

What's New for TradeStation 9.5

Chart Analysis – Improved Chart Graphics and Performance: Take advantage of the improved look and feel of your TradeStation charts.

In TradeStation 9.5, we've completed the core graphics engine upgrade overhauling your Chart Analysis graphics. You'll quickly see the big visual improvements in all of your charts. With transparency, you can focus on what is most critical while keeping an eye the rest of your charts data.

Sharper Definition for all Drawing Objects and Analysis Techniques:

This is the extension of the graphics library upgrade seen in 9.1 update 23. You will quickly see the improvements to the definition of all your drawing objects and analysis techniques. The image below shows an example of three lines plotted at weights 1, 2 and 3.

Before: Notice the old style jagged lines?



After: You can clearly see the difference in the line quality.



Transparency (Across All Drawing Objects and Analysis Techniques)

With the completion of the graphics engine upgrade you can now apply transparency across all your analysis techniques and drawing objects. Now you have the power to fully de-clutter your charts to focus on the data that is most important to you.

It is much easier to reposition any drawing object on the chart now as when you drag the object around the chart it will apply 50% transparency so you can see what is underneath to precisely place the object where you want it.

Fibonacci Price Retracements without transparency: A chart with multiple drawings and indicators can become overwhelming and you can easily miss something.



Fibonacci Price Retracements with transparency: Notice how much easier it is to focus on the price movements when a transparency is applied to the drawing object?



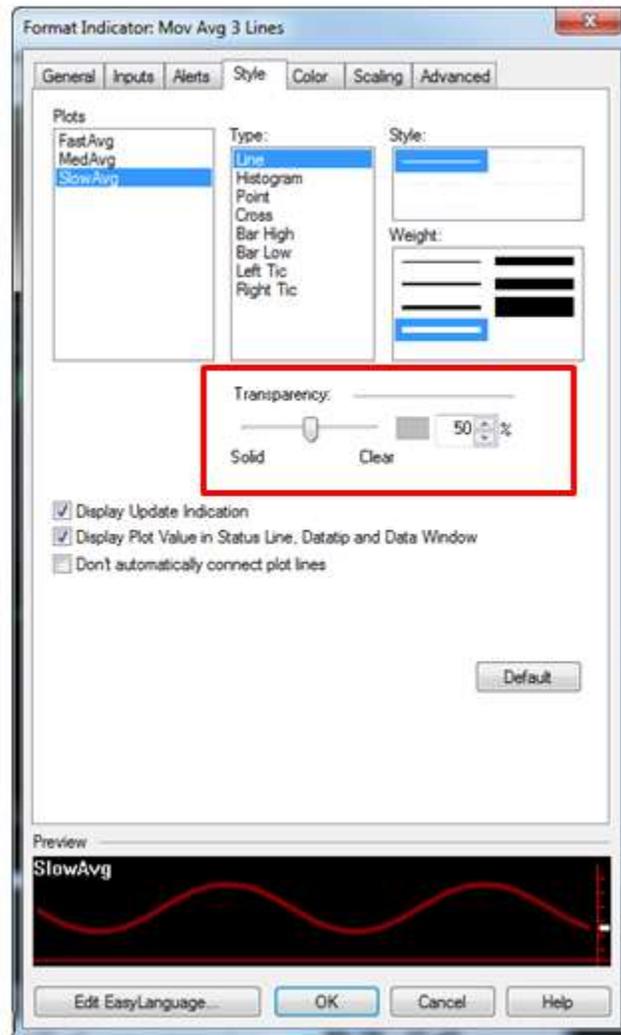
Use all lines styles with every weight: You have stressed the value of being able to use multiple styles and weights together. Add a little bit of color and now you have an incredible number of combinations to identify your key action areas.



Using transparency with your analysis techniques: Enhance your charts by applying transparency to any indicator plot directly from the format window. You can easily keep track of the price movement even when the indicators plot on top of the bars.



For all Indicators, Showme's and Paintbars you can set transparency from the format window:



Overlapping axis labels: It used to be difficult to see the values of your axis labels when multiple labels are were displayed at or near the same values. Now you can easily find the axis value by simply clicking on the chart element you need to see.

The image on the left is a common example of multiple labels stacking together. The image on the right shows what happens when you select the indicator and the axis label jumps to the top of the stack.

Stacked axis labels



Indicator selection brings label in view



ChartTrading axis labels: You are going to notice an improvement to the ChartTrading labels making it easier to identify when you have ChartTrading mode enabled. Notice when you have the ChartTrading mode enabled the axis labels convert to a button style indicating you can drag to modify.

Display only



Chart trading mode enabled



Ichimoku Cloud with Transparency applied directly from EasyLanguage. This is a powerful new addition to the EasyLanguage tool box. The image below shows this new feature in action.



For those more fluent in EasyLanguage: You can easily set the level of transparency by using the ARGB function to set the color of your EasyLanguage plots:

```
myColor = ARGB(125, 48, 13, 255);
```

```
Plot 1(Close, "MyTransparentPlot", myColor);
```

EasyLanguage uses the alpha value of aRGB to define the alpha of the color; with 0 being fully transparent and 255 being fully opaque.

Here is a handy snippet that will allow you to convert percent transparency used in the UI to the alpha values used in EasyLanguage:

```
PercentTransparency = 70;  
AlphaValue = Round( 0.01 * ( 100 - PercentTransparency ) * 255, 0 ) astype int ;
```

Data Tip & Cross Hairs Keeping with the theme of modernizing the Chart Analysis look and feel, we made sure to enhance the DataTip.

Transparency was added to your DataTip to see what's behind so that you no longer need to lose reference to the important data on your chart. The new theming focuses on improving your ability to quickly view the important information without overpowering your charts.

As requested we made sure to apply transparency to the crosshairs so you can quickly and easily find your exact points on the chart.

You will quickly notice that this new and improved DataTip has all of the information you are used and the same layout as you are used to.



DataTip dynamically adapts to your chart intervals: The new DataTip places emphasis on the data without overpowering your charts. To better navigate your charts we will either emphasize the bar date or the bar time depending on which chart interval you are on.

All intraday charts will focus on the time then date while all daily and higher charts will focus on the date then the time.

Daily chart emphasizing the bar time over the bar date



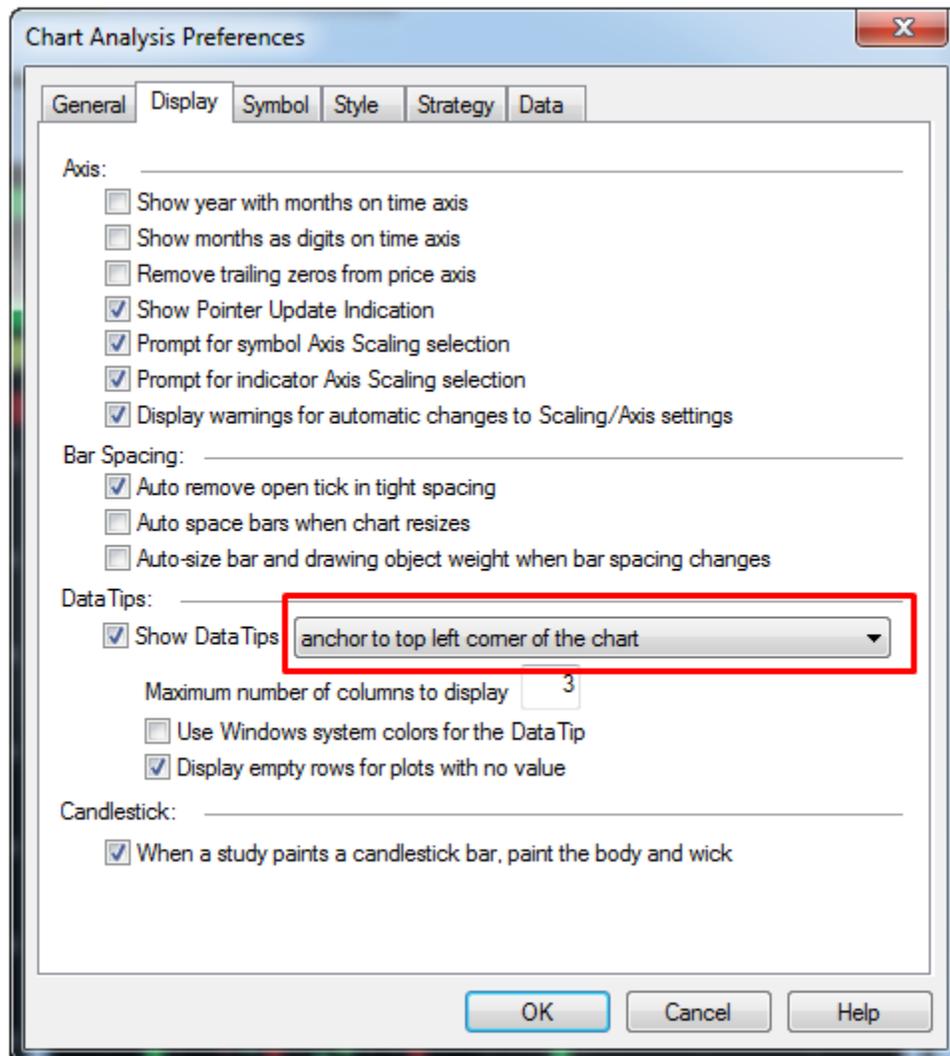
60 min chart emphasizing the bar time over the bar date



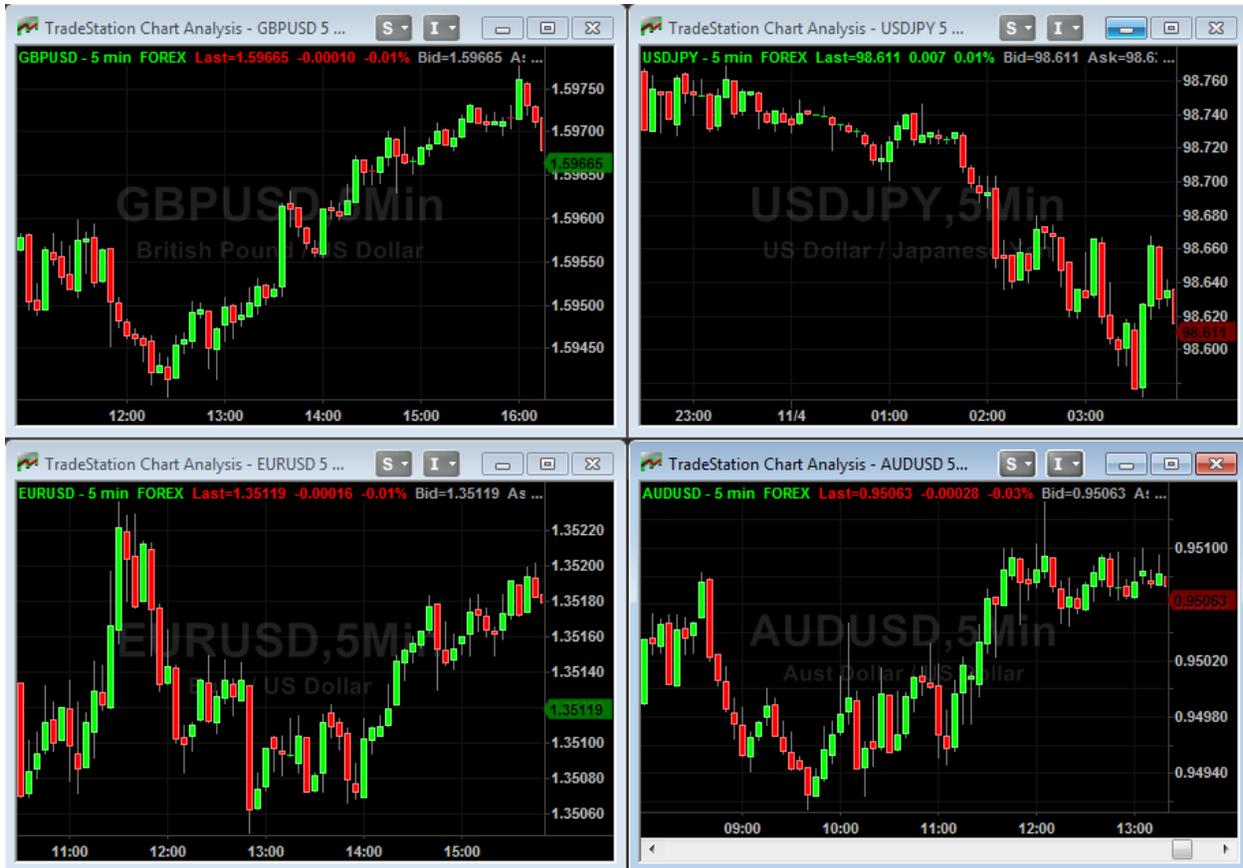
DataTip can be anchored to the upper left corner of your chart: This global setting can be used to effect the default location across all of your charts.



This handy option can be set directly from the Chart Analysis Preferences:



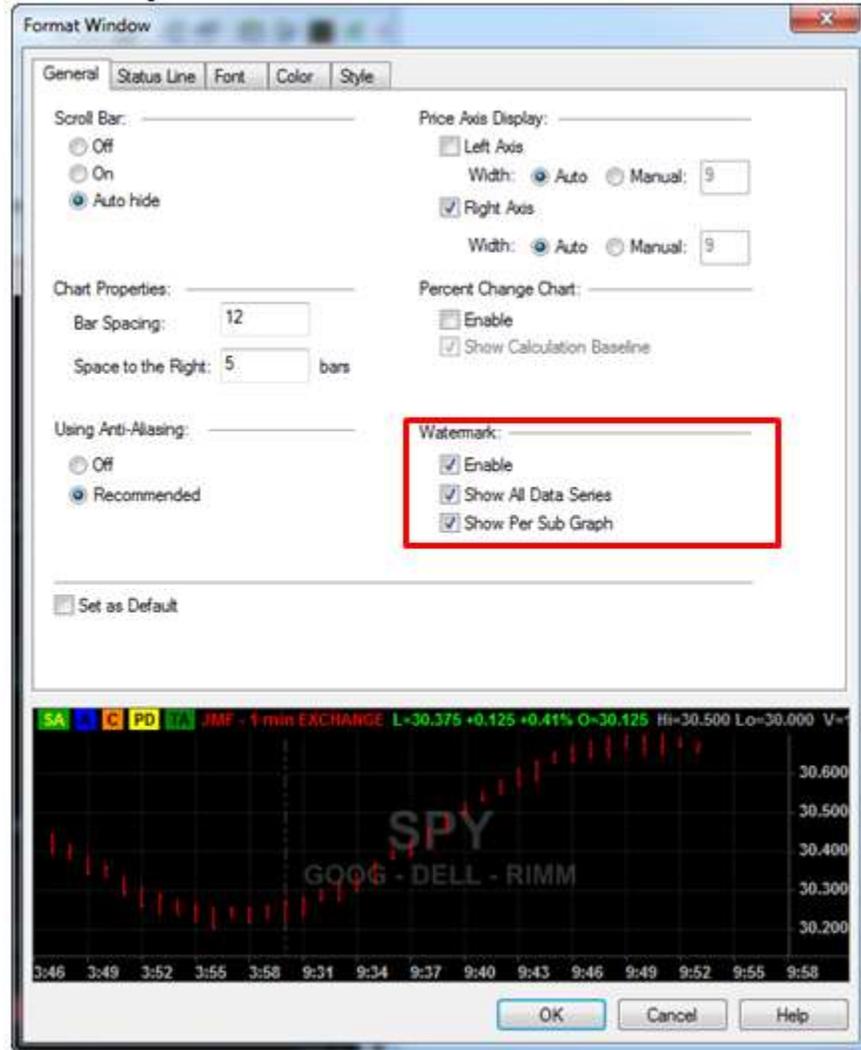
Symbol and interval watermark now available: This excellent new addition provides you quick visibility what chart you are looking at. Those of you who look at multiple symbols across a number of charts will love this feature. Now at a glance you can recognize that chart you are looking for.



The chart below shows that you can see the watermark for all the data series on the chart. This comes in very handy when using analysis techniques on multi data charts.



We know how every trader is different and likes to customize their platform to best suit their needs. This setting can be modified for each chart individually directly from the format window menu.

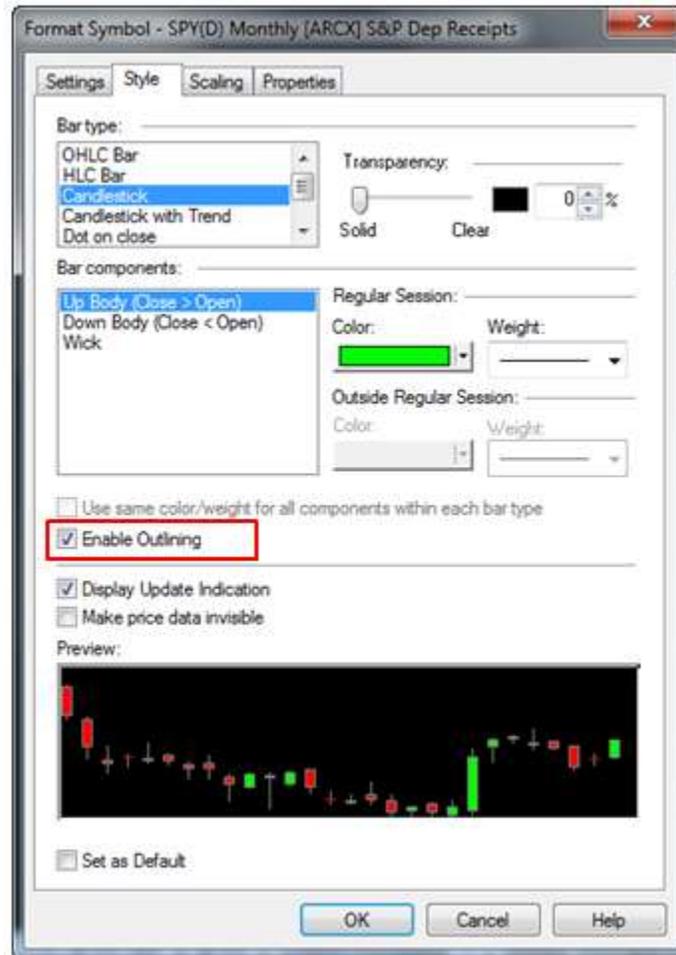


Candlestick outlines are now available: The new outlining feature greatly improves the definition of the Candlesticks across all the various background colors. You have been asking for this feature and we are excited to deliver this improvement. Below you can see the outlines on both the white and black background are clearly visible without making any additional modifications.





You can enable this valuable enhancement to the Candlestick bar type directly in the format window.



OptionStation Pro – Search functionality

New OptionStation Pro Search: Now you can quickly run an option spread search and analyze the results right in OptionStation Pro.

New Search Tab: The search feature allows traders with an underlying price and time projection to quickly run an option search that constructs thousands of spread combinations in seconds. The results can be ranked by various spread characteristics such as Max Risk, Probability of Profit and Expected Value. The new search tab is located next to the 3D Graph tab. To run a search, enter your search criteria and press the Run Search button.

The screenshot displays the 'Search' window in OptionStation Pro. The 'Current Settings' section includes: Asset: YYYY @ \$72.15, Asset Volatility: 13.29 % (Historical), Model: Black-Scholes and Stensland, and Max Strikes To Load: ALL. The 'Strategy' section shows 'Vertical' selected and 'Spread Width' set to 4. The 'Market Outlook' section includes: Projected Asset Price: -0.00 % @ \$72.15, Trade Closing Date: 10/24/2015 (1 day), Asset Vol Change: 0.00 % @ 13.29 %, and Projected Price Range: \$70.66 - \$73.67. The 'Filtering' section has checkboxes for 'Include Call Strategies', 'Include Put Strategies', 'Include Buy Strategies', and 'Include Sell Strategies', with 'Run Search' highlighted. Below these settings is a table of search results for 'YYYY Vertical - \$72.18 (100 results found, Total Searched: 936)'. The table columns are Strategy, Description, Hit Price, Max Risk, Max Reward, Reward/Risk Ratio, Projected Price, Projected Profit, Probability of Profit, and Expected Value. The 'Search' button at the bottom is also highlighted.

Strategy	Description	Hit Price	Max Risk	Max Reward	Reward/Risk Ratio	Projected Price	Projected Profit	Probability of Profit	Expected Value
Vertical	YYYY Oct 25, 13 71.3/72 Short Put Vertical	0.12 (DR)	36.00	12.00	0.32	0.13 (DR)	-0.94	48 %	-2.51
Vertical	YYYY Oct 25, 13 72/72.5 Short Call Vertical	0.23 (DR)	27.00	23.00	0.85	0.24 (DR)	-1.07	46 %	-1.42
Vertical	YYYY Oct 25, 13 71.5/72 Long Call Vertical	0.40	40.00	30.00	0.25	0.39	-1.05	46 %	-2.84
Vertical	YYYY Nov 01, 13 73/74 Short Call Vertical	0.29 (DR)	71.00	29.00	0.41	0.30 (DR)	-0.74	45 %	-1.31
Vertical	YYYY Nov 01, 13 74/75 Short Call Vertical	0.14 (DR)	86.00	14.00	0.15	0.15 (DR)	-0.61	45 %	-1.31
Vertical	YYYY Nov 16, 13 72.5/75 Long Call Vertical	0.87	87.00	163.00	1.87	0.85	-2.04	45 %	-1.36
Vertical	YYYY Nov 16, 13 72.5/75 Short Call Vertical	0.83 (DR)	167.00	83.00	0.5	0.85 (DR)	-1.96	44 %	-2.63
Vertical	YYYY Nov 16, 13 67.1/70 Short Call Vertical	0.32 (DR)	218.00	32.00	0.15	0.33 (DR)	-1.21	44 %	-1.61

Strategy Selection: Select your strategy from the dropdown menu and set the spread width.

This image shows a close-up of the 'Strategy' dropdown menu. The menu is open, showing options: Bullish, Bearish, Active Market, Quiet Market, Singles, Straddles, and Vertical. The 'Vertical' option is highlighted with a red circle and a mouse cursor.

This image shows a close-up of the 'Spread Width' input field. The value '4' is entered in the field, which is highlighted with a red circle and a mouse cursor.

Market Outlook: Enter the trade closing date and your projected asset price & volatility change anticipated by the trade closing date.

Market Outlook

Projected Asset Price: 3.00 % bullish to \$76.28

Trade Closing Date: 11/15/2013 10 days

Asset Vol Change: -2.00 % lower to 13.31 %

Projected Price Range: \$67.78 - \$80.93

Market Outlook

Projected Asset Price: 3.00 % bullish to \$76.28

Trade Closing Date: 11/15/2013 18 days

Asset Vol Change:

Projected Price Range:

November, 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

Clear

Market Outlook

Projected Asset Price: 3.00 % bullish to \$76.28

Trade Closing Date: 11/15/2013 18 days

Asset Vol Change: -2.00 % lower to 13.31 %

Projected Price Range: \$67.78 - \$80.93

Search Filtering: Select the option type and spread side to include in the search.

Filtering

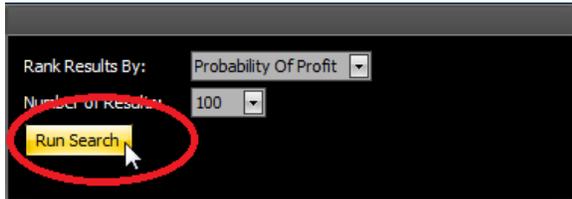
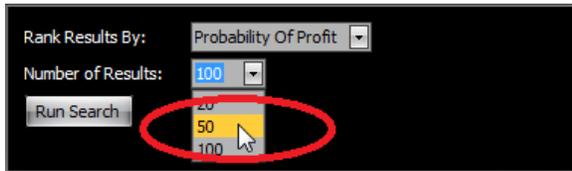
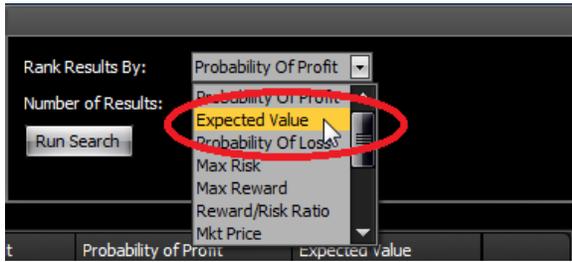
Include Call Strategies

Include Put Strategies

Include Buy Strategies

Include Sell Strategies

Rank Result: Select the parameter to rank the results by from the dropdown list and select the number of results to display. Finally, press the Run Search button and the results will appear in the results grid.



Search Results for: YYYV vertical - bullish to \$76.12 (100 results found, Total Searched: 320)

Strategy	Description	Mkt Price	Max Risk	Max Reward	Reward/Risk Ratio	Projected Price	Projected Profit	Probability of Profit	Expected Value	
Vertical	YYYV Nov 16, 13 62.5/72.5 Short Put Vertical	0.60 (CR)	940.00	80.00	0.08	0.00	60.00	83 %	27.20	Analyze
Vertical	YYYV Nov 16, 13 65/70 Short Put Vertical	0.39 (CR)	581.00	19.00	0.02	0.00	19.00	97 %	16.43	Analyze
Vertical	YYYV Nov 16, 13 65/75 Short Put Vertical	1.65 (CR)	835.00	165.00	0.2	0.00	164.99	60 %	15.55	Analyze
Vertical	YYYV Jan 18, 14 62.5/72.5 Long Put Vertical	0.30	30.00	970.00	32.33	0.01 (CR)	-31.27	39 %	14.09	Analyze
Vertical	YYYV Nov 22, 13 73/77 Long Put Vertical	2.45	245.00	155.00	0.63	1.20	-124.78	58 %	7.08	Analyze
Vertical	YYYV Nov 16, 13 57.5/67.5 Short Put Vertical	0.07 (CR)	993.00	7.00	0.01	0.00	7.00	100 %	6.97	Analyze
Vertical	YYYV Nov 22, 13 68/72 Short Put Vertical	0.44 (CR)	356.00	44.00	0.12	0.01 (CR)	42.76	71 %	5.69	Analyze
Vertical	YYYV Nov 22, 13 67.5/73 Short Put Vertical	0.26 (CR)	324.00	26.00	0.08	0.00	25.59	75 %	4.99	Analyze
Vertical	YYYV Nov 22, 13 72.5/76 Long Put Vertical	1.82	182.00	168.00	0.92	0.63	-118.86	53 %	4.33	Analyze

Analyzing and Trading a Spread: Just press the Analyze button to copy a spread to the Theoretical Positions panel for further analyzing and trading.

Probability of Profit	Expected Value	
83 %	27.33	Analyze
97 %	16.43	Analyze
60 %	15.55	Analyze
39 %	14.09	Analyze

Theoretical Positions								Real Positions	
Type	Description				Mkt Price		All	Type	
Vertical	1 YYYY Nov 16, 13 62.5/72.5 Short Put Vertical				1 @ 0.59 (CR)			Unassign	
SIDE	Qty	Expiration	Strike	Type	Leg Price	Volatility	Trade	Delete Spread	
Buy	1	Nov 16, 13	62.5	Put	0.09	41.70 %			
Sell	-1	Nov 16, 13	72.5	Put	0.68	19.75 %			

New Option Chain Spread Width: Now you can view bid and ask pricing on spreads up to 5 strikes wide.

Adjustable Spread Width: To adjust the spread width, simply change the spread width control and the spread construction and bid & ask prices will automatically recalculate.

Option Chains										
Type	Vertical									
Spread Width: 4										
CALLS						PUTS				
Delta	IV Skew	Imp Volatility	Bid	Ask	Strike	Bid	Ask	Imp Volatility	IV Skew	Delta
Nov 01, 13 (100) - Amer Weekly 4d 5h 17m left										
0.0284	176.37 %	176.23 %	18.35	22.05	125 / 145	-0.03	0.03	99.69 %	99.76 %	-0.0024
0.0275	163.17 %	162.61 %	15.35	19.05	130 / 147	-0.03	0.04	92.18 %	92.00 %	-0.0041
0.0218	152.66 %	152.15 %	11.25	15.10	135 / 148	-0.03	0.04	84.76 %	85.48 %	-0.0038
0.0218	141.75 %	140.63 %	7.25	10.90	140 / 149	-0.03	0.04	77.50 %	78.28 %	-0.0035
0.0134	130.05 %	130.40 %	3.25	6.05	145 / 150	-0.03	0.04	70.41 %	70.40 %	-0.0030

New Implied Volatility Skew Approximation: We've added an implied volatility skew approximation selection to the Option Volatility Source setting.

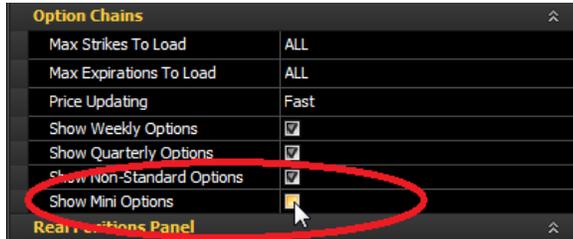
New IV Skew Approximation: When the IV Skew Approximation is selected, an approximation technique creates a volatility curve fit to the strike implied volatilities. Now you can switch between using implied volatility or IV Skew Approximation for option calculations. We also added a new IV Skew column so you can view the IV Skew Approximation values to the Option Chains.



Option Chains					
Type	Single				
Spread Width: 4					
CALLS					
Delta	IV Skew	Imp Volatility	Bid	Ask	Strike
Nov 01, 13 (100) - Amer Weekly 4d 5h 17m left					
0.9425	219.34 %	220.51 %	51.10	52.70	125
0.9371	200.33 %	200.16 %	46.10	47.70	130
0.9299	182.95 %	182.30 %	41.00	42.75	135

New Show Mini Options Checkbox: Now you can remove the mini options from the chain.

Show Mini Options: Mini options can be included or excluded from the Option Chains panel by toggling the “Show Mini Options” checkbox. In addition, we added red “10-mini” text to the title row for easier mini option recognition in the chain.



Multi-threaded Optimization

We have designed a new multi-threaded optimization engine that can use multiple cores to perform an optimization during back-testing. We have integrated this new engine into the Charting application, so strategy optimizations will now run much faster on computers with a multi-core processor.

The following table illustrates the optimization performance improvements in TS 9.5. We compared an optimization of Bollinger Bands LE and SE strategies between TS 9.1 and TS 9.5. In the first series of tests, we repeated the same optimization four times for each TS version over 6 months of history. In the second series of tests, we performed the same optimization over 3 years of history. All tests were performed on a desktop computer with 4 processor cores.

The table shows the time in seconds for each test, as well as the average times for each TS version and the performance multiple between versions. Please note that these times are for illustration only; you may experience different results depending on your specific hardware and software configuration.

Optimization Performance: TS 9.1 vs TS 9.5

Bollinger Bands LE, Length: 10..30:1
Bollinger Bands SE, Length: 10..30:1
MSFT, 5 minute bars

2.93 GHz Xeon with 4 cores
Windows 7, 64-bit, 12GB RAM
All times measured in seconds

	6 Months			3 Years		
	TS 9.1	TS 9.5	Multiple	TS 9.1	TS 9.5	Multiple
Test 1	101	26		535	150	
Test 2	95	26		538	150	
Test 3	94	26		538	157	
Test 4	93	25		542	147	
Average	96	26	3.7x	538	151	3.6x

New Optimization API

EasyLanguage developers now have access to a powerful class library that empowers them to perform many new kinds of optimization. A TradingApp can use this API to optimize over multiple symbols, multiple intervals, or lists of values or expressions, as well as over a range of values. Furthermore, optimizations can now be scripted in EasyLanguage. This opens up powerful new capabilities, such as staged optimizations where each optimization depends on the results of the previous optimization. The Optimization API gives developers control over every aspect of an optimization (including all strategy settings), and it provides access to every performance metric that is available in the Strategy Optimization Report. The API uses the new optimization engine, so all of these features will automatically take advantage of multiple cores.

The new Optimization API enables you to perform the following kinds of optimization:

- Optimize over a list of symbols.
- Optimize over a list of intervals. You can even mix different kinds of intervals (e.g., Kagi, Kase, and Point&Figure).
- Optimize over a list of input values (e.g., 3, 7, 15, 25, 30).
- Optimize over a list of expressions (e.g., High, Low, Open, Close, AvgPrice, Average(Close, 3)).
- Optimize over a list of text values (e.g., to optimize the symbol input for a PriceSeriesProvider).
- Optimize Boolean inputs (i.e., test both true and false).
- Optimize whether a sub-strategy is enabled. This allows you to test the contribution of particular strategies in a group of cooperating strategies.
- And don't worry... the familiar "optimize over a range" method is still there.

The Optimization API provides the ability to monitor the progress of an optimization while it is running and to cancel the optimization if desired. It's also easy to queue multiple optimizations and automatically run them in sequence.

In addition, the Optimization API gives you access to every "cell" of data in the Strategy Optimization Report. This allows you to create custom reports or to perform additional analysis of the data in your code. Furthermore, you can easily write the Strategy Optimization Report to a text file so that you can view or analyze the results in a spreadsheet.

Since you can control every aspect of an optimization in your EasyLanguage code, you can now build powerful new kinds of analysis applications. For example, it is possible to build a Staged Optimization TradingApp that automatically performs the following steps:

1. Optimizes four different strategies over multiple symbols and inputs.
2. Performs a statistical analysis on the results of each optimization, and selects the strategy with the most consistent performance across symbols.
3. Runs a fine-grained optimization on the selected strategy (using smaller steps for the input ranges).
4. Chooses the best symbol and entry inputs from Step 3; then adds and optimizes two exit strategies (e.g., Percent Trailing and Stop Loss).
5. Writes the in-sample, out-of-sample, and full-range optimization results to CSV files that can be viewed in a spreadsheet.

This entire analysis can run completely unattended, and it can use all available cores for maximum performance.

Enhancements to Portfolio Maestro

With TradeStation 9.5, we have made extensive enhancements to Portfolio Maestro.

Among others, Maestro 9.5 now also supports the following features:

1) Look-Inside-Bar back-testing resolution

Just like the rest of the TradeStation platform, Maestro users can now choose between ticks, seconds and minutes for Look-Inside-Bar purposes, thereby promoting more accurate back-testing results.

2) Protected ELDs

Maestro now support ELDs that were previously saved using the Protected option within the TradeStation Development Environment.

3) Fundamental data

Maestro now support strategies that uses Fundamental data.

4) OOEL strategies

Maestro now support strategies that implement Object Oriented EasyLanguage syntax.

All of the above are features that were requested by users and we are indeed proud to offer this new functionality in the Maestro for TradeStation 9.5.