

The Adaptive Trade Management System

by Omni Traders International, LLC

About ATMS

The Adaptive Trade Management System was created by *Omni Traders International, LLC (OTI)* to develop an advanced trade management feature for the OmniVest Platform. In order to implement the feature as quickly as possible, the Omni Trader software was used to develop the first version.

There are 3 Key Benefits to this approach. Having ATMS in OmniTrader enables us to easily experiment with advanced concepts. Omni Trader users who purchase a license to ATMS from OTI are able to use the product in OmniTrader while it is being purposed for OmniVest. Finally, ATM license holders will be able to use ATM in OmniVest when it is available there.

 This document covers OT 2018 PR 2D and later. See Release Notes for more information.

Getting Started

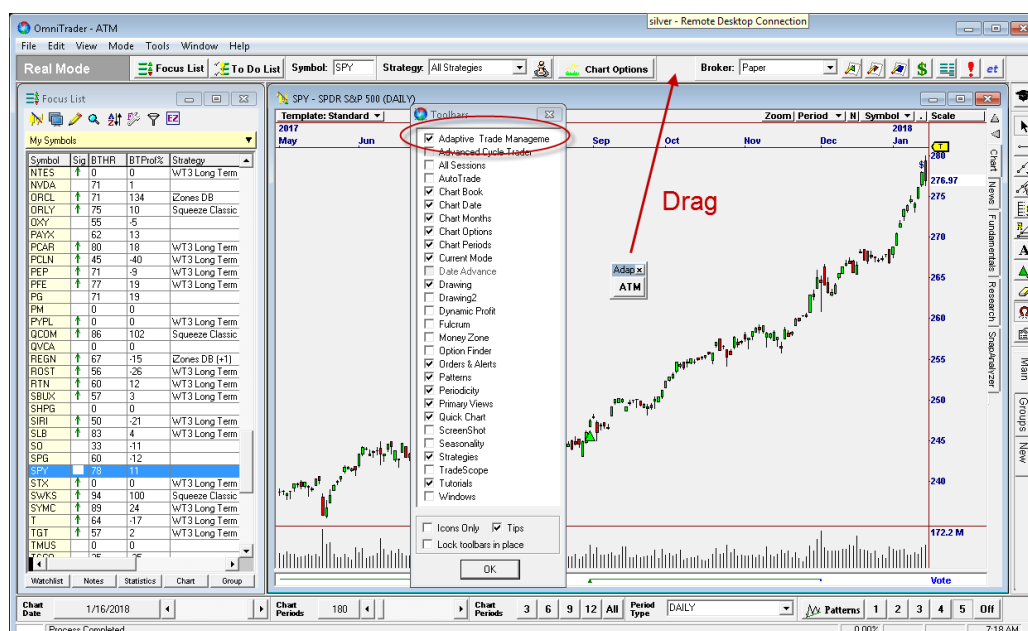
Installation

Run the file ATM.exe to install the product. The following assets will be installed in \OTxxxx directory:

1. A sub-directory \ATM is created and the **Universal** Method file is copied to it.
2. All ATS methods are copied from \ATS to \ATM. The \ATS folder is not disturbed.
3. The **Universal Profile** is copied to \Profiles
4. The ATS tool bar is converted to say “ATM” (but not automatically added – see below).
5. New columns are added for the Focus List

Add the ATM tool bar to the interface.

1. Click **View.. Toolbars**
2. Click the check box next to “Adaptive Trade Management” near the top.
3. Move the toolbar by dragging its edge to the tool bar area.



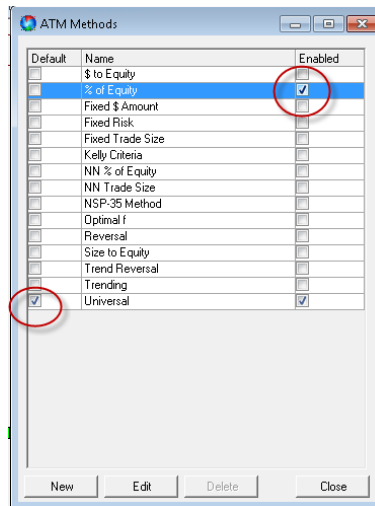
Adding the ATM tool bar to the interface

Load the Profile

1. Open the Profile called "ATM" to continue with the example.

Activate the ATM Methods.

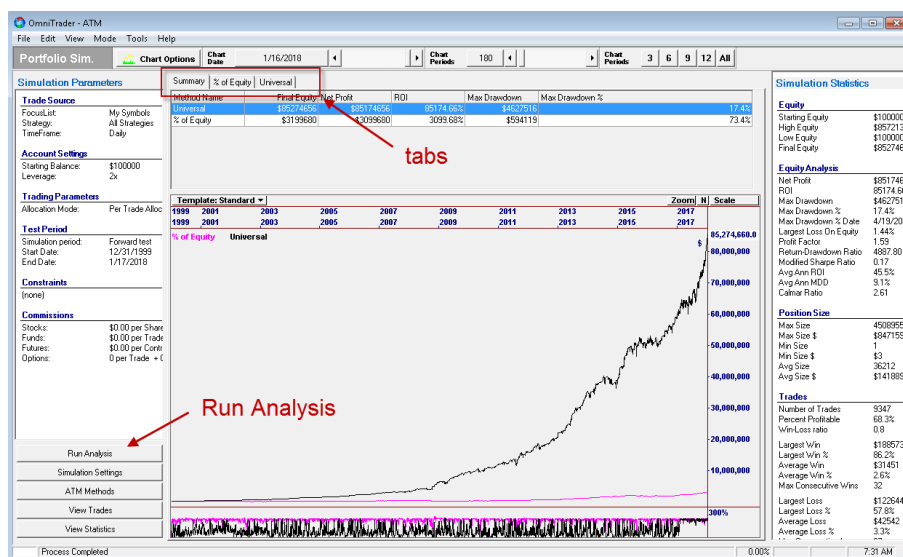
1. Activate the **ATMS Methods** dialog List by clicking the ATM tool bar.
2. Select **% of Equity** by clicking the check box under the **Enabled** column.
3. Select **Universal** (from ATM) at the bottom under the **Default** column



Enabling % of Equity and Universal

Review the Portfolio Simulator Results

1. Run the **ToDo List** by clicking **Run Selected Tasks** (not shown).
2. Click **Mode... Portfolio Simulator**
3. Click the "% of Equity" or "Universal" tabs to see performance
4. Click **Summary** to see a comparison.



Portfolio Simulator Summary tab (with Log scale off)

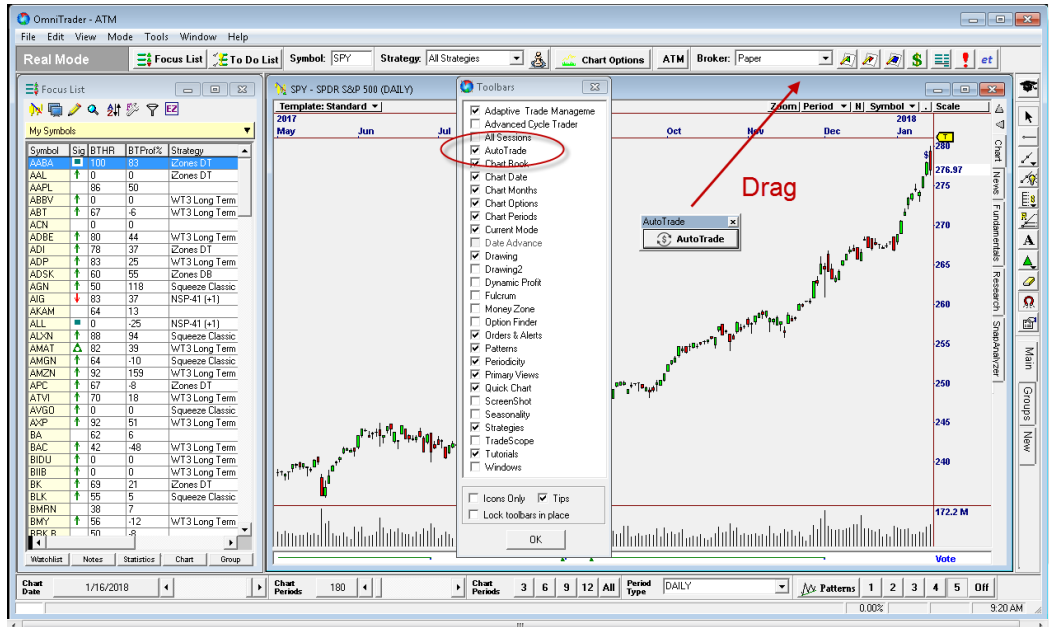


In the above example, Universal is so much more profitable than % of Equity that you can hardly see the % of Equity Curve. Change the Chart Scale to "Log" in **Chart Options** (chart tab) to more easily compare percentage gain differences between the methods.

Trading with ATMS


Activating AutoTrade

1. Go to Real Mode by clicking **Mode... Real**
2. Click **View... Toolbars**
3. Activate the **AutoTrade Tool bar** and drag it to the tool bar area.

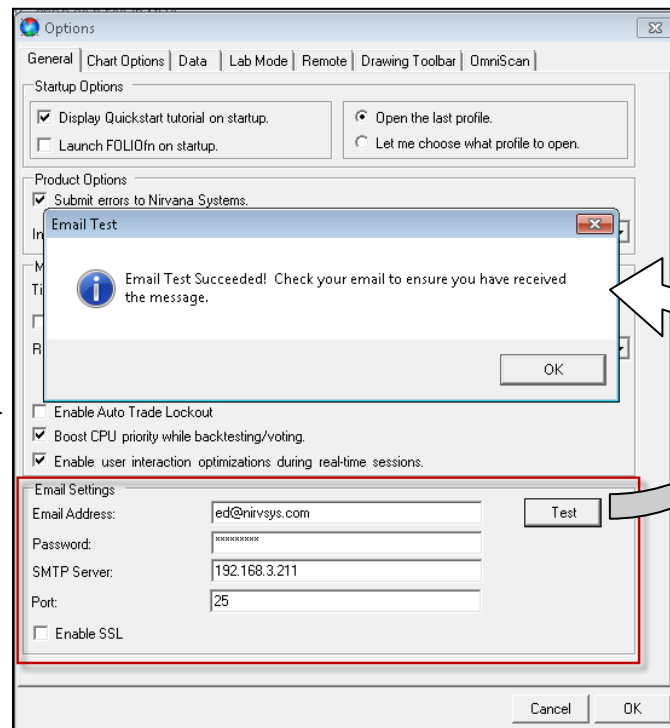


Adding the AutoTrade tool bar to the interface.

Before you can use AutoTrade, you must establish an email account to receive important notifications. Click **Tools... Options** and on the **General** tab and then establish and test your email settings. If you need assistance with this, please call support at 1-512-345-2545.

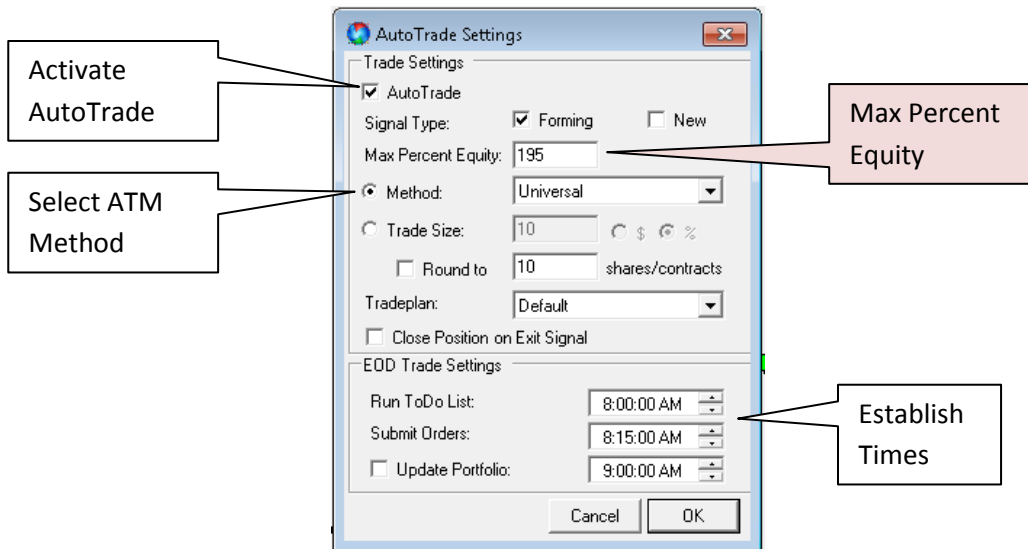
 **Important**

AutoLock prevents the program from being used while AutoTrade is active. If you plan on using OmniTrader while AutoTrade is active, then UN-check **Enable Auto Trade Lockout**. But make sure you leave OmniTrader in Real Model It cannot automate trading from Portfolio Mode.



Establishing an email address for notifications

4. Click the AutoTrade tool bar to activate the AutoTrade feature.



Configuring AutoTrade

5. Select **(o) Method** and then “Universal” in the drop down box.

6. Review the 3 times:

- **Run ToDo List** – the time automation will be run each day.
- **Submit Orders** – the time orders will be submitted. With some brokers, orders must be submitted just before the Open. With others, they can be submitted any time. See Note 2 below about mixed order types in Strategies.
- **Update Portfolio** – Current positions are updated in the Portfolio at this time.

7. Set Max Percent Equity to the percent of your account you want AutoTrade to manage. If you have a “cash” account (like an IRA) then the most you can use is 100%. If you have a margin account, the most you can use is 200%. Remember, the actual per-trade allocation is handled in the Allocation tab of ATM, so if you are trading less than 100% of your account, be sure to check these settings to make sure trade size is not more than Max Percent Equity.

8. Check the **AutoTrade** checkbox

When AutoTrade is active, the AutoTrade tool bar will turn GREEN.



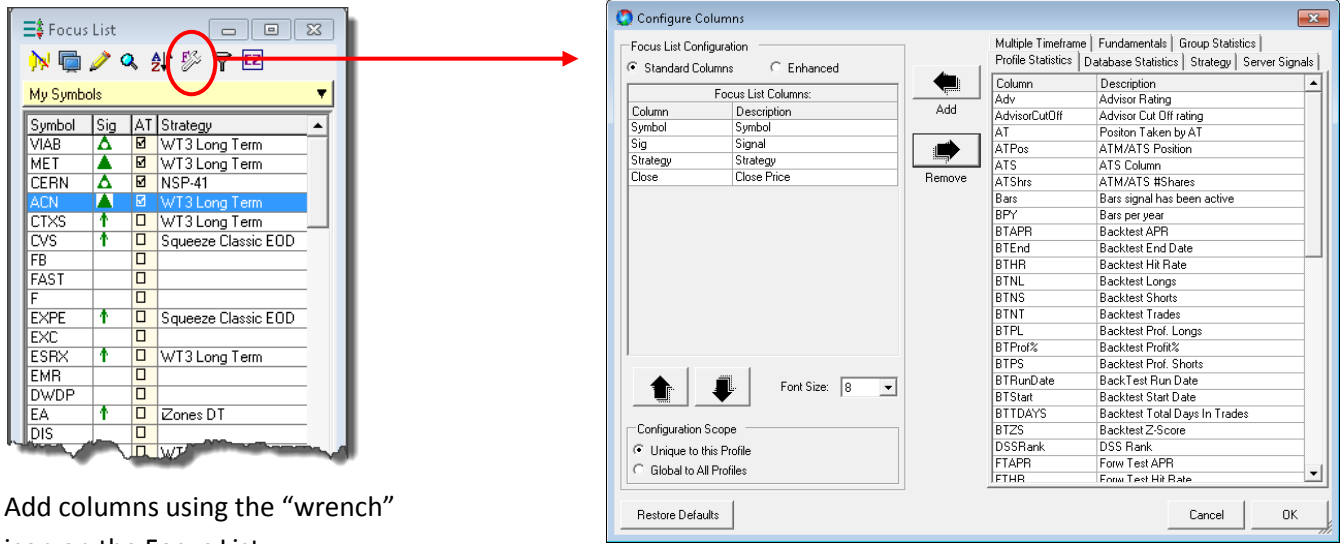
AutoTrade will run the ToDo List at the **Run ToDo List** time, submit trades at the **Submit Orders** time and (optionally) update the Portfolio with current positions at the **Update Portfolio** time.



If OmniTrader becomes unresponsive, turn off AutoTrade and go to **Tools.. Options, General** tab and un-check the option that says “Enable AutoTrade Lockout”

Focus List Columns

There are several new columns for the Focus List that support ATM.



Add columns using the “wrench” icon on the Focus List.

Columns:

- AT – if Position taken by ATM
- ATPos – Either ▲ or ▼ to indicate Trade direction.
- ATS – AT Sort (Rank) column, normalized on a scale from 0 to 100.
- ATShrs - # of Shares taken in the trade.

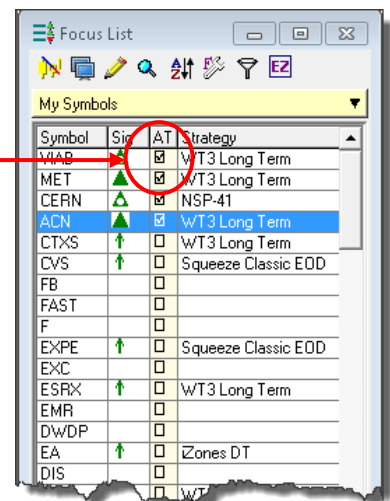
Daily Automation Runs

Each day, your ToDo List will run at the appointed time. ATM adjusts the Ranking method and Allocation approaches based on Market State. At the end of this process, it will arrive at a specific list of trades to take. These trades are indicated by a symbol in the AT column.

Interacting with OmniTrader while in AutoTrade.

Trades initiated by AutoTrade can be closed using the “C” icon in the upper right of the chart.

Additional trades can be placed in OmniTrader manually, but keep in mind that these trades may conflict with ones that AutoTrade is attempting to place. In the event of a conflict, the manual operation will override what AutoTrade wants to do.



AutoTrade can be turned ON or OFF at any time. If AutoTrade is turned OFF and then ON, trades initiated by AutoTrade will continue to be tracked, provided they are still “in-trade” on the Vote Line when it is turned back ON. If AutoTrade is turned OFF and a trade closes on the Vote Line, AutoTrade will lose track of it. For this reason, it is recommended that the user exit all AutoTrade positions if AutoTrade is turned OFF.

Paper vs. Live Brokerage



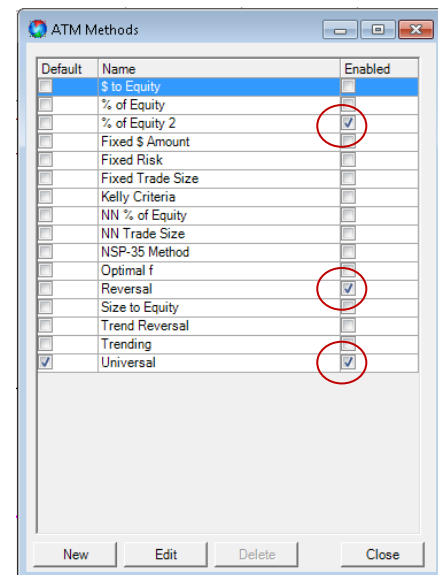
If brokerage has been activated (i.e., a live connection to the broker is established) then orders will be sent to the broker instead. This is indicated in the Broker tool bar.

See the OmniTrader Help to learn how to establish a connection with a supported broker. It is recommended that a user run in Paper for at least a few days to a week to gain familiarity with the software before activating for live trading.

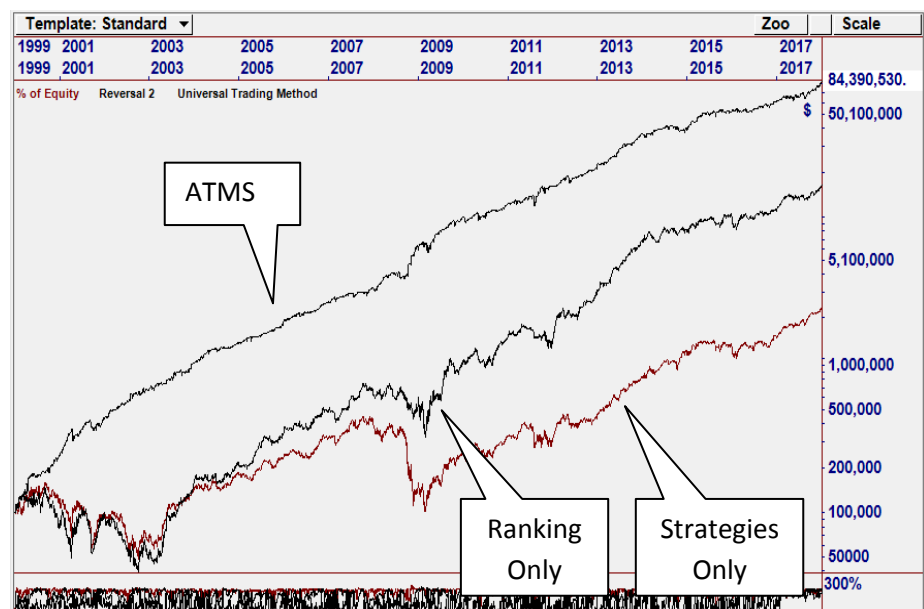
Comparing ATMS Methods

ATMS is designed such that methods can easily be compared against each other. In this ATM Methods selection, we have activated % of Equity, Reversal, and Universal.

When the Simulation runs, it will produce a separate result for each method. These can easily be compared in the Portfolio Simulator interface, as shown below.



This ATMS run shows the difference between % of Equity, Reversal (an ATMS Ranking Method) and the Universal Trading method. The considerable advantage of using ATMS is very clear in this comparison.



Equity Curve comparison showing differences in performance.

Important Notes about AutoTrade

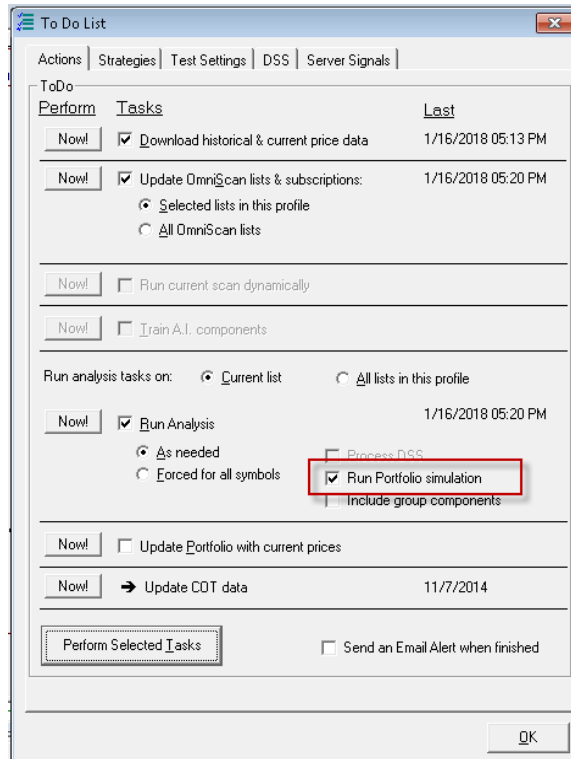
1. **Orders Blocks cannot be auto-traded.** Strategies used with AutoTrade MUST have a Trade Plan - not an Orders block. If a Strategy does not have a Trade Plan, this situation is easy to fix. Simply open it in Strategy Builder and add a Trade Plan that is equivalent to the Orders Block. See the OmniTrader Help file on how to configure Trade Plans.
2. **Mixed Order Types between Strategies are not supported.** Because AutoTrade submits orders at one time, it is not possible to have different Strategies with Market on Close and Market on Open orders. This is a peculiarity of how brokers accept orders. If a Market on Close order is submitted before the Open, it will be rejected. If a Market on Open order is submitted during the trading day, that will also be rejected.

The solution to this conflict is simple: If your Order Submission time is prior to the Open, all Trade Plans must have a Market or Market on Open order type. If your Order Submission time is during the session, all Trade Plans must have a Market or Market on Close order type.

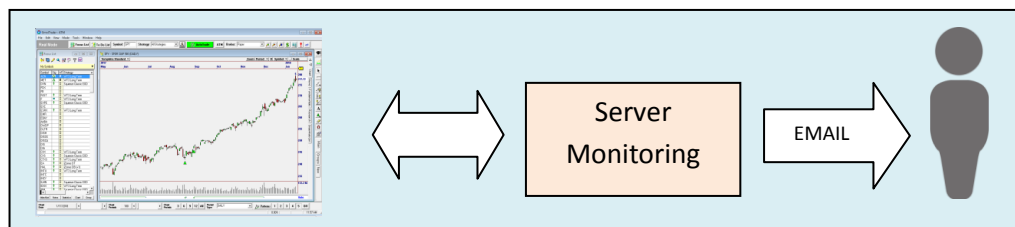
3. **Automatic Runs of the Portfolio Simulator from the ToDo List.**

OmniTrader runs the Portfolio Simulator when "Run Portfolio Simulator" is checked (see below). AutoTrade automatically checks this box.

If the Method you are using has optimization turned on, it will be optimized each day. Most users turn Optimization OFF once they have configured a Method for use. The Universal Method has all Optimization turned OFF.



4. **Email Notifications.** Our server will send email notifications when orders are placed, if there is an error in OmniTrader, OR if the server detects that an AutoTrade process has stopped.



Our servers constantly monitor AutoTrade and send email if there is a malfunction.

About the Universal Method

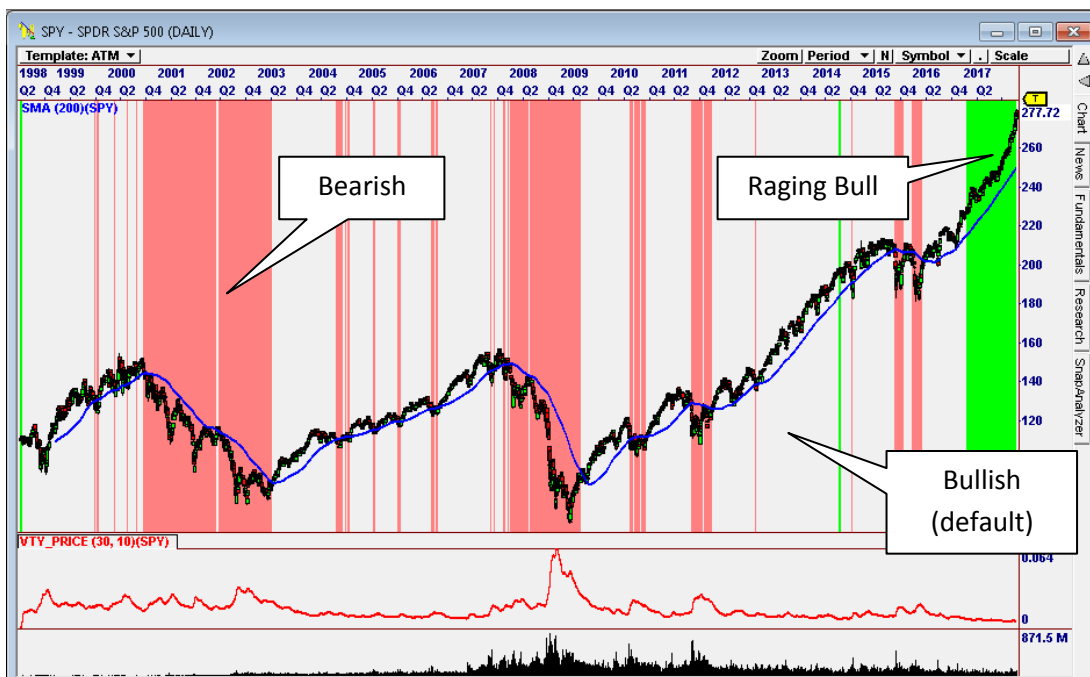
The included Universal Method demonstrates 3 Market States, each of which has its own, separately defined Ranking and Trade Allocation. In this section we will look at specifics of how Universal is defined and ways you might want to customize it.

Open the ATM Profile by clicking File, Open from the main menu to see the Universal Example.

Market States

Three Market States are defined:

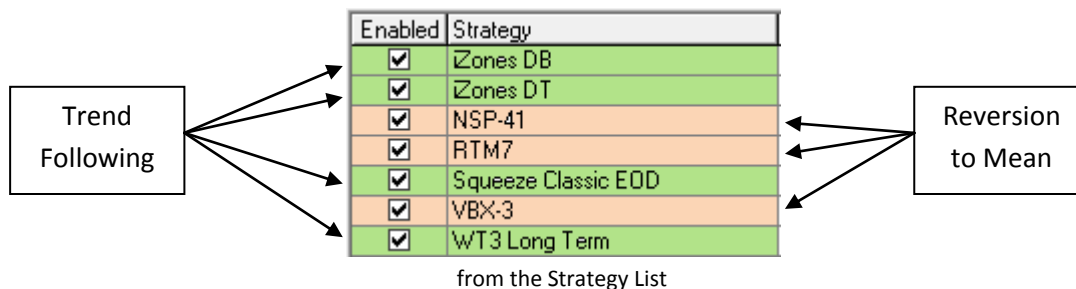
- “Raging Bull” – Volatility Price Ratio of SPY at a very low value (less than 0.1)
- “Bearish” – The SPY ETF is below its 200 period Moving Average
- “Bullish (default)” – Neither of the above.



The ATM Chart Template will show the Market States used in Universal.

Strategies

For the Universal Method example, we activated 7 popular Strategies.



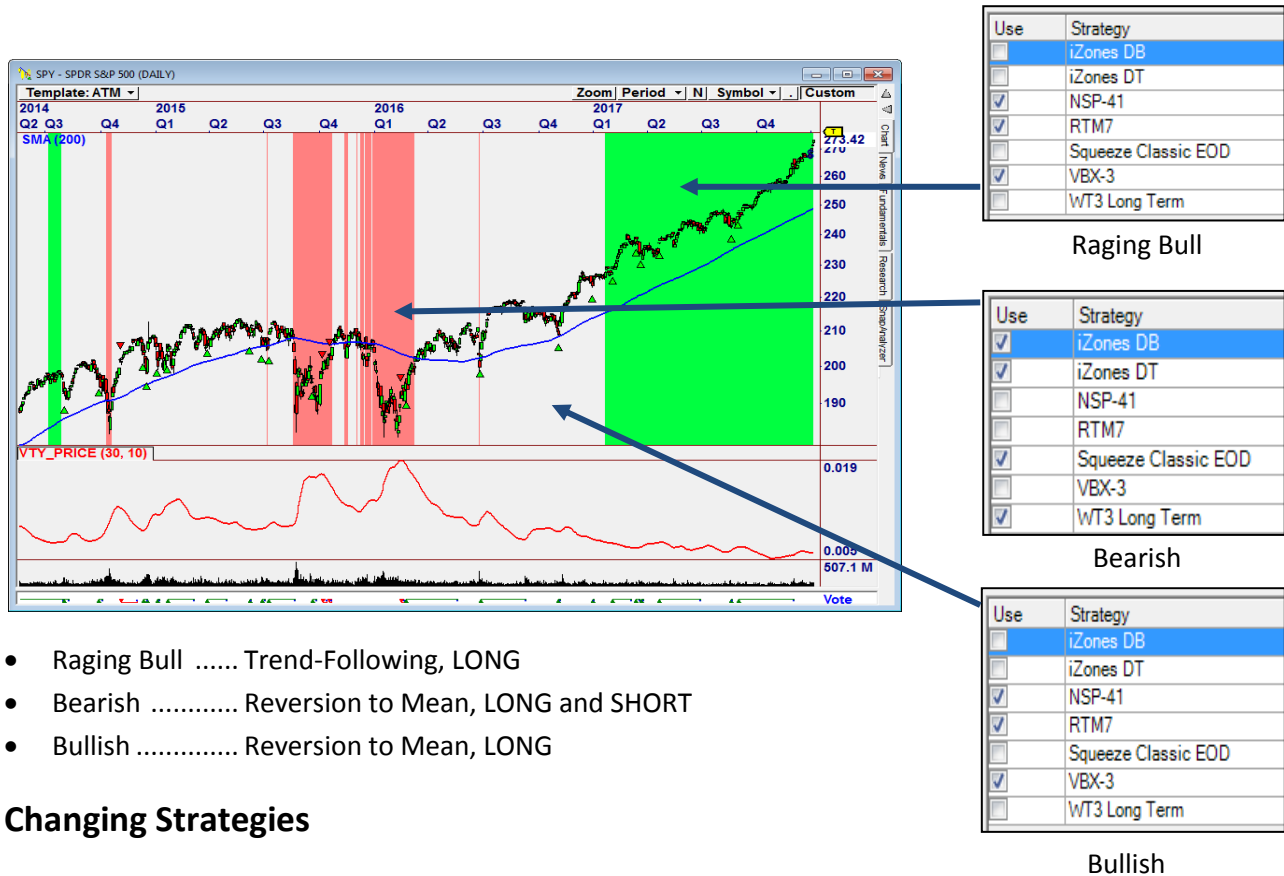
Do you need precisely these Strategies?

One of the most common questions we get is, “What if I don’t have all these Strategies?” The obvious answer is you can call us and we will upgrade you at a reasonable cost to acquire them.

HOWEVER, there is nothing special about the ones we used, except that three of them are short term, “Reversion to Mean” Strategies and some are longer term “Trend Following” Strategies.

Nirvana has released many Strategies over the years. XLS-19, T3 and the X-Suite are just a few really good Reversion to Mean Strategies. Position Trader and Guppy are some great Trend Following strategies. In the weeks after release to Beta Testers, several users doubled and tripled our published results by using other Strategies.

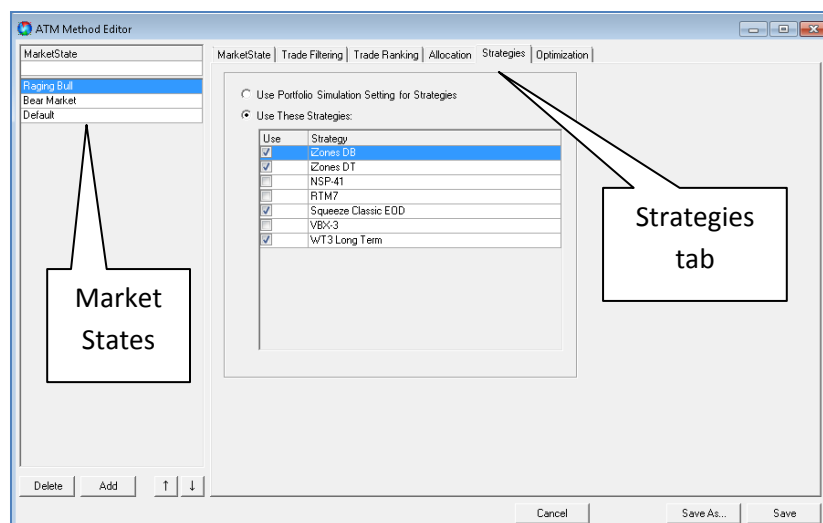
So before purchasing more Strategies, we suggest you activate the ones you have according to the following scheme.



- Raging Bull Trend-Following, LONG
- Bearish Reversion to Mean, LONG and SHORT
- Bullish Reversion to Mean, LONG

Changing Strategies

The Universal Method can be examined by double-clicking the method in the ATM list. To change the Strategies being used, click the Strategies tab.



Strategies tab in ATM

In the above screen capture, the Raging Bull Market State is selected. You will see these Strategies if you have them in your OmniTrader. If you don't have them, you will see all the ones you have activated in your profile, but they will not be checked.

Simply click [x] under "Use" for each one you want to run.

- Raging Bull Market State – Use "Trend Following" Strategies.
- Bearish Market State – Use "Reversion to Mean" Strategies.
- Default (Bullish) Market State – Use "Reversion to Mean" Strategies.

In case you don't know the classifications of your strategies, here are some examples:

**Reversion to Mean
(Shorter Term) Strategies**

CRT-3
CTX-1
MS-16
MVX-15
NSP41
RTM7
T3
VBX3
X-Suite
XLS-19
UIS (universal indicator suite)

**Trend Following or Breakout
(Longer Term) Strategies**

DAR (Darvas Box)
Hurst
GMMA (Guppy)
IT (Intrinsic Trend)
KB Squeeze EOD
POS (Position Trader)
Squeeze Classic EOD
WT, WT2, WT3 (Wave Trader)

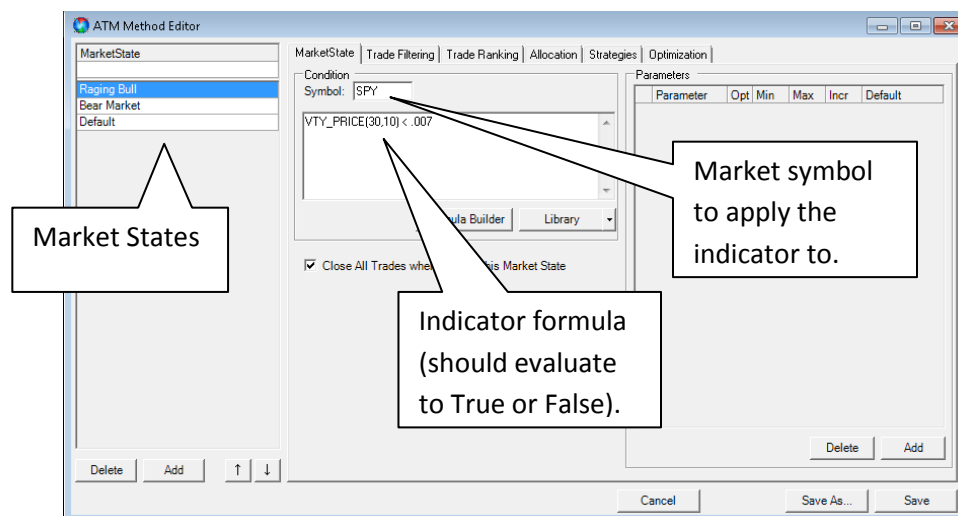
Working with ATMS

In the above section, “Using ATMS” we show how to use the feature for trading, including customizing the Strategy Selection list, which most users will want to do. However, many users will want to go beyond simply using the software to implement their own Filtering, Ranking, Allocation and Market State ideas. They also may want to OPTIMIZE values in ATMS in order to fine tune indicators, allocation values or long/short balancing within Market States. In this section, we will discuss how to do that.

Market State

Market State was discussed with respect to the Universal Trading Method example. Users can easily change the ones we provide or add their own.

Market State is shown in the first tab in the ATM interface:



The Market States are evaluated in the order they appear. The first one that is TRUE is applied to the given bar in the charts. In this example, if VTY_PRICE(30,10) is less than 0.007, then all tabs in this Market State will be used to establish Filtering, Ranking, Allocation and the Strategies applied.

Example of Optimizing Market States

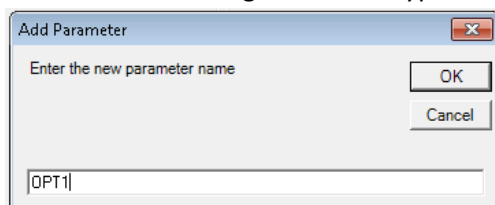
In this section, we will optimize the Indicator formula for the Raging Bull Market State. To do this, we will establish multiple variables in the Indicator Formula, and define an optimization range for each.

1. Change the Formula to use optimizing variables.

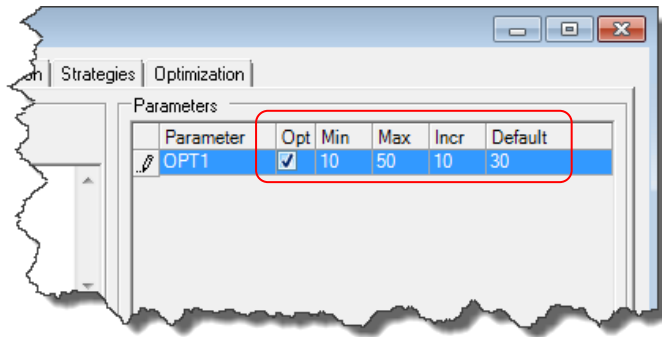
In this example, we might want to try the following: VTY_PRICE(OPT1, OPT2), where OPT1 can be 10-50 in increments of 10 and OPT2 can be 5-20 in increments of 5.

2. Add an Optimization Variable

Click “Add” on the right side and type “OPT1” in the box.



Now, change the values for Min, Max, Incr to 10,50,10 with Default 30.
Check the box under the Opt column.

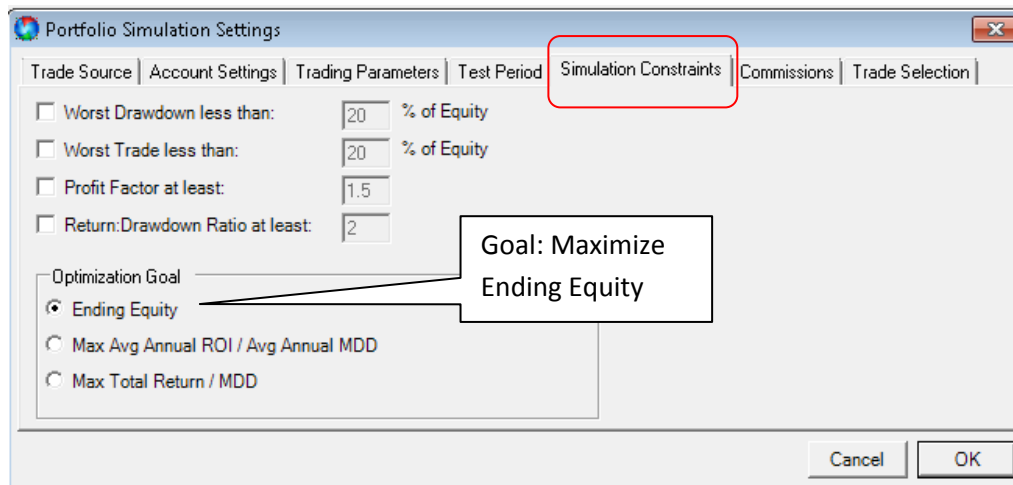


3. Add the 2nd Optimization Variable

Add OPT2 the same way, and set Min, Max, and Incr at 5,20,5 with Default set to 10.

4. Set Optimization Goal

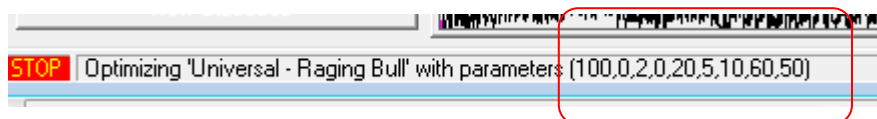
The Optimization Goal specifies how the optimization determines the best answer. This setting is in the **Simulation Constraints** tab, which is general to ALL Methods.



5. Run the Optimization

Now, click **Run Analysis** on the left side of the Portfolio Simulator interface.

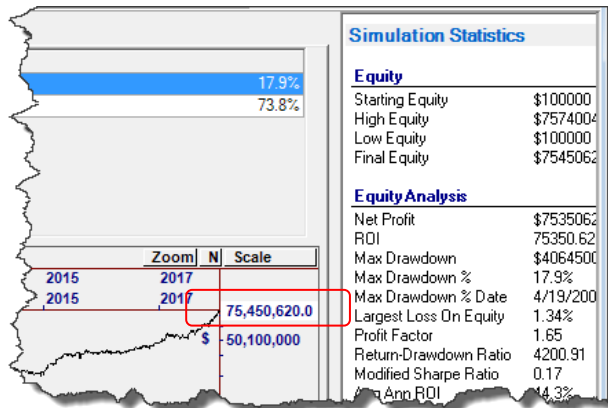
As the optimization runs, you will see the parameters displayed at the bottom as each run progresses. On the FIRST run, the Portfolio Simulator must collect all the trades from the database, but on subsequent runs, it will be much faster because the trade data is cached.



When the optimization finishes, the Best Answer will be used in the Simulation and resulting Equity Curve and Statistics, and can be copied to the ATMS Method (Step 7 below).

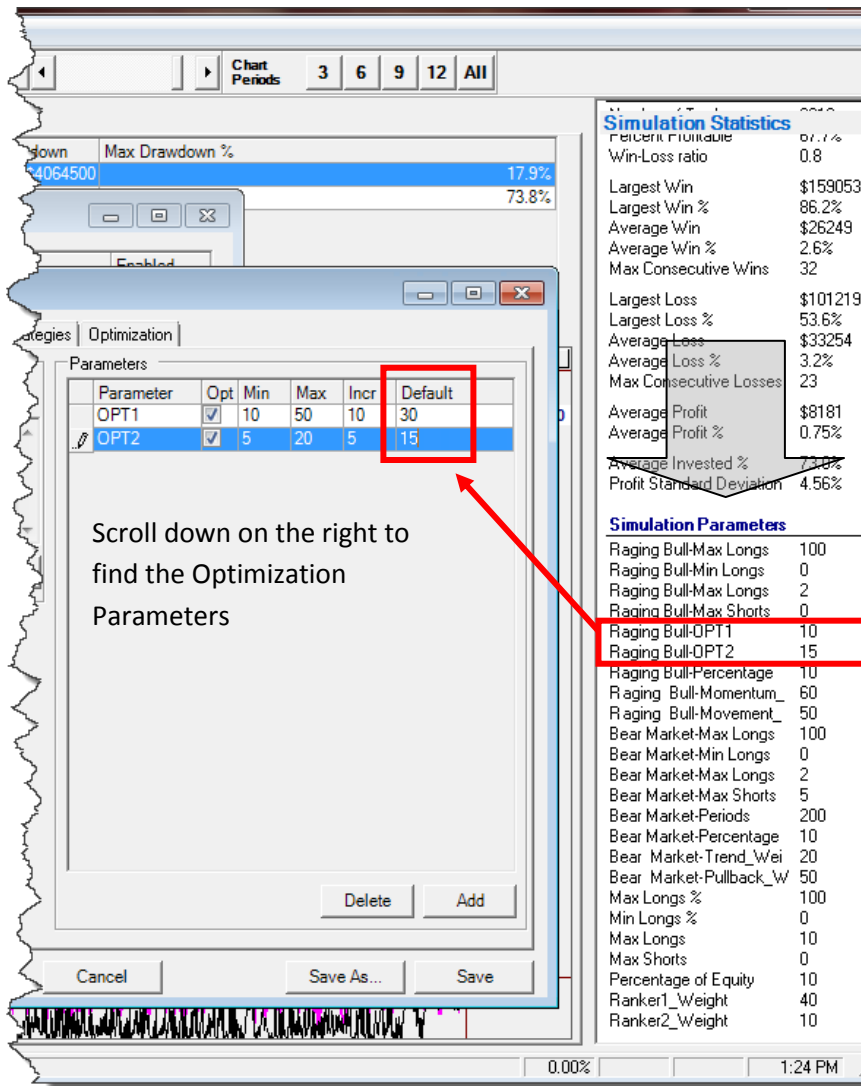
6. Review the Results

In our run, doing the above resulted in about a 3% improvement in final equity, from \$73m to \$75m.



7. Setting the Defaults based on the Optimization

Since we like the results, we want to make the new optimized values the “Defaults”



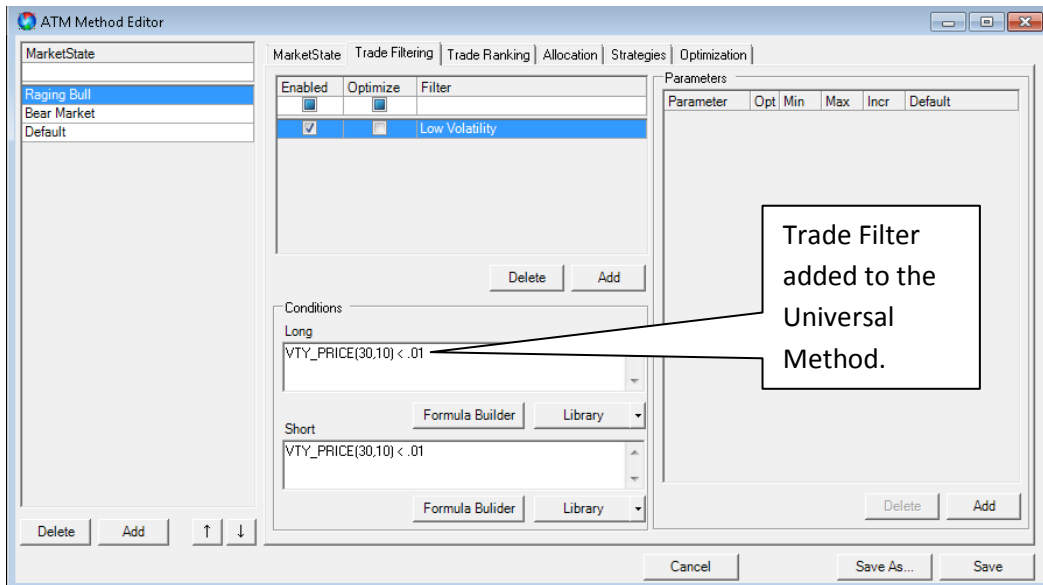
IMPORTANT

When you optimize any parameters in ATMS, make sure you copy the values to the ATMS interface if you want to use them in subsequent runs.

Using your mouse wheel, scroll in the right column down to the bottom. Each set of variables will be labeled in the format **MarketState-Parameter**. Simply copy the values to the Default column for the Optimization variables you established, as shown.

Trade Filtering

Filters are applied to any Symbol to be traded in a Market State, to only allow those with certain conditions. Here is the Filter tab with a new Filter added that is called Low Volatility.



To add the Filter:

1. Click **Add** in the Filter List; Enter the Name of the Filter (Low Volatility in the above example)
2. Fill in the formulas for Long and Short.

In the above example, the formula used is: $VTY_PRICE(30,10) < .01$

The Filter Formulas can also be optimized. (see **Example: Optimizing Market States** above.)

Trade Ranking

ATMS can use multiple indicators for ranking. Here is an example, where VTY_PRICE and TRII indicators are used to indicate that one trade is better (more likely to succeed) than the other.



continued from previous page...

The indicator values in CERN are lower than PYPL. If the indicator values are predictive, we can use this to select PYPL over CERN.

How Ranking Works

ATS COMBINES Indicator Formulas to create a single value. For Reversal the formulas are:

$$F1 = VTY_PRICE(14,5)$$

$$F2 = TRII(60,40)$$

A Score is based on weighted values of the indicators using different weights.

$$\text{Score} = w1 * F1 + w2 * F2$$

We can let ATS “optimize” **w1** and **w2** to find values that maximize Ending Equity (see Optimizing Trade Ranking Weights, below). In this case, the values **90** and **30** were found. We use these values to calculate the Score, as shown to the right



$$\begin{aligned} \text{Score} &= 90 * VTY_PRICE(14,5) \\ &\quad + 30 * TRII(60,30) \\ &= 90 * 7 + 30 * 100 = 3,630 \end{aligned}$$

This value is scaled with other scores in a range from 0 to 100.

Optimizing Trade Ranking Weights

The Trade Ranking tab has TWO SEPARATE Optimization functions – one for Weights and another for Formula Parameters.

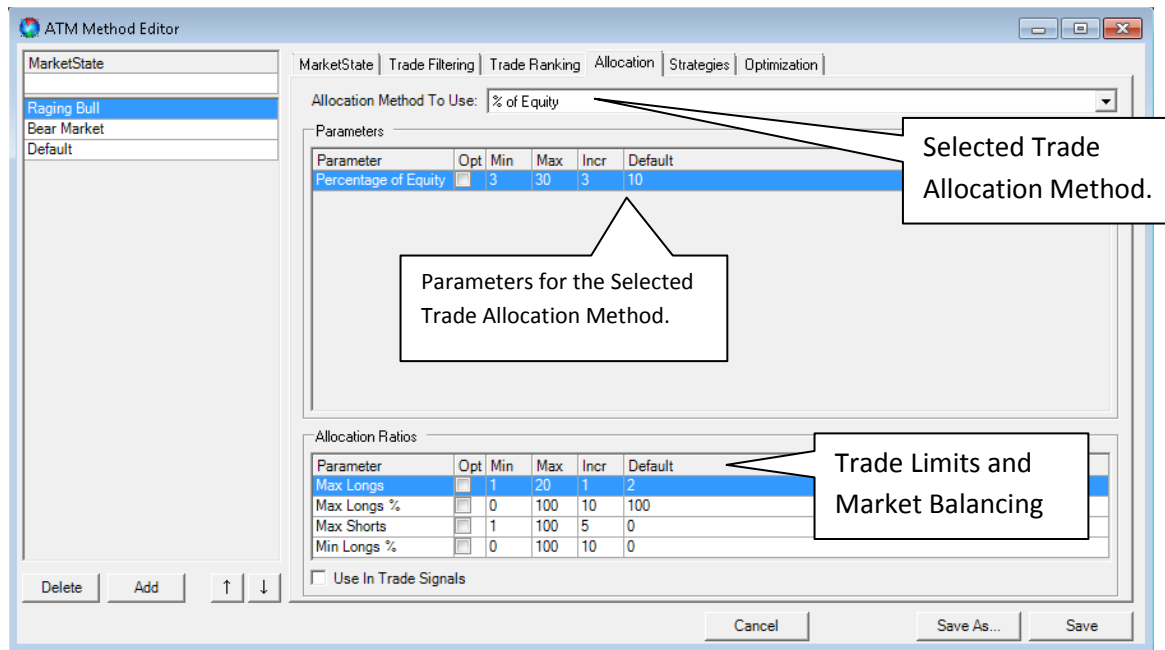
Enable	Opt	Ranker	Min	Max	Incr	Default Weight
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Momentum	0	100	10	60
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Movement	0	100	10	50

The Min, Max and Inc fields are separately available for both Ranking Weights and Formula Optimization (See Optimizing Market States, above)

Allocation

The Allocation tab is used for two functions:

1. Establish individual trade allocation method (like % of Equity or Fixed Trade Size)
2. Establish market balance (Longs vs. Shorts)



The Trade Allocation method is one of our standard PortSim methods, like % of Equity, Kelly Criteria, and many others. When you select a method, the parameters will be displayed below it, which can be optimized.

The Trade Limits and Market Balancing establishes Max Longs and Max Shorts (trades). Max Long% and Min Long% automatically establish the value of Max Short %, since it will be the inverse of the Max Long%. That is, if Max Long% is 80 then Max Short% is $100 - 80 = 20\%$.

ATMS Method Development

Many of our users have been around technical trading concepts for many years, and have accumulated experience with Bollinger Bands, Stochastics, and other indicators. This experience can provide valuable insights into the best way to perform Ranking and Filtering. Fortunately, if you are generally familiar with how OmniTrader Strategies work, it's easy to use indicators to create new ATMS Methods or to add Market States within a defined Method.

In the sample ATM profile, we used the S&P 100 and Nasdaq 100 stocks. It's important to recognize that OmniScans can be used to select symbols each day. Once a Trade Filter has been identified that improves results in the primary Market State, the formula for the Trade Filter can be used to create a new OmniScan, allowing the entire market to be scanned for those opportunities.

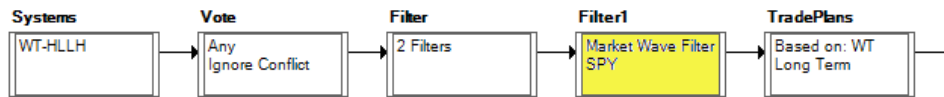
In addition, custom indicators can be developed for Ranking, Filtering or Market States. Market States can be defined for different index symbols within the same method. We have only scratched the surface of what can be done with ATMS and look forward to seeing how our users profit from it.

The History of Automated Trade Management

Over the years, Nirvana Systems has created several products that are designed to either filter trade or change the trade mix based on market conditions.

Filters in Strategies

The first trade management feature introduced in OmniTrader was filters in Strategies. A Filter in the Strategy flowchart enables a Strategy to withhold signals if certain market conditions are not present. This feature was added to Omni Trader around 2000.



The Filter block can be used to keep a Strategy from trading in certain conditions.

Dynamic Signal Selection (DSS)

In 2013 a new product was developed by Nirvana Systems to apply this concept to multiple strategies at the same time. In this case, a new concept – “Market State” was introduced. A single formula was applied to an Index to allow Signals in the Focus List to generate trades only if the condition is met (such as S&P 500 above a moving average). This new feature would apply to ALL Signals, not just those in certain Strategies. Ranking of Signals based on a single indicator was also added. Finally, allocation to Longs vs. Shorts could be defined for any Market State.

Dynamic Signal Selection

Activate DSS

Signal Rank

Use	Name	Add
<input type="checkbox"/>	Liquidity	Add
<input checked="" type="checkbox"/>	Relative Strength	Edit
<input type="checkbox"/>	Reversal	Remove
<input type="checkbox"/>	Reversion to Mean	
<input type="checkbox"/>	Trend Strength	

Market Balance

Use	Name	Longs	Shorts	MinL%	MaxL%	Add
<input checked="" type="checkbox"/>	Downtrending	2	4	0.00 %	100.00 %	Edit
<input type="checkbox"/>	High Volatility	1	1	0.00 %	100.00 %	Remove
<input type="checkbox"/>	Overbought Mar	0	5	0.00 %	100.00 %	Remove
<input type="checkbox"/>	Oversold Marke	5	0	0.00 %	100.00 %	Remove
<input type="checkbox"/>	Trading Range	3	3	0.00 %	100.00 %	Remove
<input type="checkbox"/>	Uptrending Mar	5	2	0.00 %	100.00 %	Remove

Use In-Trade Signals

Run Now

OK

Single Indicator Ranking

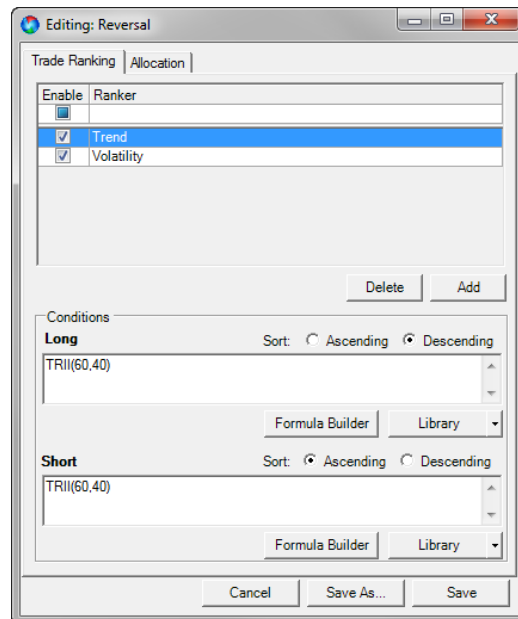
Market State & Long/Short Balancing

Dynamic Signal Selection runs in the To Do List

This feature was released with OmniTrader 2014. It definitely improves the profitability of OmniTrader when properly configured, but the user is required to run the Focus List each time a new configuration is to be tested. So, it was impractical to try many variations of the indicators. For this reason, advances in the Market State concept were slow to be realized with the product.

Automatic Trade Selection (ATS)

In 2017, Nirvana developed in a new way to Rank Signals in the Focus List. Rather than perform this task in the ToDo List, which means all Symbols must be run across the time period selected, the Portfolio Simulator was used instead.



Automatic Trade Selection is the pre-cursor to ATMS, supporting Ranking and Allocation.

Adaptive Trade Management System (ATMS)

The **Adaptive Trade Management System** combines Strategy Selection, Trade Ranking, Trade Filtering, Allocation and Long/Short Balancing under Market States. In addition, the parameters for any part of ATMS can be optimized. Finally, a new feature is being added – Index Put Protection, which will further enhance the risk reduction aspects of ATMS.

Method:	Market State	Strategy Selection	Filter Signals	Rank Signals	Balance Long/Short	Allocation	Additional Protection
Strategy Filters			✓				
Dynamic Signal Selection	✓			✓	✓		
Automatic Trade Selection				✓	✓	✓	
Adaptive Trade Mgmt	✓ OPT	✓ OPT	✓ OPT	✓ OPT	✓ OPT	✓ OPT	+ OPT

Comparison of approaches to trade management.

Ideas for Furthering the ATMS Concept

Nirvana Club (ARM) Strategies

AI Rules produces superior Strategies. We have not yet tested ARMx Strategies with ATMS. But we expect results with these Strategies to be better than the early method released with the platform.

Using NN and GA Indicators for Filtering and Ranking

In 2015 and 2016, indicators for the Neural Network and Genetic Algorithm were released in the The Nirvana Club. We expect these indicators to assist with both Trade Filtering and Trade Ranking.

Advanced Allocation Methods using the SDK

For those familiar with the Microsoft Dot Net programming environment, the OmniTrader Strategy Development Kit (SDK) has the ability to develop custom allocation methods.

Future Developments

Options, Futures, and Forex

In theory, any OmniTrader Strategies can be traded by ATMS. For future markets, we have the Commodity Index (CRB) which can be used for Market State. To trade Options, one only need to add an Options Trade Plan to a Strategy. Given a successful method on an Equity List, the right Options Strategy could significantly leverage results. Future testing of these position types is planned.

ATMS in Real Time

Since OmniTrader can generate Portfolio Simulations on Real Time data, it should be possible to use ATMS to trade in Real Time. Some adjustments will likely need to be made to integrate the Portfolio Simulation with in-session trading, but reaching this capability is a goal for the product.

Index Put Protection

A new tab is being developed for ATMS designated "Market Protection". On this tab the user will specify "[x] Protect my account from a or higher market correction." If activated, ATMS will examine the Beta of all positions, balance Longs against Shorts, and establish sufficient Put Contracts on a given index to protect the account against losses beyond this level of market correction. Puts will then be "rolled" monthly into the next contract to continue protection, similar to how a Trailing Stop works in Strategies.

ATMS in OmniVest

ATMS was sanctioned by Omni Traders International to take the technology into OmniVest. Efforts are already underway to do so. But even after ATMS is in OmniVest itself, the OmniTrader version of ATMS will continue to be enhanced and improved for those users who want to continue using the desktop software.

Release Notes:

Strategy Selection

Strategy selection optimization was added in this release. This is described above under Using ATMS.

Using AutoTrade

We have been vigorously testing AutoTrade to ensure robustness in users' accounts. This is especially important because users may hold long term positions in their brokerage account that they do not want OmniTrader to close. But we are nearly finished with our testing. AutoTrade is scheduled to be released Wednesday, January 31. When it is, AutoTrade can be activated in both paper and actual brokerage accounts.