



Trading Strategy Manager

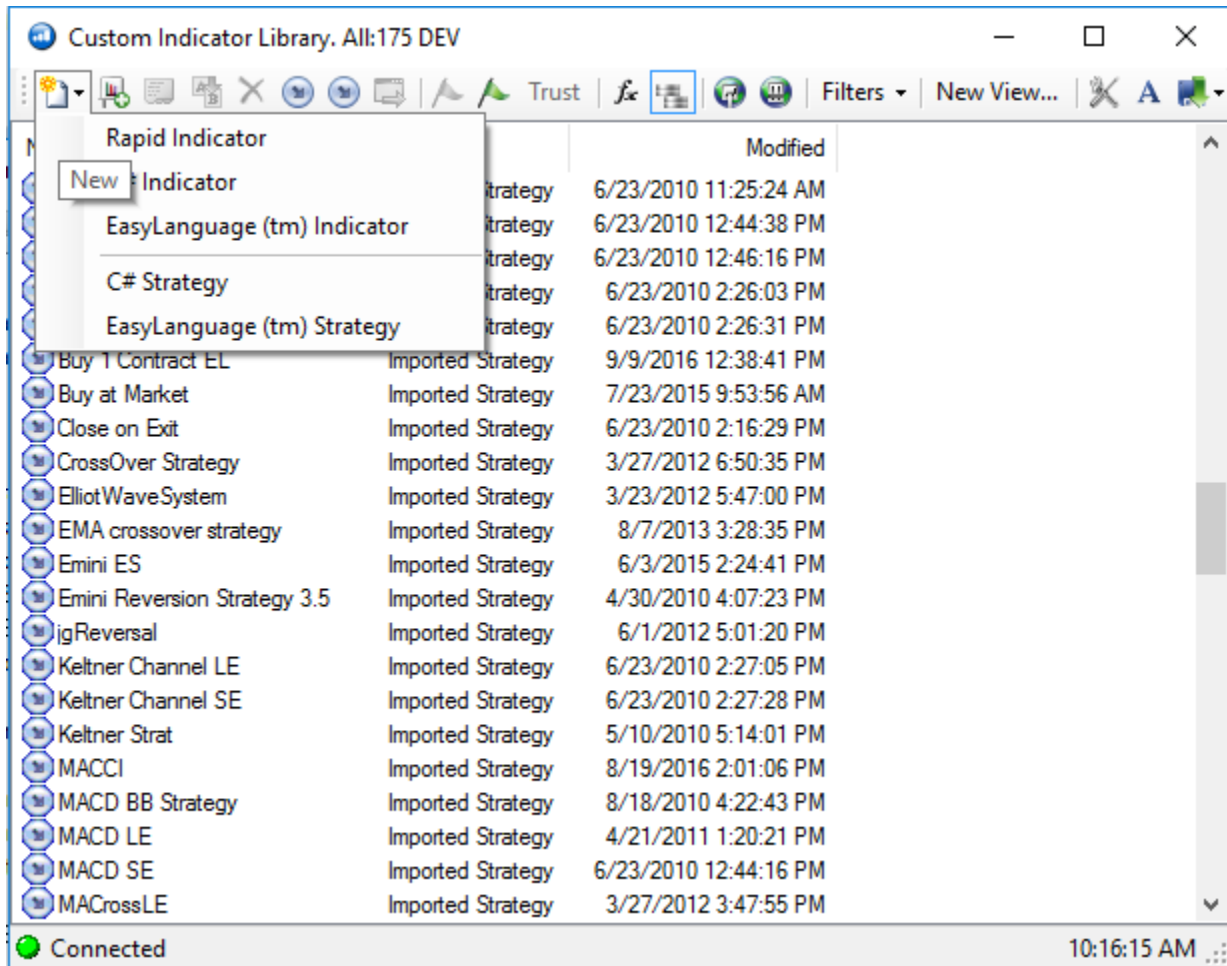
C# and EasyLanguage strategies

February 23, 2018

Import Strategy

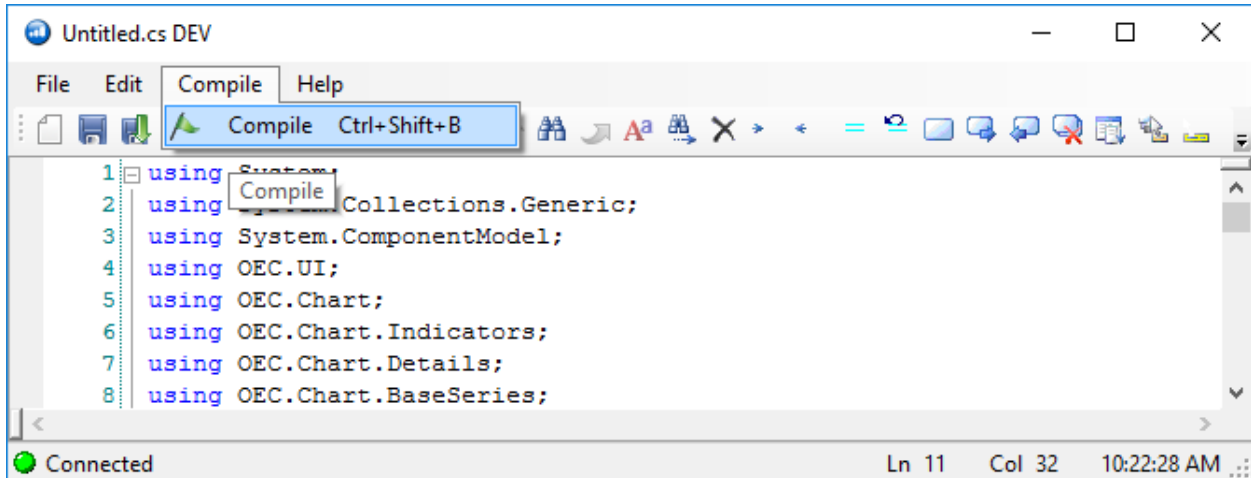
GAIN Trader supports C# coded or EasyLanguage™ strategies. To import a strategy, follow the steps listed below.

1. Go to **Charts & Quotes > Custom Indicators > Custom Indicator Library**:
2. To create a new strategy, click on the **New** icon and select the appropriate strategy type: C# or EasyLanguage:

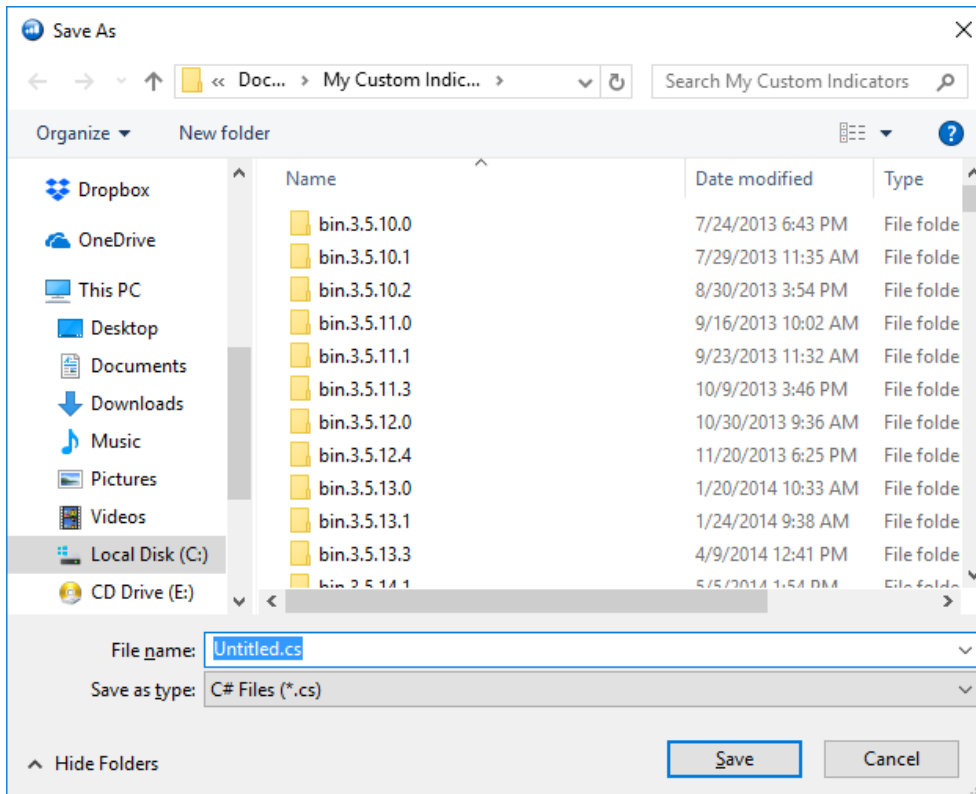


3. Modify the existing sample code, clear out sample code that may be present and paste your code, or write your code in the editor window.

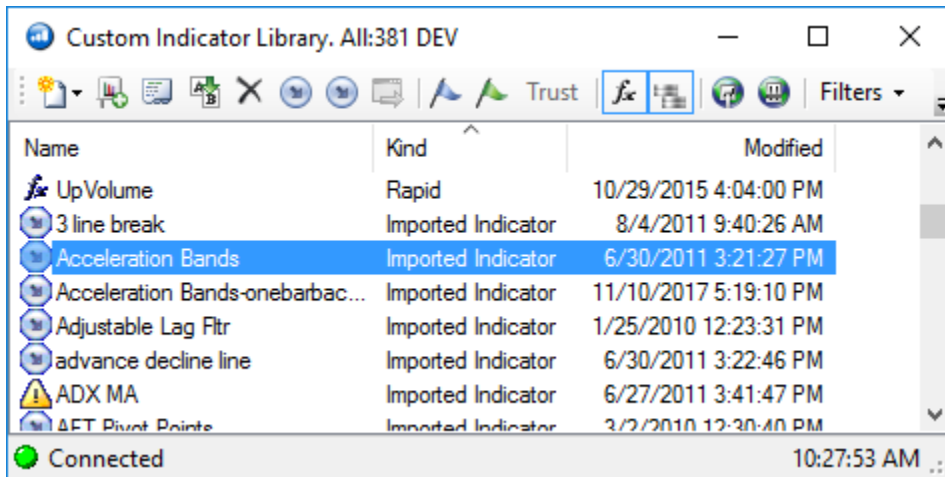
4. Go to **Compile > Compile**:



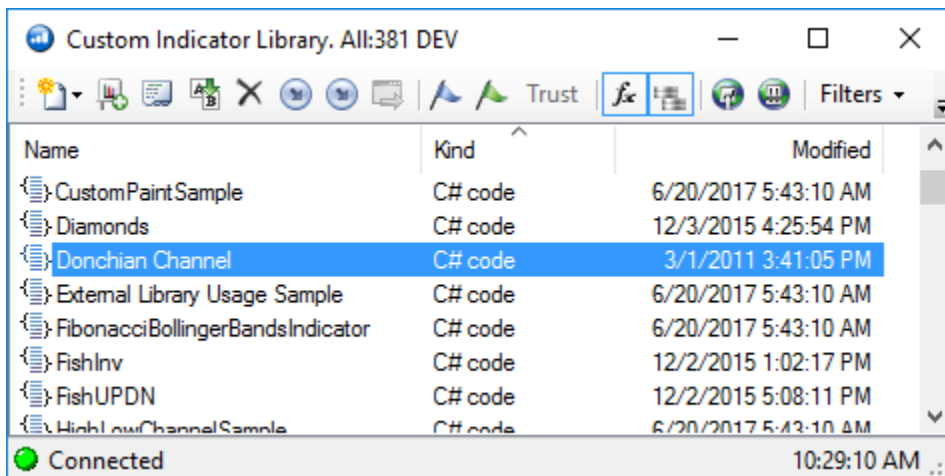
5. When compiling, strategies will save into an My Custom Indicators folder. Any file saved in this folder will appear in Custom Indicator Library in GAIN Trader.



- Once imported successfully, the EasyLanguage strategy will appear with a blue arrow icon pointing down and to the right:



- If C# code is correctly compiled, you will see an icon with two brackets with horizontal lines in between:



Reference Guides

For assistance in writing C# code, click on the icon on far right called “Context Help” or navigate to the folder C:\Program Files (x86)\OEC\Plugins\prod 3.5\Chart Package\CustomIndicators\help.

Or, review the following MSDN links:

- <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/index>
- <http://msdn.microsoft.com/en-us/library/default.aspx>

For assistance in writing TradeStation® EasyLanguage, refer to the following third-party documents.
(Source: <https://www.tradestation.com/university/learning/easylanguage-books/>)

PDF – EasyLanguage Functions:

<https://s3.amazonaws.com/easylanguage/EasyLanguage/EasyLanguage+Functions+and+Reserved+Words+Reference.pdf>

PDF - EasyLanguage Essentials:

<https://s3.amazonaws.com/easylanguage/EasyLanguage/EL+Essentials.pdf>

Online Help - http://help.tradestation.com/09_01/tsdevhelp/tsdevhelp.htm

Examples

Below is a sample of an EasyLanguage strategy:

```
Inputs: Window(15);  
Buy ("MySignal") 10 shares next bar at 1500 limit;  
Sell 10 shares next bar at Average(High, Window) + 1 limit;
```

Below is a sample of a C# coded strategy:

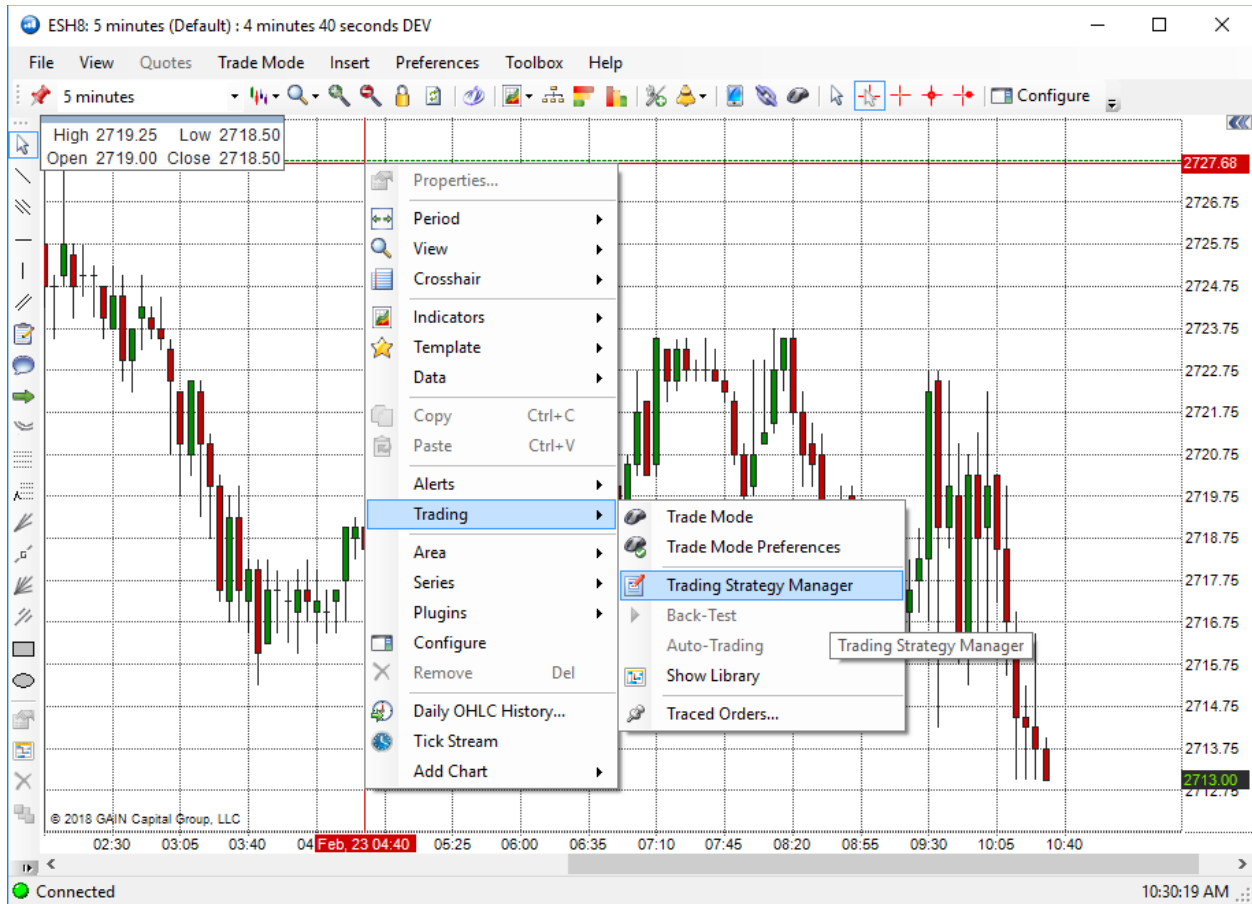
```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using OEC.UI;
using OEC.Chart;
using OEC.Chart.Indicators;
using OEC.Chart.Details;
using OEC.Chart.BaseSeries;
using OEC.EL.Runtime;
using System.Runtime.InteropServices;
using System.Drawing.Drawing2D;

using OEC.Chart.Custom.Strategy;
using OEC.API;
using OEC.Data;
namespace OEC.Chart.Custom.Sandbox
{
    [Strategy("MyStrategy")]
    public sealed class : OEC.Chart.Custom.Strategy.CustomStrategy
    {
        [XmlSerializable, Category("Data")]
        public int Step = 4;

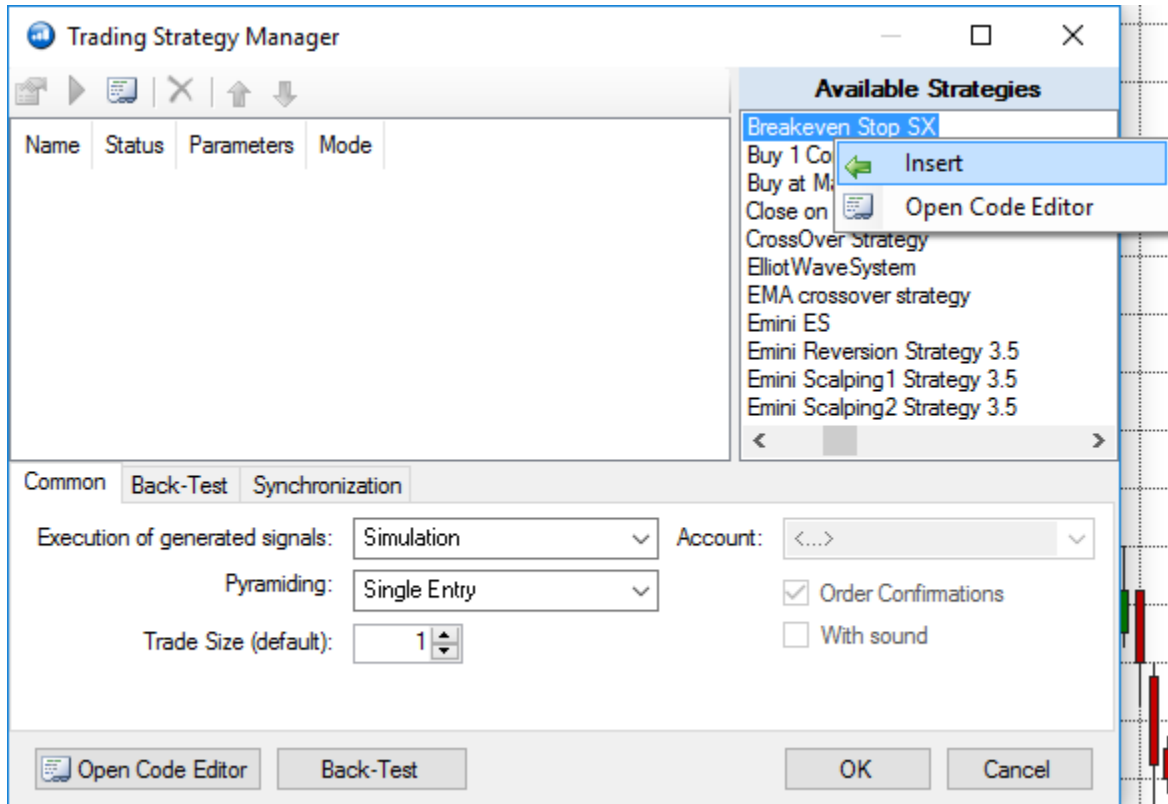
        protected override void Process()
        {
            TradeEngine.EntryOrder(OrderSide.Buy, 1, OrderType.Stop,
Close.Value + ContractInfo.TickSize * Step, "stp", SignalFlags.None);
            TradeEngine.ExitOrder(OrderSide.Sell, 1, OrderType.Market,
0, "exit", SignalFlags.None, string.Empty, false);
        }
    }
}
```

Applying Strategies:

To add the strategy, right click in the Chart and go to **Trading > Trading Strategy Manager**:



Drag your strategy from the “**Available Strategies**” list over to the left column to select your strategy OR right click on the strategy and select “**Insert**”:



Strategy Parameters

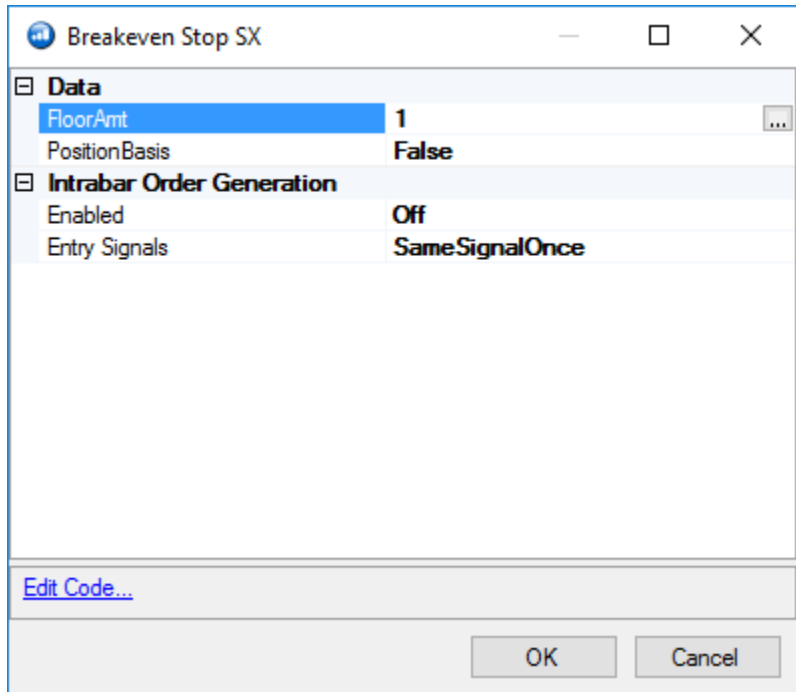
A properties box will appear, adjust any settings if needed.

Intrabar Order Generation allows trades to occur within the bar, select one of the available **Entry signals**.

Same Signal Once – limit entries from same signal in this strategy and exits from same signal in this strategy to once per bar.

All Signal Once – limit entries from all signals in this strategy and exits from all signals in this strategy to once per bar

No Limits – Allow any entry from this strategy and any exit from this strategy to occur multiple times per bar.

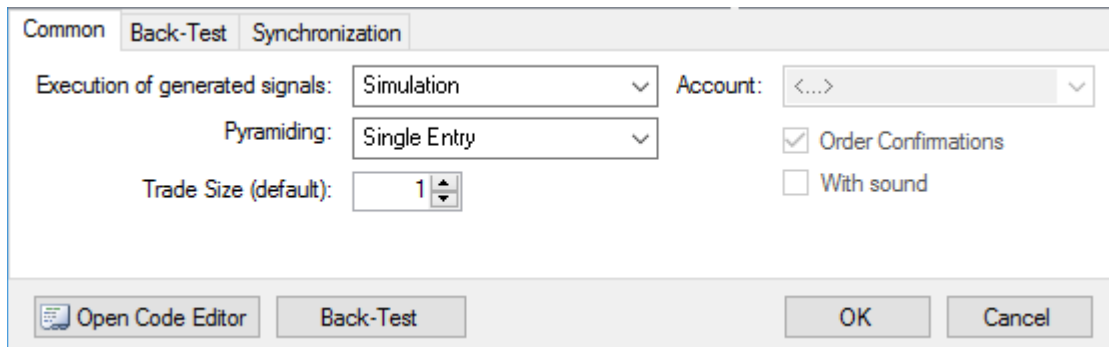


Common tab

The Common tab will allow you to select the execution mode, pyramiding setting, and trade size.

Execution [mode] of generating signals

Select **Simulation** to test first, or select **Server** for live trading, then select the appropriate account number (if you have more than one) and uncheck order confirmations if you want the trades to execute without user confirmation.

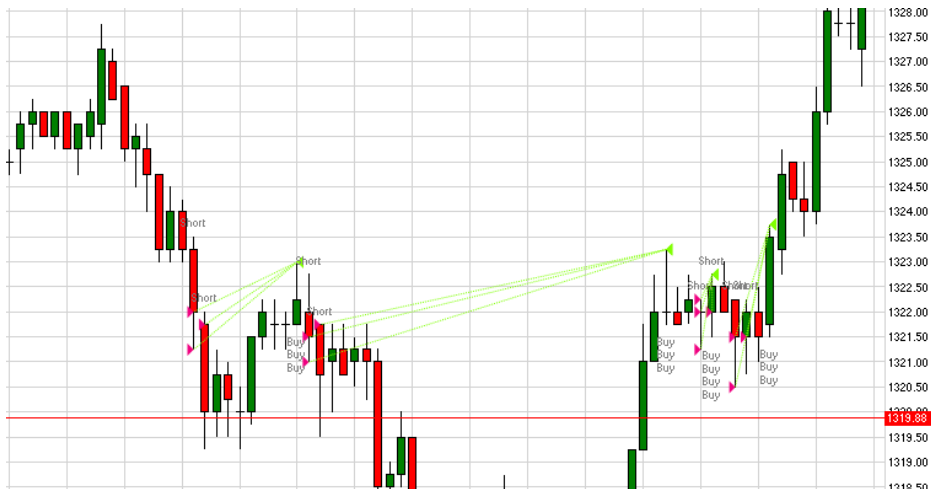


Pyramiding explained:

Single Entry – Opening a new position cannot occur until the position has been closed.



One Entry for Each Signal – Adding to current position may occur if from different signal. So, if BUY1 was a signal and BUY2 was another signal, both would execute. If BUY1 was sent again, but was not closed out, it will be ignored.



Multiple Entries - Multiple entries can occur, in and out as much without limits, every signal will be executed.

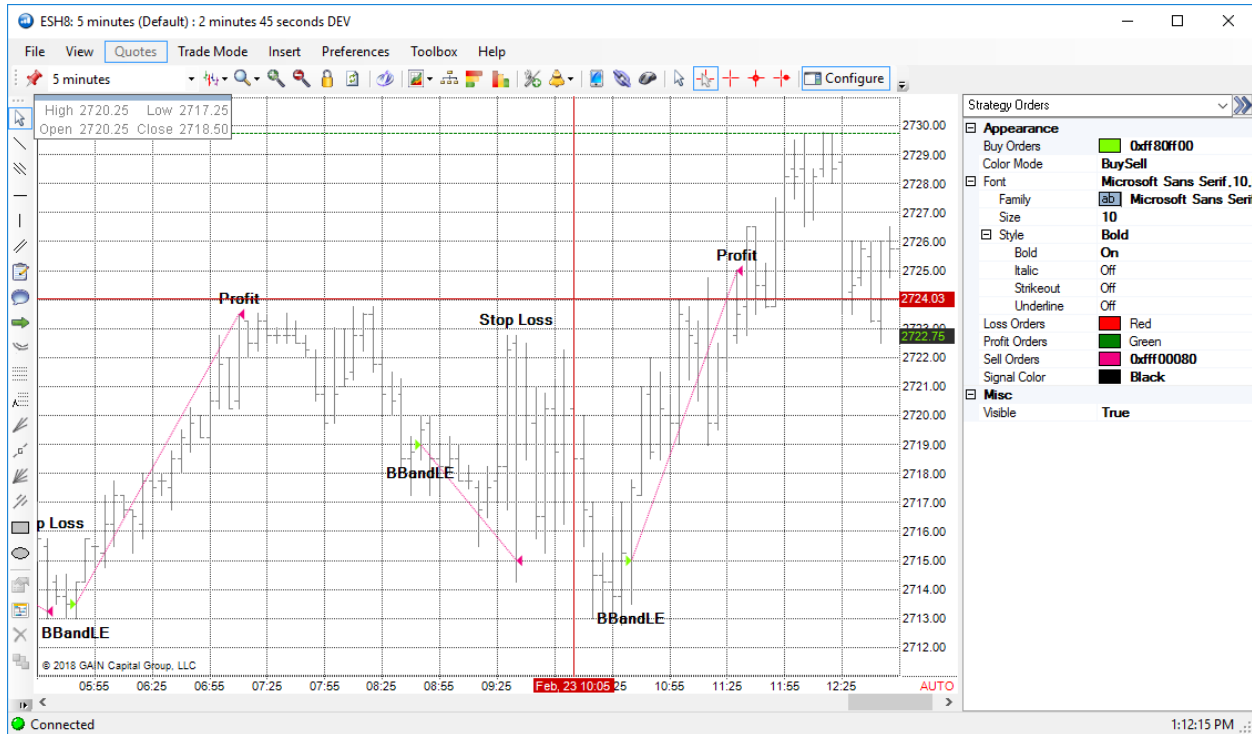
Back-test Settings:

The number of days used, initial cash balance, commission per side, and slippage can be set for the back-test.

Synchronization

In the Synchronization tab, Auto Trading can be halted unless certain conditions are true. If Back-Test position is long one contract but real-time position is short one contract, then Auto Trading will be postponed until the position agrees. Auto Trading can also be halted if other orders are placed in same account that are not related to auto execution or is there is not sufficient amount of data, as defined by Back-Testing tab. Monitoring these conditions will continually watch if these conditions apply.

Once strategy has been enabled, you will see **AUTO** on the bottom right of the chart.



Back-Testing Strategies:

To view back test results, either click on **Back Test** button in Trading Strategy Manager or right click in chart and go to **Trading > Back Test**

Statistics

The first tab will display statistics such as initial net liq, net profit, number of winning and losing trades, and other statistics.

Back-Test Results - ESH8: 5 minutes (Default) DE

Statistics	Trade List	Orders	Charts	Description
Back-Test St...				
Initial Net Liq				\$ 100,000.00
Net Liq				\$ 100,775.00
Total Net Profit				\$ 775.00
Gross Profit				\$ 8,600.00
Gross Loss				-\$ 7,825.00
Total Commission				\$ 0.00
Total Slippage				\$ 0.00
Adjusted Net Profit				\$ 775.00
Adjusted Gross Profit				\$ 8,600.00
Adjusted Gross Loss				-\$ 7,825.00
Profit Factor				1.0990
Max Equity				\$ 102,800.00
Max. Contracts Held				1
Total Number of Trades	56			
Winning Trades	17			
Losing Trades	39			
Avg. Trade Net Profit				\$ 13.84
Avg. Winning Trade				\$ 505.88
Avg. Losing Trade				-\$ 200.64
Largest Winning Trade				\$ 600.00
Largest Losing Trade				-\$ 225.00
Max. Winning Sequence				\$ 1,500.00

	Daily	Return ...	Log Ret...	Trades	Return ...	Log Ret...
Sharpe						
Mean	53.5714	-0.0008	-0.0008	14.0909	-0.0001	-0.0001
Std.Dev.	1015.2787	0.0100	0.0100	321.3524	0.0032	0.0032
Sharpe	0.0528	-0.0764	-0.0816	0.0438	-0.0292	-0.0308
Linear Regression						
Mean	101182.1429	-0.0008	-0.0008	101024.5455	-0.0001	-0.0001
Slope	-84.8214	-0.0025	-0.0025	-31.4196	0.0000	0.0000
Sqr. Error	868.6559	0.0087	0.0087	538.8234	0.0032	0.0032
Correlation	0.1917	0.5075	0.5047	0.6793	0.1262	0.1263

Trade List

The second tab will display a list of trades, each line will display what time in and when out of position, the amount of gain or loss from trade, and other details. Canceled orders would not appear in list.

Back-Test Results - ESH8: 5 minutes (Default) DEV

Statistics Trade List Orders Charts Description

#	Entry	Entry #	Entry Time	Exit Time	Exit	Exit #	Duration	# of Bars	Entry Price	Exit Price	P&L	Cum. P&L	% P&L	Drawdown
1	BBandLE	1	2/13/2018 4:10:00 PM	2/14/2018 2:33:20 AM	Profit	4	10:23:20	110	2662.00	2674.00	\$ 600.00	\$ 600.00	0.600%	-\$ 75.00
2	BBandLE	6	2/14/2018 5:05:00 AM	2/14/2018 8:33:20 AM	Stop Loss	8	03:28:20	42	2671.75	2667.75	-\$ 200.00	\$ 400.00	-0.199%	-\$ 200.00
3	BBandLE	9	2/14/2018 8:55:00 AM	2/14/2018 9:08:20 AM	Profit	10	00:13:20	3	2632.75	2642.75	\$ 500.00	\$ 900.00	0.498%	\$ 0.00
4	BBandLE	12	2/14/2018 6:10:00 PM	2/14/2018 10:18:20 PM	Profit	13	04:08:20	50	2695.50	2705.50	\$ 500.00	\$ 1,400.00	0.496%	-\$ 100.00
5	BBandLE	15	2/15/2018 12:25:00 AM	2/15/2018 4:23:20 AM	Profit	16	03:58:20	48	2707.25	2717.25	\$ 500.00	\$ 1,900.00	0.493%	-\$ 100.00
6	BBandLE	18	2/15/2018 6:30:00 AM	2/15/2018 7:38:20 AM	Stop Loss	20	01:08:20	14	2712.00	2708.00	-\$ 200.00	\$ 1,700.00	-0.196%	-\$ 200.00
7	BBandLE	21	2/15/2018 7:55:00 AM	2/15/2018 9:31:40 AM	Profit	22	01:36:40	20	2707.25	2717.25	\$ 500.00	\$ 2,200.00	0.492%	-\$ 162.50
8	BBandLE	24	2/15/2018 10:25:00 AM	2/15/2018 10:43:20 AM	Stop Loss	26	00:18:20	4	2709.00	2705.00	-\$ 200.00	\$ 2,000.00	-0.196%	-\$ 200.00
9	BBandLE	27	2/15/2018 10:55:00 AM	2/15/2018 10:58:20 AM	Stop Loss	29	00:03:20	1	2701.25	2697.25	-\$ 200.00	\$ 1,800.00	-0.196%	-\$ 200.00
10	BBandLE	30	2/15/2018 11:10:00 AM	2/15/2018 11:43:20 AM	Profit	31	00:33:20	7	2697.75	2707.75	\$ 500.00	\$ 2,300.00	0.491%	-\$ 62.50
11	BBandLE	33	2/15/2018 8:40:00 PM	2/16/2018 3:38:20 AM	Profit	34	06:58:20	84	2734.75	2744.75	\$ 500.00	\$ 2,800.00	0.489%	-\$ 112.50
12	BBandLE	36	2/16/2018 5:40:00 AM	2/16/2018 5:48:20 AM	Stop Loss	38	00:08:20	2	2742.75	2738.75	-\$ 200.00	\$ 2,600.00	-0.195%	-\$ 200.00

Timestamp Text Sender Chart

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Orders

The third tab will display a list of orders, whether filled or canceled.

Back-Test Results - ESH8: 5 minutes (Default) DEV

Statistics Trade List Orders Charts Description

Order#	Description	State	Avg. Price	Generated	Sent Time	Complete Time	Order Name	Entry	OCO	Strategy
1	Buy 1 ESH8 STP 2660.00	Completed	2662.00	Feb/13 16:10:00.000	Feb/13 16:10:00.000	Feb/13 16:10:00.000	BBandLE			Bollinger Band I
2	Sell 1 ESH8 LMT 2672.00	Cancelled		Feb/13 16:10:00.000	Feb/13 16:10:00.000		Profit	BBandLE #1	Stop Loss #3	Stops and Targ
3	Sell 1 ESH8 STP 2658.00	Cancelled		Feb/13 16:10:00.000	Feb/13 16:10:00.000		Stop Loss	BBandLE #1	Profit #2	Stops and Targ
4	Sell 1 ESH8 LMT 2672.00	Completed	2674.00	Feb/13 18:00:00.000	Feb/13 18:00:00.000	Feb/14 02:33:20.000	Profit	BBandLE #1	Stop Loss #5	Stops and Targ
5	Sell 1 ESH8 STP 2658.00	Cancelled		Feb/13 18:00:00.000	Feb/13 18:00:00.000		Stop Loss	BBandLE #1	Profit #4	Stops and Targ
6	Buy 1 ESH8 STP 2671.50	Completed	2671.75	Feb/14 05:05:00.000	Feb/14 05:05:00.000	Feb/14 05:05:00.000	BBandLE			Bollinger Band I
7	Sell 1 ESH8 LMT 2681.75	Cancelled		Feb/14 05:05:00.000	Feb/14 05:05:00.000		Profit	BBandLE #6	Stop Loss #8	Stops and Targ
8	Sell 1 ESH8 STP 2667.75	Completed	2667.75	Feb/14 05:05:00.000	Feb/14 05:05:00.000	Feb/14 08:33:20.000	Stop Loss	BBandLE #6	Profit #7	Stops and Targ
9	Buy 1 ESH8 STP 2629.00	Completed	2632.75	Feb/14 08:55:00.000	Feb/14 08:55:00.000	Feb/14 08:55:00.000	BBandLE			Bollinger Band I
10	Sell 1 ESH8 LMT 2642.75	Completed	2642.75	Feb/14 08:55:00.000	Feb/14 08:55:00.000	Feb/14 09:08:20.000	Profit	BBandLE #9	Stop Loss #11	Stops and Targ
11	Sell 1 ESH8 STP 2628.75	Cancelled		Feb/14 08:55:00.000	Feb/14 08:55:00.000		Stop Loss	BBandLE #9	Profit #10	Stops and Targ
12	Buy 1 ESH8 STP 2694.25	Completed	2695.50	Feb/14 18:10:00.000	Feb/14 18:10:00.000	Feb/14 18:10:00.000	BBandLE			Bollinger Band I

Timestamp Text Sender Chart

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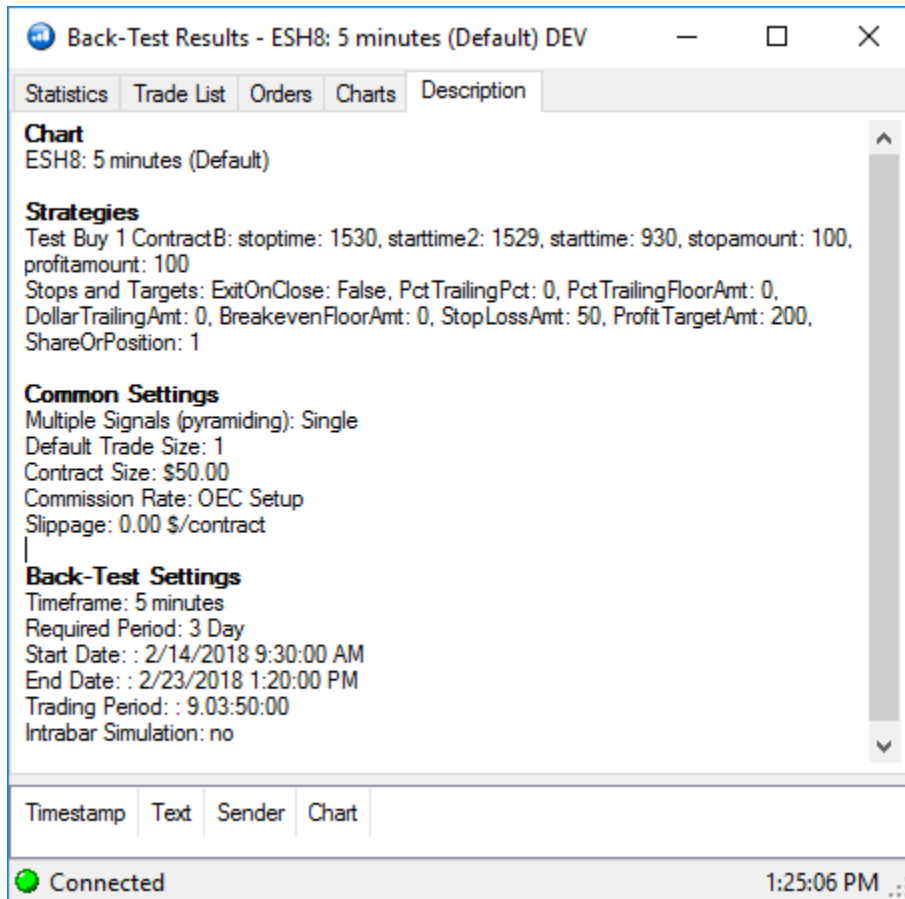
Charts

The fourth tab will display a chart plotting gain/loss, each dot shows the cumulated PnL at that moment of time. The blue lines are a smoothed average of the dots.



Description

The last tab is a description of the chart, strategies applied to chart, and applicable settings as defined by user.



For additional information on Custom Indicators/Strategies, review our Custom Indicator Manual at:

<https://gainfutures.com/gain-trader/user-guides>