EA Signal Builder – User Guide (Draft for Beta Version – Feb 2014)
Molanis.com
**(4 minute video tutorial can be found here**
**http://www.youtube.com/watch?v=0tk6_JB2354)**

Overview
The EA Signal Builder is an icon in Molanis Strategy Builder. It uses the latest technology of visual coding so you can create your trading signals visually. It is a real WYSIWYG signal builder.

WYSIWYG is an acronym for "What You See Is What You Get". It means that you can create your own Forex signals copying what you see in a trading chart.
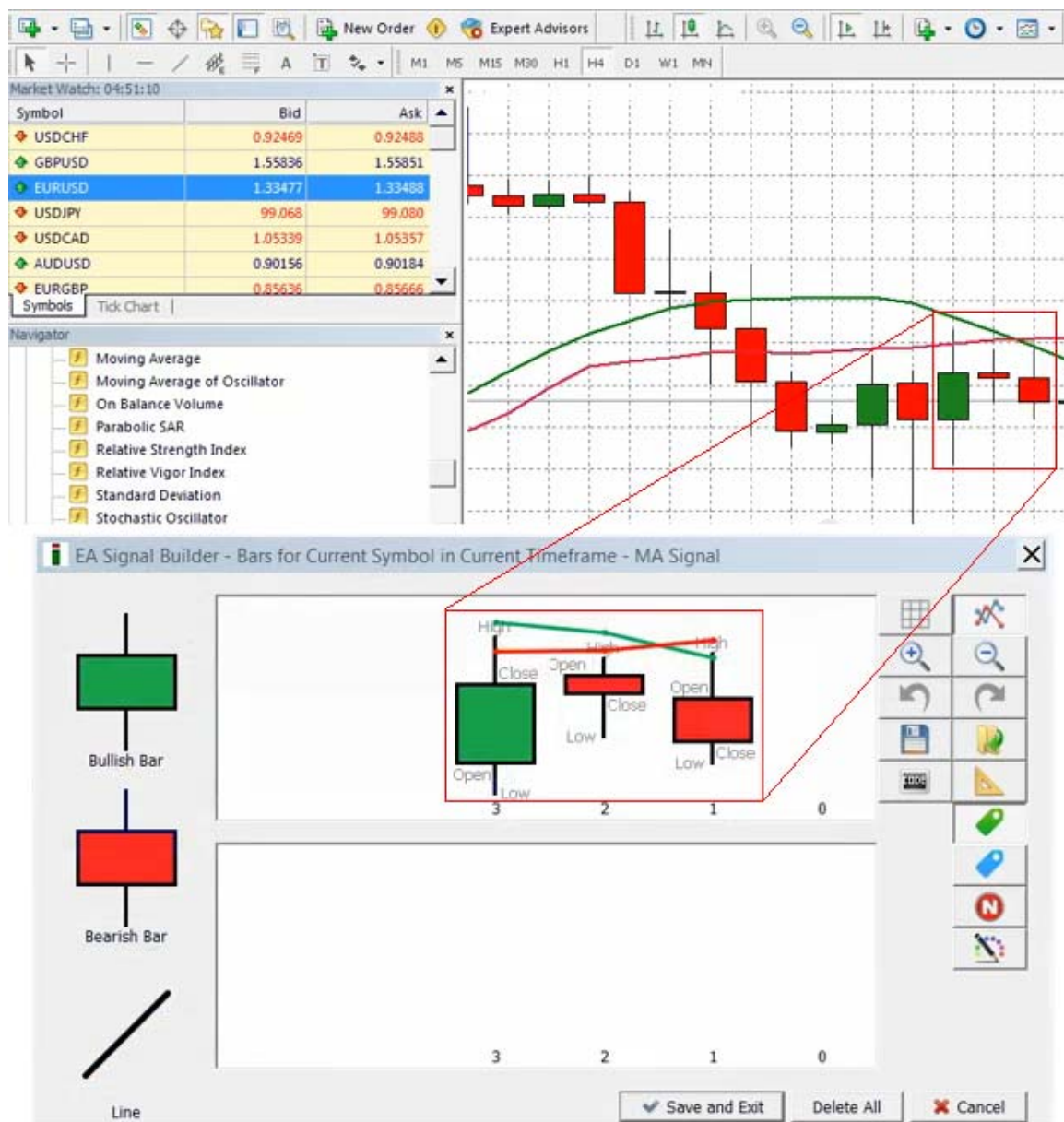
The image above represents a moving average crossover with a bar reversal. This signal was copied from MetaTrader.

The EA Signal Builder allows users to create trading signals. Those signals act as triggers to execute actions like BUY and SELL. The following trading diagram shows a basic EA.
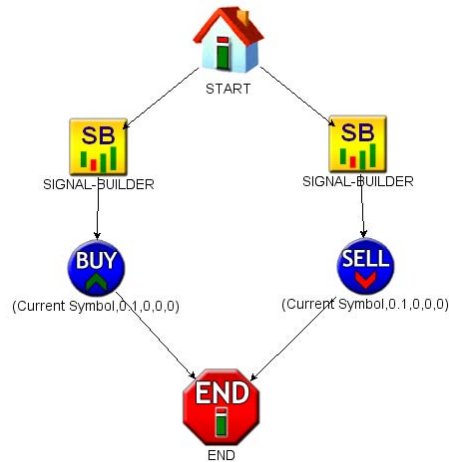
The EA Signal Builder icon is used like the TA and TA+ icons. You can connect it to any trading icon in the Strategy Builder to create powerful Expert Advisors.

Interface
The EA Signal Builder has two main panels: The bar panel and the lines panel. In the bar panel you create signals based on bars and indicators. In the line panel you create signals based on indicators.
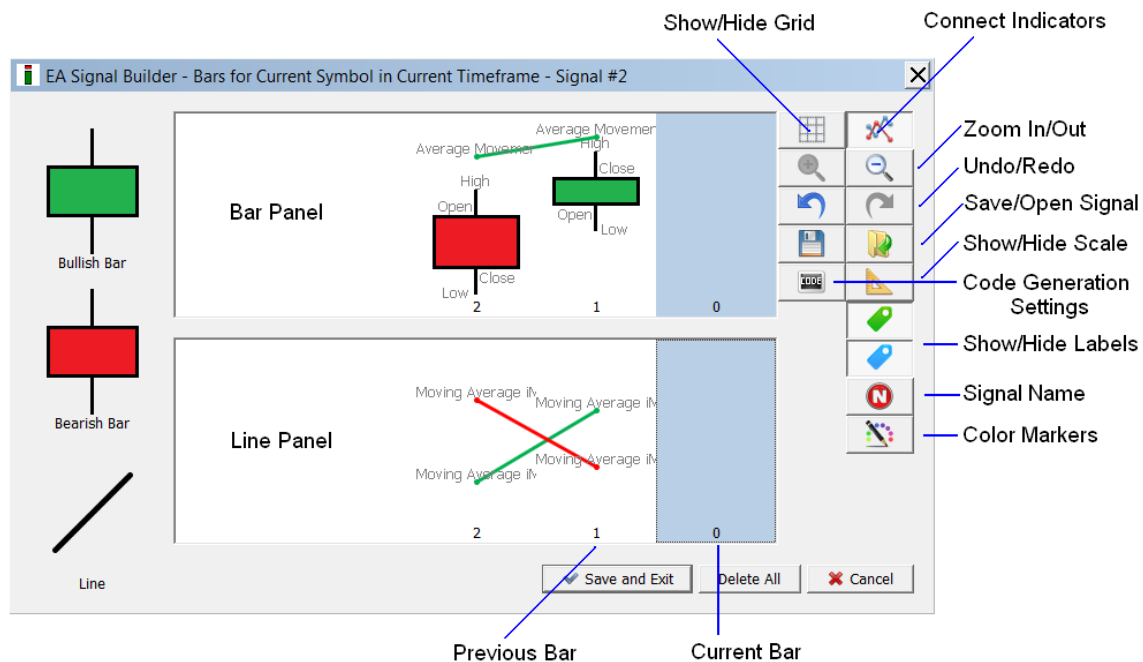
Creating Signals is really simple just drag bars and indicator lines and drop them into the panels. Adjust the price in the bars using your mouse and define the indicator values for the lines.

Main Options
-Show / Hide grid : The grid is important because it helps when comparing points located in different positions
-Connect Indicators : You can connect indicators that are defined for consecutive positions
-Zoom in / Zoom out
-Undo / Redo
-Save / Open Signals : You can save your signals as files to be reused in other strategies or to be shared with other traders
-Code Generation Settings : This is the place where you can define different options related to code generation. **Users should use color markers as the preferred option for creating signals.**
-Show / Hide scale : The scale is only required and only provide valuable information if you add lines with numeric values or constants i.e. line = 25 If you are not using lines with numeric values or constant the scale will generate an automatic scale for you to have a relative sense of point locations.
-Show / Hide bar labels : Shows bar prices
-Show /Hide line labels : Shows a summary of the line value (usually a short description of the indicator)
-Signal Name : A place to define the signal name as a short text
-Color markers : To activate / deactivate color markers.

Multi currency - Multi timeframe Signals
There are more options using the mouse right click button. The "Change Instrument and Timeframe" allows users to set up the bars for a specific currency and timeframe, which is recommended only for multi currency multi timeframe eas.
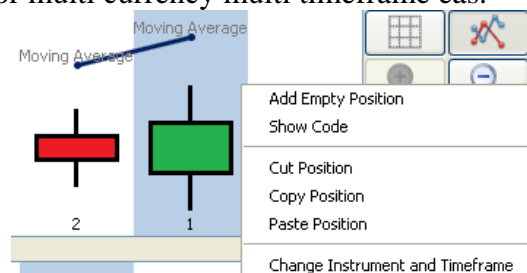

The window title shows the pair and timeframe for the signal. If you are not creating multi timeframe or multi currency you should not assign a pair or timeframe to your signal. This way it will work for any currency and any timeframe.

Bar Position
The bar positions correspond to the bar id. i.e. 0 is the current bar, 1 is the previous bar. Most of the time it is recommended to avoid using position 0 (current bar) unless you trade ticks or your indicator values are calculated using the open price.

Tooltips

Tool tips are shown at any point placing the mouse cursor on top of an icon and waiting for a second. Tool tips explain the icon's purpose.
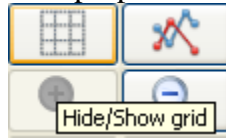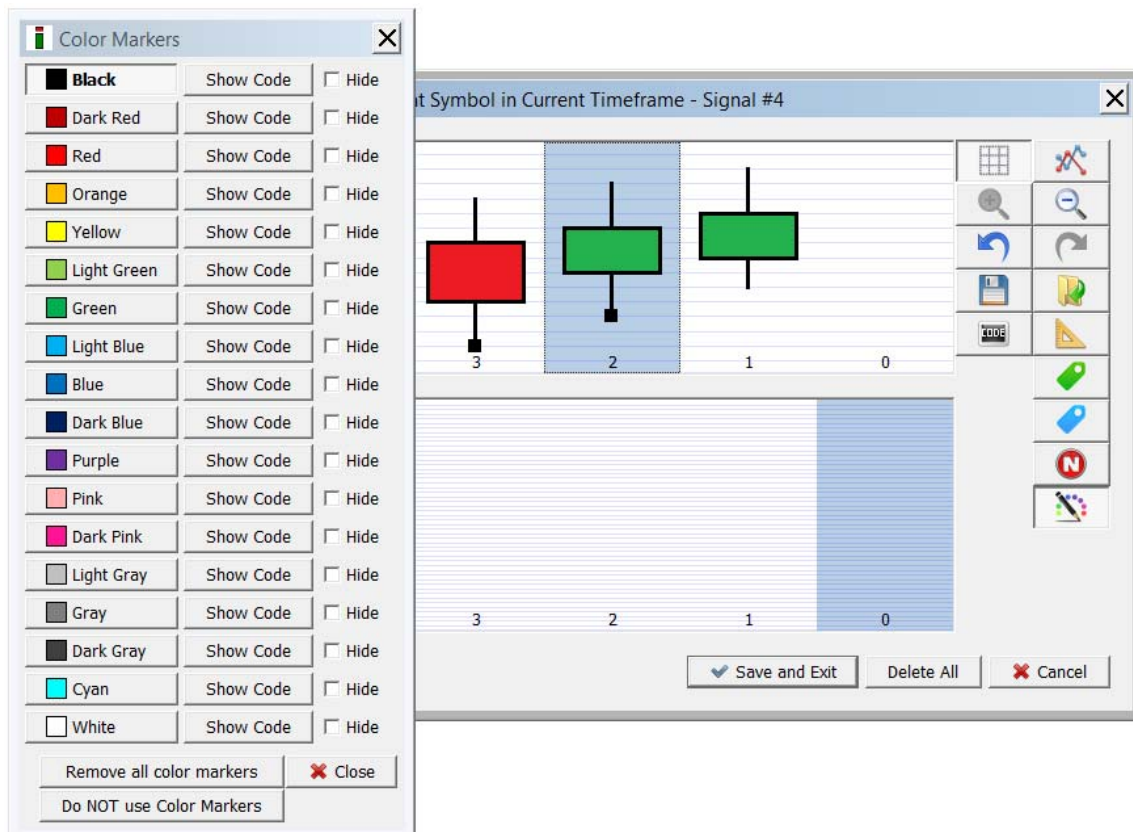

Color Markers

The best feature of the EA Signal Builder is the possibility to use color markers to define your signals point by point. Select a color, mark a point in a bar or in an indicator line. Mark a second or more points and the EA Signal Builder will generate code that compares the marked points.

We realized that the easiest way to define what to compare in a chart is just adding markers - color markers. Users can select a color, mark a point (a bar price and/or indicator), and mark a second (or more points); and the EA Signal Builder will generate code that compare the marked points.

Color Markers : Signal Example

The following signal is made of one bearish bar, followed by two bullish bars that make higher highs and higher lows.

To start add the bars to the chart, and select color markers. Then select black as the color for Color Marker.

To add the black color market, click on the Black color option on the left, and then click on the low price of bar 3. Continue clicking on the low price of bar 2. At this point the black color marker is comparing the low price of bar 3 and the low price of bar 2.

If you click on the Show Code option for the Color Marker black a window shows this code:

```
Code for Color Marker: Black                                          [X]

/* Bar panel: Color marker: Black */
iLow("Current Symbol", Current Timeframe, 2) > iLow("Current Symbol", Current Timeframe, 3)
```

The code can be explained as "The low price in the bar in position 2 is higher that the low price of the bar in position 3"

If you continue and mark bar 1 with the black Color Marker and then with a new Color Marker Blue you mark the high of the bars you end up with a signal like:
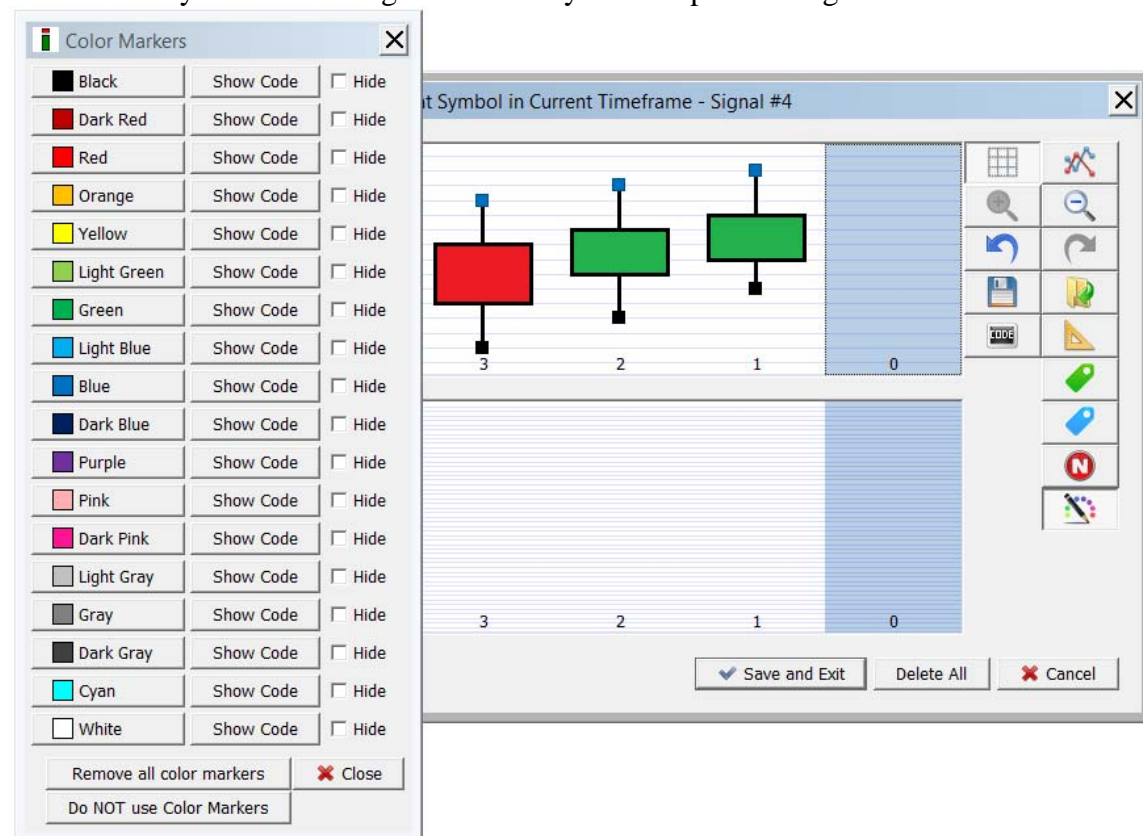

Two different color markers were used. One to compare the high prices and one to compare the low prices. You need to use a color marker per logic sequence. Please note that position 0 is not used for the following reasons:

-If you trade bars, trading conditions are evaluated at the open of the current bar (bar 0). At that time Open=High=Low=Close since the current bar is formed by one tick – the open tick

-The current bar (bar 0) is forming; it changes every time you get a new tick (price update). Thus signals that use the High, Low, and Close price in the bar 0 are not reliable since those prices may change. Indicators and signals that only use the open price are reliable.

-If you trade ticks all signals from the current bar (bar 0) are temporal and may change. Thus you may get many false signals (Signals that change)

-Many traders know the issues related to trading the current bar and decide to trade it anyway since the benefits outweigh the downsides.

The reasons mentioned above are related to the way MT4 works and not to our products.

If you use color markers, all other options to compare lines, bars and prices will be inactive. Under Code Generation Settings the Color Markers have one option:
Generate Code to identify bullish and bearish bars.

If that option is checked, the generated code will add code to identify the direction of the bar (i.e. Open > Close for red/bearish bars or Close > Open for green/bullish bars
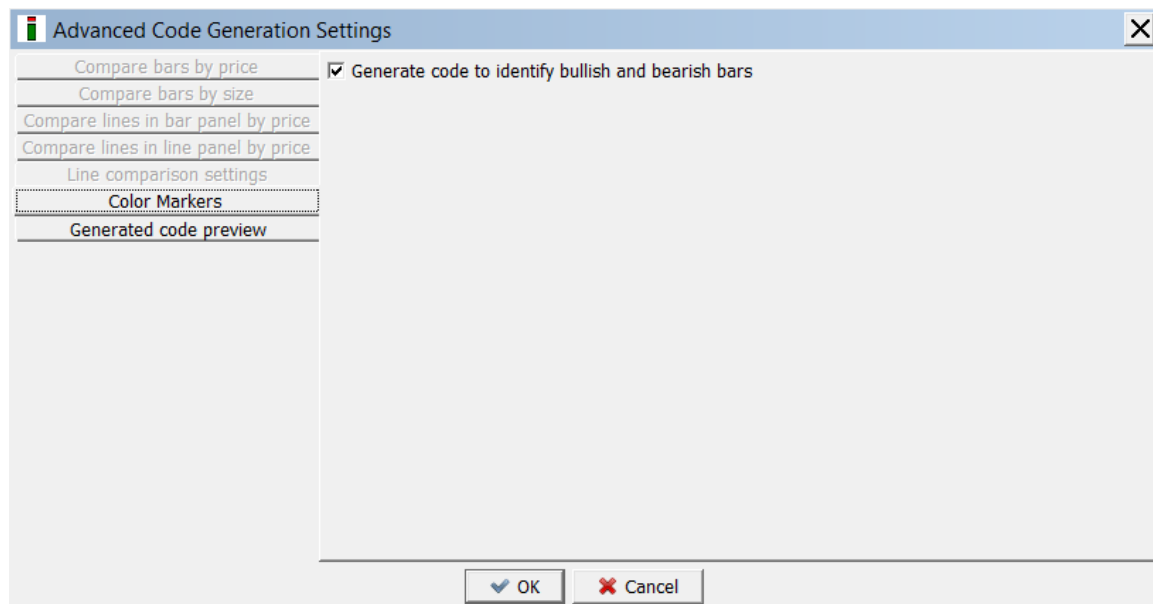
In the following image the first three lines of code identify a bearish bar in position 3, and two green bars in positions 2 and 1.
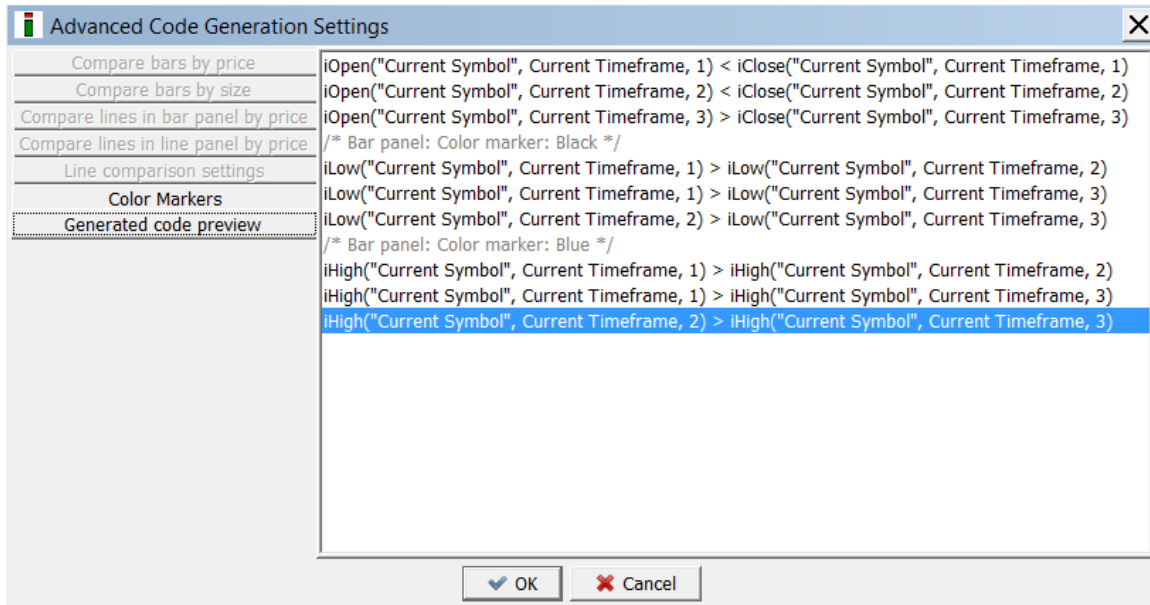
If you unmark the option under code settings "Generate Code to identify bullish and bearish bars.", the generated code will omit those three lines.

Users are encouraged to only use the Color Markers since they are simple to use and really powerful. Expert users are also encouraged to use the Code Generation Settings that are more complex and require a better understanding of automated trading.

Sharing Signals

You can share signals saving them as files that are ready to be used when creating expert advisors with the Strategy Builder

Lines

When you drag and drop a line into the panels, a new window is opened for you to select the technical indicator associated to the line:
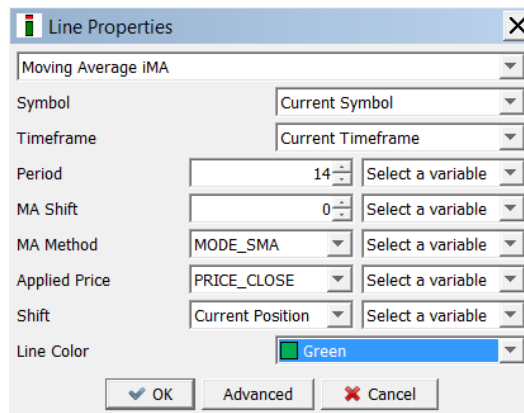

If you want to use a custom indicators, look for the option custom indicator under the drop down menu. Then click on the Import Custom Indicator button.
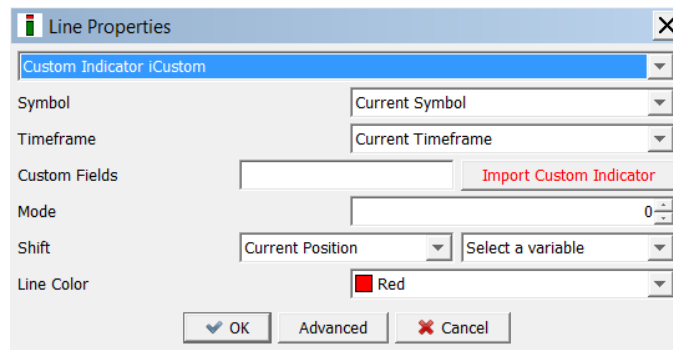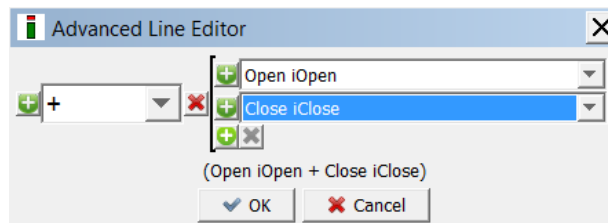
Advanced lines

Use the Advanced line editor to create complex signals and formulas. The EA Signal Builder will understand your signals generating the code for your Expert Advisor.
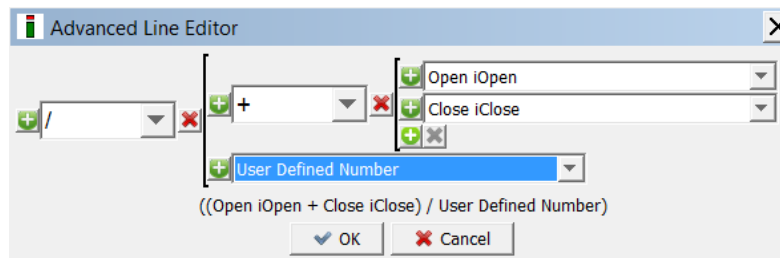
To create an advanced line click on the Advanced button
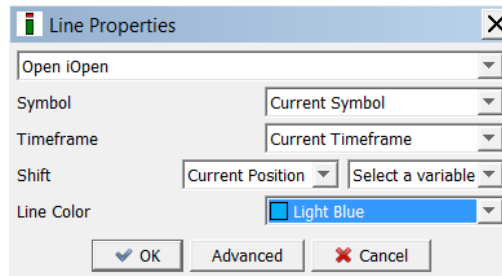
A new window opens. Click on the + green icon to add a new item to the equation. Select + and from the drop down menu select Close

So far the indicator line will have a value equal to Open + Close. Click on the + green icon on the left. Select / and then select user defined number from the drop down menu.

The line now has a value of (Open + Close / A number). If you set the user defined number to 2, the line value will be the average of the Open and Close prices (Open + Close) / 2

**Advanced Code Generation Settings**
In the code generation settings, one can define how the bar comparison, line comparison, and bar-line comparison takes place **when Color Markers are not being used**.

Users are encouraged to use color markers first instead of the Advanced Code Generation Settings since they are simpler and more powerful.

The following example shows how to use the Advanced Code Generation Settings: Add two bars to the bar panel. Move the bar prices until they look similar to the following chart.
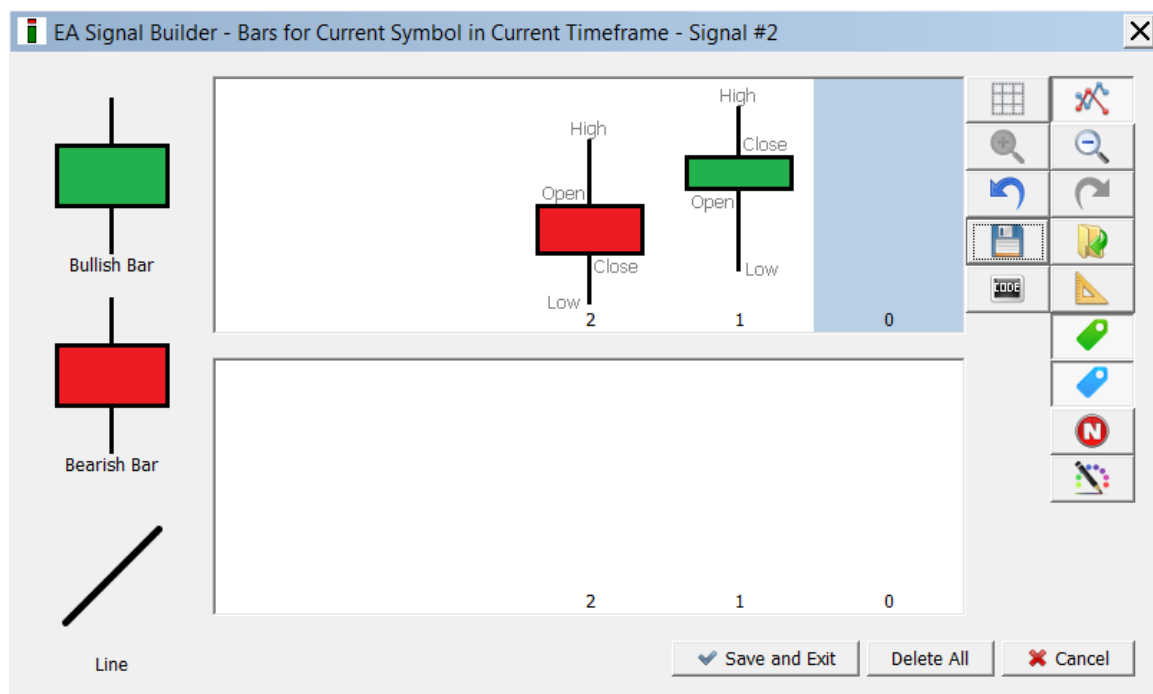

If you go to the Advanced Code Generation settings and click on code preview you will see code that identifies a bearish bar followed by a bullish bar. No other price comparison is made by default.
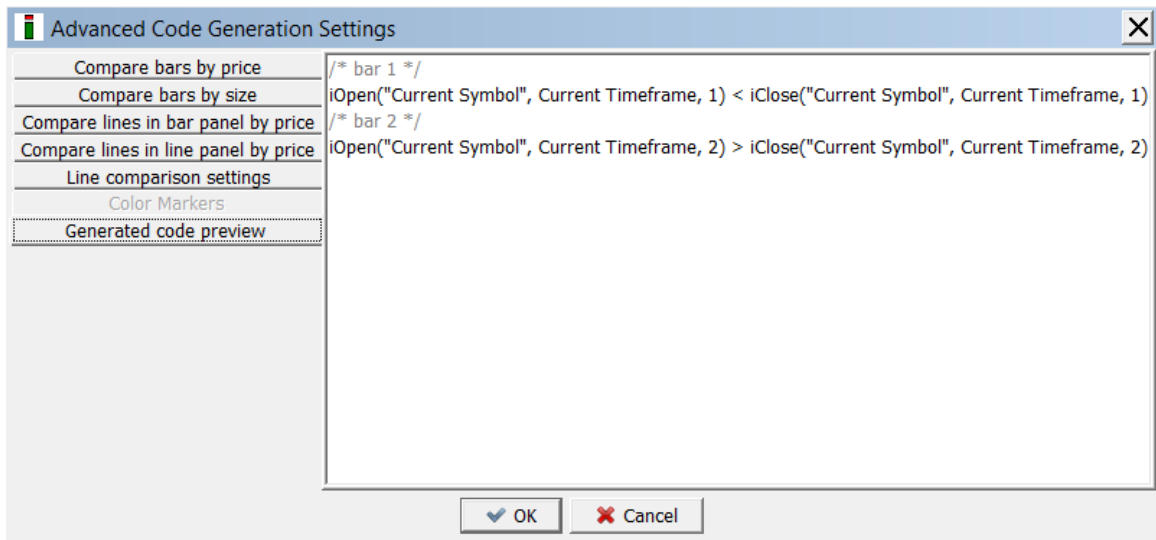
To compare the prices of the two bars, go to Compare bars by price, and add a comparison between position 1 and position 2 as shown in the following image:
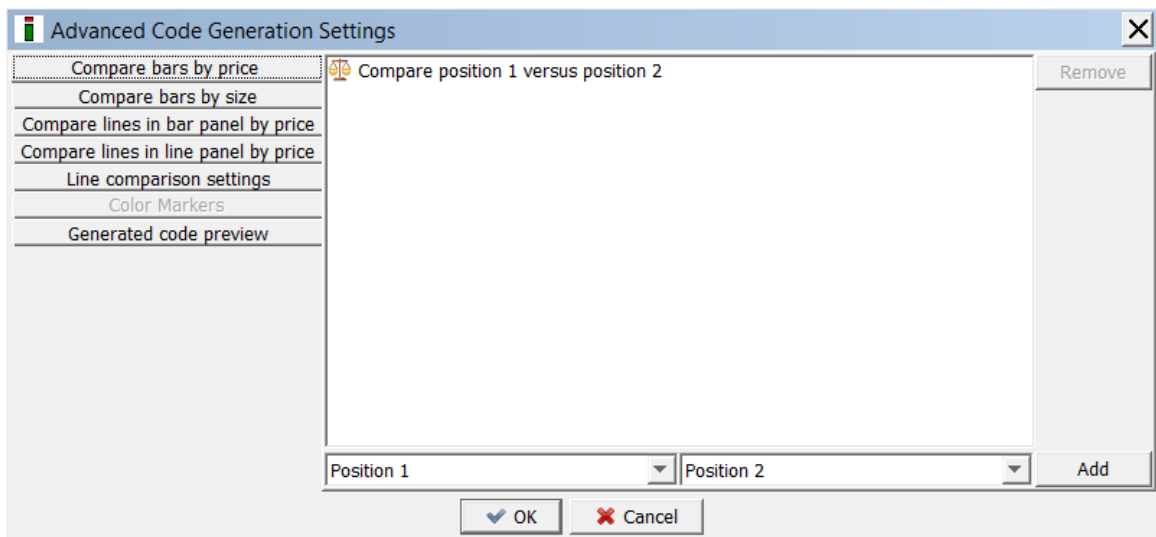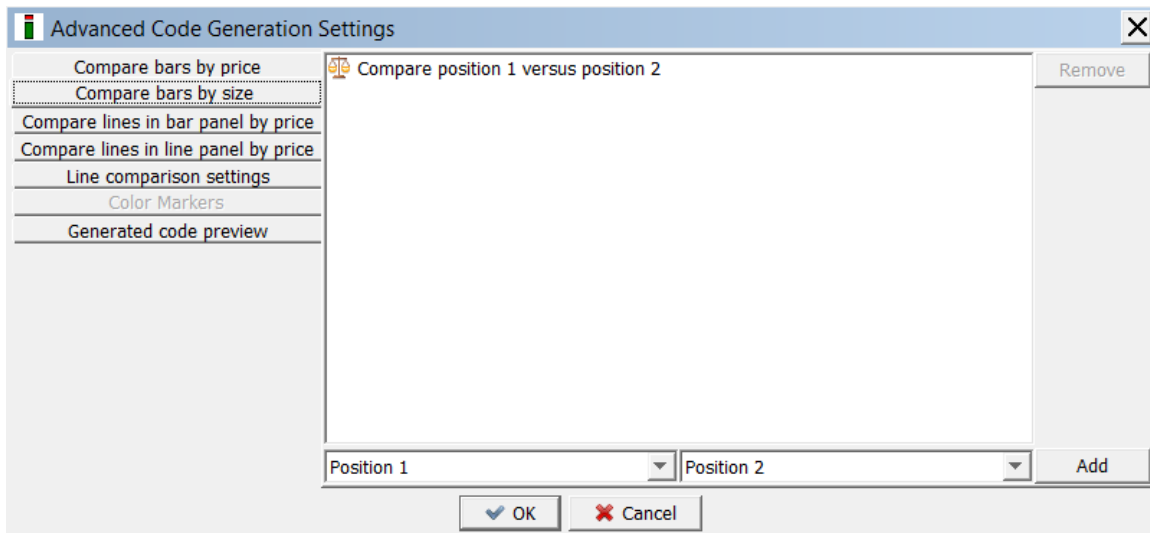

Now a comparison between the two bars prices is made and the generated code looks like:
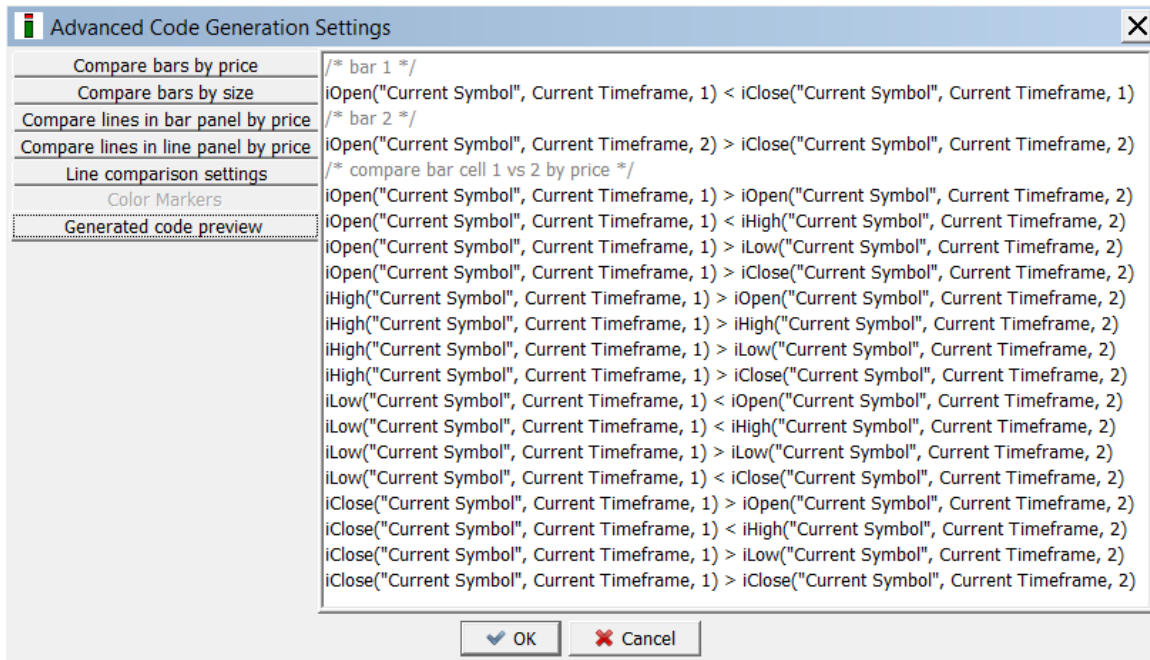
Every price point of the bullish bar is compared with every price point of the bearish bar.

If you also want to compare the relative size of the bars, go to Compare bars by size and add a comparison between position 1 and position 2:
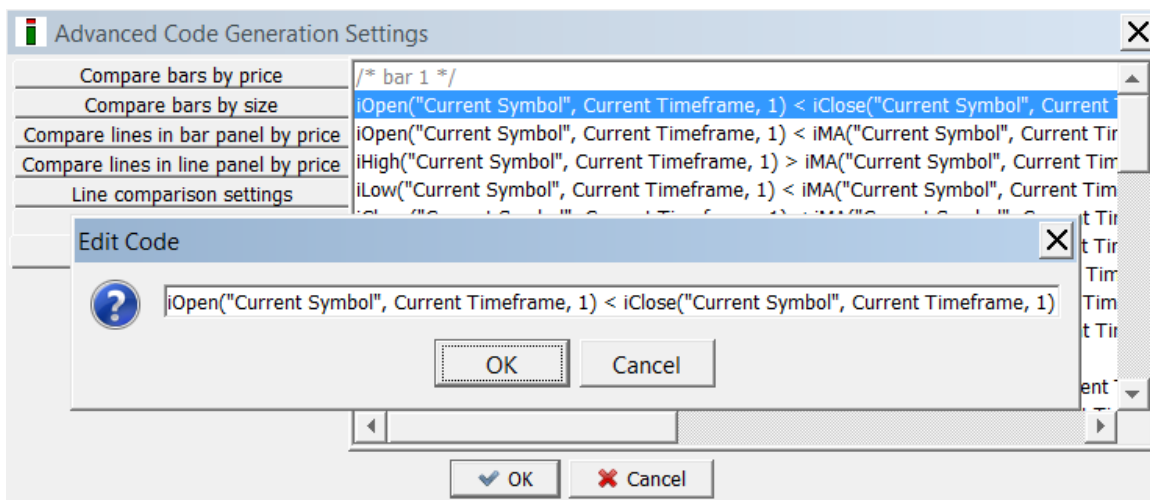

The relative size is calculated using the grid distance
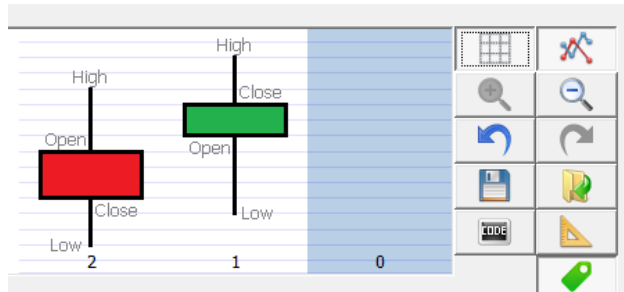
Manual code edition for advanced users

If you are familiar with MQL code and want to change the generated code, go to Generated Code Preview and use the mouse right click option to edit each line of code.

Please be aware that changing the code manually locks the code and new changes to the signal like adding bars and lines will not be reflected in the code.

Line comparison settings
Use these settings to decide if you want to compare lines with lines, lines with bars, and only similar lines.
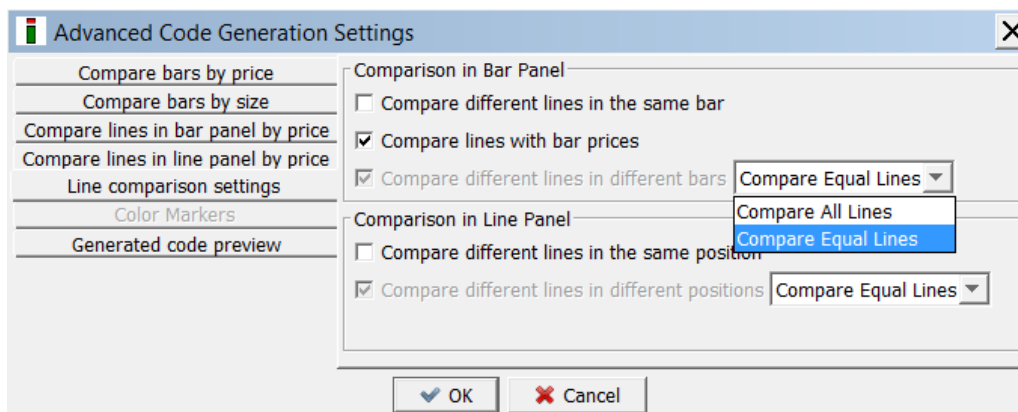
The EA Signal Builder icon is available in our latest beta version as of Feb 2014