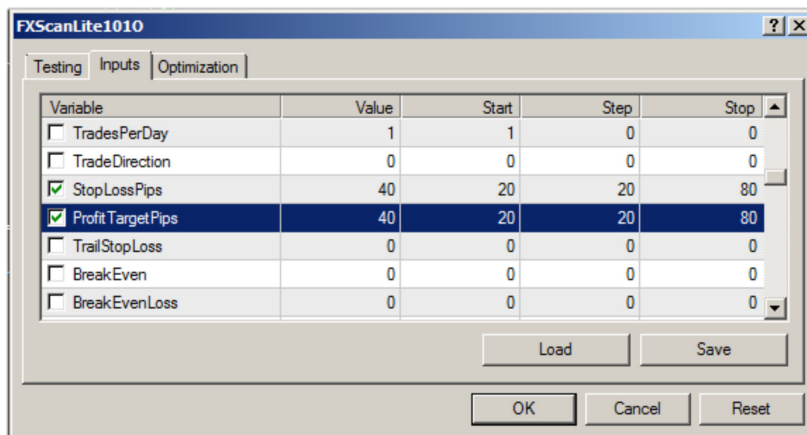
Ensure that the Check Box is ticked for MACD1_Slow as this is the field we want to optimise. A 0 value for this value is equivalent to disabling the indicator. This allows the optimisation run to determine if the indicator is contributing to the overall profitability of the strategy without having to change the Status value.

Set "Every Tick" as the model and hit Start.

From the results you can see that a MACD1_Slow value around 45 improves the overall results

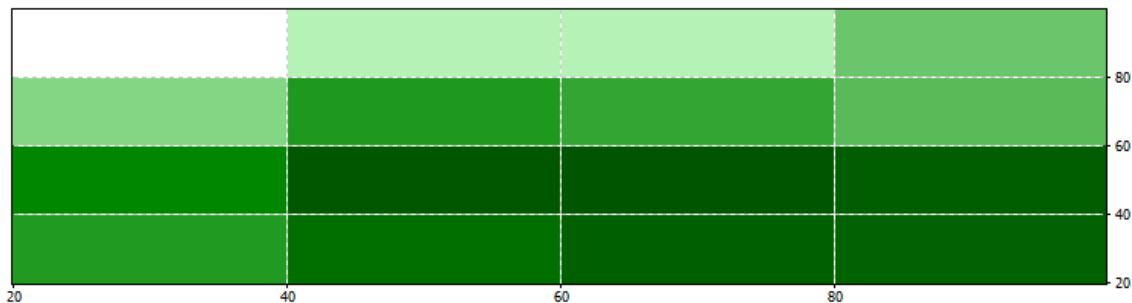


Now let's try optimising two parameters at once, the Stop Loss and Profit Target values



The results suggest that a larger Stop Loss will slightly improve the results with a drop in profit factor and vice versa. Let's leave it at 40 for both Stop Loss and Profit target as this seems a good compromise.

Another useful way to view the results is to use the 2D surface optimisation graph. Below you can see Stop Loss (X-Axis) versus Profit Target (Y-Axis).



As you can see there are many parameters you can optimise this way.

Also included in the lite version is the MA (moving average) indicator which returns the number of pips the current price is above the moving average or a negative number for the number of pips below the moving average. When used as an entry indicator it enters a long trade if the number of pips above the price is between the specified MA1_Min and MA1_Max values. The same logic applies with negative values applying to short positions. This is assuming MA1_Multi is set to 1. This logic is reversed if MA1_Multi = -1. For an exit strategy the same logic applies again except it closes the position rather than opens it. If the number of pips above the price is between the specified MA1_Min and MA1_Max it will exit a long position assuming MA1_Multi is set to 1.

By using the strategy tested to optimising the MA1_Period, MA1_Min and MA1_Multi you should be able to improve the profit factor of this strategy, try it yourself.

The strategy we have developed is very basic strategy and FX-Scanner is capable of significantly more complex strategies especially with the Pro version.

WATCH OUT FOR CURVE FITTING

When using the strategy tester it is important that you consider that the positive results you may get are probably, in part, as a result of “Curve Fitting”. One way to really check the validity of your strategy is to select a period of time that you do not use for optimising. This might be the most recent 6 months or year.

USING FX-SCANNER PRO

Let’s start with the strategy we created above and introduce some of the more powerful features available in the Pro version. There are many more indicators that could be added to the strategy following the same basic process described above. Let’s use the CCI Indicator as you would for a scalper such that it trades into short term oscillations. Set the following values for the CCI indicator.

The screenshot shows the 'Inputs' tab of the FXScanner1010 window. The table lists the following variables and their values:

Variable	Value	Start	Step	Stop
☒ ICCI	CCI Indicator			
☐ CCI_Status	E			
☐ CCI_TimeFrame	0	5	10	15
☐ CCI_Period	15	28	4	40
☐ CCI_AppPrice	0	0	1	6
☐ CCI_Shift	0	0	1	1
☐ CCI_TrendShift	0	0	-1	-1

Buttons: Load, Save, OK, Cancel, Reset

The screenshot shows the 'Optimization' tab of the FXScanner1010 window. The table lists the following variables and their values:

Variable	Value	Start	Step	Stop
☐ CCI_AppPrice	0	0	1	6
☐ CCI_Shift	0	0	1	1
☐ CCI_TrendShift	0	0	-1	-1
☐ CCI_Min	0	0	10	50
☐ CCI_Max	100	80	20	100
☐ CCI_OffSet	0	0	0	0
☐ CCI_Multi	-1	1	0	0

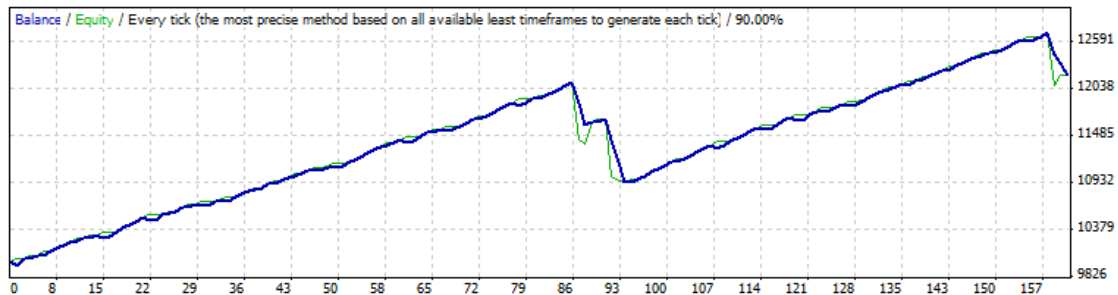
Buttons: Load, Save, OK, Cancel, Reset

This should reduce the total number of trades however improve the profit factor

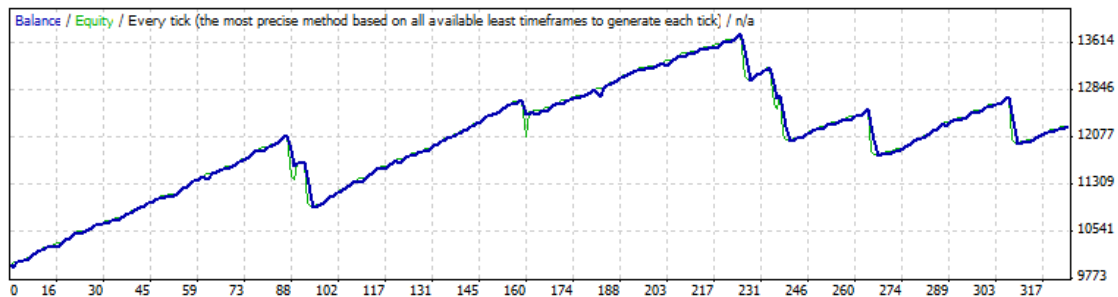
Now let's look at the multi position feature. Apply the following settings:

- Increase the StopLossPips = 250 to allow the multi position feature to build a position.
 - Set MultiPosition = 3 indicating that a maximum of 3 trades will be opened at one time.
 - Set MultiOpenScore = 1. This is the required score for subsequent trades.
 - Set the MultiPosGap = 20. This sets the minimum gap between trade entry points.
 - Set CCI_Status = "EE". This indicates that the CCI status is required for initial and subsequent trades.
- By not changing the Status value for MACD and Momentum these indicators are only used for the initial position.

The results should show profitable results for 2010.



However if you run this strategy beyond 2010 it is no longer profitable. Clearly this is a high risk strategy.



There is now even more opportunity to optimise this strategy with the strategy tester as we have done previously.

This is still a very basic strategy. However by using these straight forward principles on this and other currency pairs you should be able to see that the scope for exploring potential strategies is almost infinite. The only limits will be your imagination, determination and CPU power. Have fun and good luck.

FX-SCANNER PARAMETERS

GENERAL SETTINGS

Version	Parameter	Description
All	StrategyName	Used for Trade Comments and Auto magic numbers.
All	StrategyVersion	Used for Trade Comments and Auto magic numbers.
All	Lots	Used to define the amount of lots to be traded. Any value above 0 over rides the Risk Parameter.
All	Risk	This will adjust your trade size based on your account balance. A risk of 0.01 will equate to a lot size of 0.01 for each \$1000 in your account. The resulting lot size is displayed in the on chart information.
All	Pair	Use this to limit the strategy to a specified currency pair such as "EURUSD" otherwise leave blank.
All	TimeFrame	Use this to limit the strategy to a specified chart timeframe otherwise leave as 0.
All	GMTauto	This will automatically set the GMT value. This function does not work in back testing. For back testing ensure the GMTShift value to suitable for the historic data provided by your broker.
All	GMTshift	The difference between Greenwich Mean Time and the server time for your broker.
All	MagicNumber	This is a unique number used by MT4. You can enter it manually or let FX-Scanner generate a number by entering "Auto". If you use Auto the first 3 letters of the strategy name and the version number are used to generate the unique magic number. Digits from the version number less than 1 decimal place or greater than 99 are discarded.
All	MaxSpread	If the current spread is greater than the nominated MaxSpread the strategy will not trade.
All	ECNBroker	Select True if your broker is an ECN broker.
All	LogTrades	If True FX-Scanner will log information regarding trades in a file called FXScannerLog.txt that is stored in the Files Folder. On Chart information can also be stored in this file if the strategy is trading real time or for back testing in Visual Mode.
Pro	ActivationCode	This number is supplied upon purchase of FX-Scanner.

TRADE MANAGEMENT

All	OpenScore	This is the total score required to enter a trade. If all indicators used have their status set to mandatory this field becomes redundant.
Pro	ExitScore	This is the total score required to exit a trade. If all indicators used have their status set to mandatory this field becomes redundant.
All	TradeHourStart	This nominates the starting time of a strategy. Any hour greater than 24 will automatically have 24 subtracted. This allows for an optimisation range such as 18 to 26.
All	TradeHourEnd	This nominates the ending time of a strategy. Any hour greater than 24 will automatically have 24 subtracted. A value of -1 will disable this field such that the strategy only trade during the hour nominated in the TradeHourStart field.
All	AdditionalHour1	Additional hours can be nominated outside the range between TradeHourStart and TradeHourEnd. A value -1 disables this field
All	AdditionalHour2	As above
All	AdditionalHour3	As above
All	TradeDays	This nominates the days of the week the strategy will trade. The days are selected based on the string "SMTWTF" representing the days of the week. A day that the strategy is not intended to be traded is replaced with a "-". "-MTWT-" indicates that the strategy will only trade Monday through Thursday.
All	TradesPerDay	This nominates the maximum number of trades the strategy will open per day. This includes each trade of a multiple position strategy
All	TradeDirection	This can limit the strategy to Long (1) or Short (-1) positions. This function is disabled by nominating a "0" value.
All	StopLossPips	This nominates the fixed Stop Loss for the trade in pips. If a value of -1 is selected the Stop Loss value is determined by the Stop Loss / Take Profit Indicator (see below).
All	ProfitTargetPips	This nominates the fixed Profit Target for the trade in pips. If a value of -1 is selected the Profit Target value is determined by the Stop Loss / Take Profit Indicator (see below).
Pro	TrailStopLoss	This nominates a trailing Stop Loss in pips.
Pro	TrailProfitTarget	This works similar to a trailing Stop Loss however it trails the profit target.
Pro	BreakEven	Once a position achieves the nominated BreakEven value in pips the Stop Loss in set to the order entry value. This ensures that the position will at worst break even.
Pro	BreakEvenAdj	This adjusts the BreakEven function such that the Stop Loss will be moved to Break Even + BreakEvenAdj in pips. A BreakEvenAdj of 1 will ensure you get at least a 1 pip profit.
Pro	BreakEvenLoss	Once a position goes into loss more than the BreakEvenLoss value in pips the Profit Target in set to the order entry value.
Pro	BreakEvenLossAdj	This adjusts the BreakEvenLoss function such that the Profit Target will

		be moved to Break Even + BreakEvenLossAdj in pips. A BreakEvenLossAdj of 1 will give you a 1 pip profit if the Profit Target is hit.
Pro	WaitLossMin	The amount of bars to wait after a losing trade.
Pro	LossLotInc	The amount traded will be multiplied by this value in the case of a losing trade. This is a high risk option which will attempt to recover losses
Pro	LossLotMax	This is the maximum lot value that the LossLotInc function will increase the lot value to.

MULTI POSITIONS

Pro	MultiPosition	This nominates the number of positions the strategy can use. The fields listed below in this table are all redundant unless this field has a value greater than 1.
Pro	MultiOpenScore	Similar to the OpenScore and ExitScore described above this field nominates the score required to open a subsequent position that is part of a multiple position strategy.
Pro	MultiPosTP	If this field is set to 0 then each position in a multi position strategy has a unique Take Profit. If this field is set to 1 the Take Profit value nominates in ProfitTargetPips applies to all positions.
Pro	MPTradesPerDay	Use this to limit the number of "Multi Position Trades" per day.
Pro	MultiPosLotInc	The number of lots for all subsequent positions in a multi position strategy is multiplied by the nominated value. A value of 2 will "double down".
Pro	MultiPosBuildDir	This field nominates if subsequent positions are opened when the initial position is in profit or loss. -1 indicates that subsequent positions are opened when the initial position is in loss (position building)
Pro	MultiPosGap	This is the minimum gap between positions in pips.
Pro	MultiPosRT	This option adjusts the lot size of the next position such that the overall profit target will be achieved by a move of MultiPosRT pips. Use 0 to disable.
Pro	MultiPosRTMax	This limits the maximum lot size determined by MultiPosRT.
Pro	MaxPipLoss	This option exits all positions if the total loss for a multi position system exceeds MaxPipLoss. Use 0 to disable.

INDICATOR SETTINGS GENERAL

All	Status	See Status Field paragraph above.
All	TimeFrame	The Time Frame used for the indicator.
All	Method	Relates to types of moving averages:- • 0, Simple moving average • 1, Exponential moving average • 2, Smoothed moving average • 3, Linear weighted moving average

All	AppPrice	Relates to the applied price for the indicator • 0, Close price • 1 Open price. • 2 High price • 3 Low price • 4 Median price, (high+low)/2 • 5 Typical price, (high+low+close)/3. • 6 Weighted close price, (high+low+close+close)/4.
All	Shift	Shift relative to the current bar the given amount of periods ago
All	Mode	Must correspond with the index used by one of SetIndexBuffer function within the indicator. Typically 0.
Pro	ABS	This setting allows for an absolute value such as applied to the ATR indicator (see above).
Pro	TrendShift	This will filter the result based on the change in the indicator for the last bar. Assuming a positive result for the indicator a value of TrendShift= 1 requires that the indicator has also increased in value in the last bar. This can be used to check that the indicator is not changing direction in the last bar. This could be useful in catching a trend. A value of -1 is the opposite of the above. For a positive indicator result the -1 will filter the result for a decrease in the indicator result for the last bar. This could be used to identify over bought / sold conditions. 0 disables this function.
Pro	ProfMin	This will filter the indicator based on the current profit falling between the ProfMin and ProfMax values. It is available for all custom and external indicators.
Pro	ProfMax	See above.
All	Min	This is the minimum value required for an indicator to score.
All	Max	This is the maximum value required for an indicator to score.
All	Offset	This is used to normalise indicator output to a nominal -100 to 100 range. If an indicator inherently outputs within a range 0 to 100 the offset would be -50 and the Multi (multiplier) would be 2. The offset is applied first.
All	Multi	This multiplies the indicator output. It can be used to bring an indicator output into a nominal -100 to 100 range. The MACD is an example of an indicator that would need to be multiplied to bring into the nominal range. This number can also be negative.

ENTRY INDICATOR

Pro	MAPeriod	The inbuilt entry indicator is a method of optimising position entry. It is based on 2 moving averages using highs and lows. Selective entry into the range established between these moving averages has improved results (See Strategy Development – By Example).
Pro	Entry_Limit	For a long position an Entry limit of 50% will limit the entry point to the lower half of the range between the moving averages.

MOVING AVERAGE

The moving average indicator returns the difference between the moving average and the current price in pips. If the price is above the moving average the result will be positive and vice versa.

MACD

All	MACDX_Slow	This is the Slow period used for MACD. Setting this field to 0 is equivalent to setting the MACDX_Status to 0. This allows the optimisation run to determine if the indicator is contributing to the overall profitability of the strategy without having to use Status as an additional optimisation variable.
All	MACDX_FastDiv	An alternative to running the optimisation for both Fast and Slow, FastDiv sets Fast=Slow/FastDiv. By setting FastDiv to 2 you will only need to optimise Slow. You can then try differing values for FastDiv

MOMENTUM, CCI, RSI

Pro	XX_Period	Setting this field to 0 is equivalent to setting the XX_Status to 0. This allows the optimisation run to determine if the indicator is contributing to the overall profitability of the strategy without having to use Status as an additional optimisation variable.
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STOCHASTIC

Pro	Stoch_K	Setting this field to 0 is equivalent to setting the Stoch_Status to 0. This allows the optimisation run to determine if the indicator is contributing to the overall profitability of the strategy without having to use Status as an additional optimisation variable.
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PARABOLIC SAR

Pro	PSAR_Step	Setting this field to 0 is equivalent to setting the PSAR_Status to 0. This allows the optimisation run to determine if the indicator is contributing to the overall profitability of the strategy without having to use Status as an additional optimisation variable.
Pro	PSAR_StepMulti	If this value is greater than 0 then $PSAR_Max = PSAR_Step * PSAR_StepMulti$. A typical value for PSAR_StepMulti is 10. This allows for more efficient optimisation, see MACDX_FastDiv.
Pro	PSAR_Cross	If set to 1 then the indicator will score when PSAR crosses the price. The indicator will score a 1 for crossing from below to above and vice versa.

AVERAGE TRUE RANGE (ATR) (PRO VERSION ONLY)

The ATR indicator is unusual as the result is always positive and gives no indication as to whether to trade long or short. As such its score will always match the most frequent score for the other indicators. This absolute value (ABS) function can also be applied to other indicators.

If you had 4 indicators including ATR and 2 of them scored 1 while another scored -1, the ATR Score will be 1 as it's the most common score.

CUSTOM INDICATORS

All	CustX_Name	The custom indicators allow you to load indicators, particularly oscillators into FX-Scanner. The Name is simply the name of the indicator such as MACD.
All	CustX_ParamCount	This is the number of parameters required by the. In the case of MACD this value will be 3.
All	CustX_ParamX	These are the parameters that are sent to the indicator. For MACD the Param1 to Param3 would be Fast, Slow and Signal.
Pro	CustX_Weight	The weighting for this indicator can be increased beyond the default 1 which allows you to allocate a higher weighting to the total score. This can be used if you want this indicator to override others.

EXTERNAL INDICATORS (PRO VERSION ONLY)

External indicators work the same as Custom indicators except that the signal data comes from FXScanExternal.ex4 which is an optional code module for those interested in writing code to use in conjunction with an FX-Scanner strategy.

EXIT INDICATOR (PRO VERSION ONLY)

Exit_MinProfitPips	When Exit_Status = x or X the exit indicator will score if the profit exceeds the value of MinProfitPips. If you use an Exit Score of 2 and have another indicator set for an Exit such as a MACD you can use the MACD to exit a position provided a nominated minimum profit has been achieved
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STOP LOSS / TAKE PROFIT INDICATOR (PRO VERSION ONLY)

SLTP_Name	This is the name of the indicator used to determine the dynamic Stop Loss and Take Profit values. The default value is "FXScanSLTP" which is an indicator supplied with FXScanner. This indicator can be modified or replaced by a custom indicator. "FXScanSLTP" will return a Stop Loss and Profit Target value in pips based on the volatility of the market considering the parameters below
SLTP_Param1	For "FXScanSLTP" this is the period for a volatility formula used
SLTP_Param2	For "FXScanSLTP" this is the fraction of the range resulting from the volatility formula that will result in a Stop Loss value in pips. A value of 0.3 is a reasonable starting point when using this function.
SLTP_Param3	For "FXScanSLTP" this is the fraction of the range resulting from the volatility formula that will

	result in a Take Profit value in pips. A value of 0.3 is a reasonable starting point when using this function.
MinStopLoss	You can limit the result of the Stop Loss / Take Profit indicator by using these fields.
MaxStopLoss	
MinTakeProf	
MaxTakeProf	