

# Trading Options with TradeStation® OptionStation®



MICHAEL BURKE



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**Options can be much more complex and challenging for traders than just trading stocks, and are not suitable for all traders.**

In order to simplify; the calculations, commissions, fees, and other trading costs have not been included in the examples within this book. These costs will impact the profitability of all stock and options trades and should be considered prior to making any trade. Traders should consult a tax adviser about any potential tax consequences of their trades.

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# PROLOGUE

TradeStation OptionStation is a collection of options analysis tools that allow you to quickly find, analyze, and trade options positions more effectively. OptionStation Search allows you to scan for the options strategies with the most profit potential that match your market outlook. OptionStation Analysis allows you to analyze any options strategy built from the universe of options symbols with real-time prices, theoretical values, and volatilities. You can also graph options positions, calculate price-range probabilities, and graph historical volatilities.

TradeStation Securities is an online direct-access brokerage company that allows you to trade stocks, options, futures and forex from one trading platform with low competitive commissions. TradeStation Securities offers you a complete options trading solution, with order routing to all U.S. options exchanges, spread trading with one order, and low commissions with no minimum ticket charge.

Utilizing OptionStation throughout this book, we will look at the process of developing, analyzing and implementing an options trade, and some of the various factors that need to be considered at each step along the way.

**Options can be much more complex and challenging for traders than just trading stocks, and are not suitable for all traders.** OptionStation allows you to manage those challenges and complexities to take advantage of the opportunities and benefits of trading options.

However, in order to trade options, you must understand the nature of options trading: the risks and benefits, how options are priced, and the various options positions and strategies and when they are employed. The first half of this book is an options primer with essential options trading concepts and terminology you will need to get started trading options. The second half of the book will focus on TradeStation OptionStation analysis tools and how you can utilize these tools to effectively trade options.

The primary focus of the examples in this book is stock and index options; however, the concepts are the same for futures options. Although this book is a good starting point, it is important to completely understand the concepts, procedures, and instruments you are trading. All of the various stock, options and futures exchanges offer extensive educational material on the options products you can trade, and are an excellent source of additional information on options trading.

## Acknowledgments

This book was written with the help and collaboration of many talented people here at TradeStation, including Stan Dash, José Vicente, Jesus Nava, Frederick Palmliden, Erik Skyba, Alexandra Guevara, Hans Stimming, Roy Radziszewski, and Cathy Martinez.



# THE BENEFITS OF TRADING OPTIONS

Many traders are using options as an integral part of their overall trading strategy. Options trading offers benefits that can create additional profit and risk management opportunities that trading stocks alone just cannot provide. Options offer trading flexibility, increased leverage, and limited and measured risk going into a trade. In addition to trading options for profits, many traders use options to increase returns and generate income from stock positions and as a safety hedge for their stocks and portfolios.

Let's look at the benefits of trading options.

## Flexibility

Options provide an extremely flexible investment tool. Most active stocks, ETFs, and indices have options that are available to trade. At any given time, you can buy or sell options contracts that have a wide selection of strike prices and expiration dates. In addition, most of these underlying assets offer LEAPS, which are long-term options with expiration dates that can be one to two years away. When trading stocks, you can only benefit from a specific directional movement. However, trading with options you can benefit from many other market situations.

Options can be bought and sold in many different combinations because of their unique risk/reward structure. This allows you to take advantage of almost any market condition. Options strategies can be created to make money in rising or declining markets, quiet markets with no price movement, or explosive markets where the direction is uncertain. They can also be used to generate income or hedge a stock position.

## Options Trading Opportunities

### Underlying Asset Alone

Long Stock  
Short Stock

### Market Outlook

Market is Moving Higher (Unlimited Risk)  
Market is Moving Lower (Unlimited Risk)

### Option Strategies

Long Call  
Long Put  
Married Put  
Covered Call  
Bull Call Spread  
Bear Put Spread  
Long Straddle  
Long Strangle  
Butterfly

### Market Outlook

Market is Moving Higher (Limited Risk)  
Market is Moving Lower (Limited Risk)  
Hedge a Long Position (Limited Risk)  
Lower Cost Basis (Unlimited Risk)  
Market is Moving Higher (Limited Risk)  
Market is Moving Lower (Limited Risk)  
Market Neutral, Volatility Increasing (Limited Risk)  
Market Neutral, Volatility Increasing (Limited Risk)  
Quiet Market (Limited Risk)

There are additional multi-leg option strategies that you can learn about and employ in your options trading. *Note: Each leg of a multi-leg spread incurs a commission and bid/ask cost that can be significant.*

## Limited Risk with Unlimited Profits

When you buy a Call or Put options contract on a stock, you have the right to buy or sell, respectively, 100 shares of the stock at the strike price of the option on or before the expiration date. If you buy a Call option, you benefit from unlimited profit potential as the stock moves higher. Buying a Put option, you benefit from unlimited profit potential as the stock moves lower.

As the buyer of an option, the maximum loss that you can incur is limited to the amount of money that you paid for the option contract. Conversely, the seller of an options contract has limited profit potential and unlimited risk exposure.

**Note regarding Put options:** It is common to say that the buyer of an option has unlimited profit potential; however, you should note that the buyer of a Put option has a profit potential limited by a price of 0 for the underlying asset; that is, the underlying asset cannot go down indefinitely, only to 0. Similarly, it is common to say that the seller of an option has unlimited risk. However, the seller of a Put option has risk limited by a price of 0 for the underlying asset; that is, the underlying asset cannot go down indefinitely, only to 0.

Options can also be used to protect an individual stock position or a portfolio of stocks from adverse market movement (Figure 2). By hedging your stock or portfolio positions with options, you can limit your losses and lock in profits at a certain price level if the market moves against you.

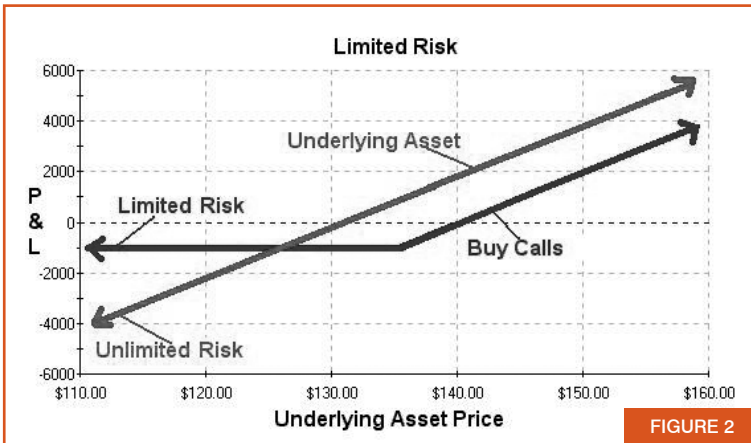


FIGURE 2

When you buy or sell short an underlying stock or index, you have unlimited profit and unlimited loss potential. However, when you purchase a Call or Put option, you now have limited risk, but still have unlimited profit potential.

## Leverage

Options trading has the advantage of leveraging capital by allowing a small amount of capital to control a larger dollar-value amount of the underlying asset (stock, futures, index). Because of leverage, an investment of \$2,500 in options versus \$2,500 in the underlying asset may result in greater profits. **With leverage, the opportunities for greater profits come with the risk of greater losses.**

# OPTIONS TRADING PRIMER

The options markets provide a mechanism for traders to achieve specific investment goals by tailoring their options strategies to meet a specific set of trading criteria and preferences. An options trader may be looking for long- or short-term profits, or she may be looking to hedge an existing position. Whatever your objectives may be, you need a thorough understanding of options and the options markets you will be trading.

An option is a financial instrument called a “derivative.” It is called a derivative because the options contract derives its price and value from the underlying asset on which it is based. An option’s value will usually change as the price of the underlying asset rises or falls. An option’s value may also be affected by other market conditions such as a rise or fall in volatility, the passage of time, or changes in interest rates and dividends.

Before computers were widely available, options trading was not really feasible for the average individual trader. The formulas used to calculate theoretical options values, implied volatilities, position values, risk factors, and probabilities were complex and required advanced math skills. This gave the floor traders a real advantage because they had the tools to calculate and evaluate these values. Fortunately, now we all have access to computers with software that can quickly calculate all of these values in real time throughout the trading day, putting us on a more even playing field.

As a trader, it is critical to understand all aspects of the instruments you are trading, and for options trading that is doubly so. The Options Industry Council, along with other stock, options, and futures exchanges, offers an extensive array of educational tools and materials that can help you learn about the fundamentals of trading options.

## What Is an Option?

An option is a contract that gives the buyer (holder) the right to buy or sell a specified number of shares or contracts of a particular underlying asset, at a fixed price, by a specified date. Each options contract is based on an asset: a stock, cash index, forex pair or futures contract.

The seller (writer) of a Call options contract is obligated to deliver the underlying asset at the agreed price upon demand up until the expiration date. The seller (writer) of a Put option contract is obligated to receive the underlying asset at the agreed price upon demand up until the expiration date. (For European-style expiration options, delivery is at expiration only.)

*Note: An options trader can both buy and sell an options contract anytime during the life of the option.*

## Two Types of Options

### Call Option

A Call option is a contract that gives the buyer of the option the right, but not the obligation, to purchase a fixed number of contracts or shares of the underlying asset at a fixed price, on or before a set expiration date. The buyer pays a premium to a seller for this right.

### Put Option

A Put option is a contract that gives the buyer of the option the right, but not the obligation, to sell a fixed number of contracts or shares of the underlying asset at a fixed price, on or before a set expiration date. The buyer pays a premium to a seller for this right.

## Contract Specifications

### Strike Price

The strike price (or exercise price) is the price at which the underlying asset may be bought by the holder of a Call or sold by the holder of a Put.

### Expiration Date

The expiration date is the date on which an option expires. Options held to this date and not yet exercised must be settled, and then cease to exist.

## Two Types of Expiration Styles

### American-style

American-style options may be exercised anytime until their expiration. U.S.-traded equity options are typically American-style.

### European-style

European-style options may be exercised only in a defined period at expiration. Some U.S.-traded index and currency options are European-style.

## Settlement

### Physical Delivery

Physical delivery options entitle the buyer of a Call option to receive actual delivery of the underlying asset upon exercise, and the buyer of a Put to deliver the underlying asset upon exercise.

### Cash Settlement

Cash settlement options do not permit actual delivery of the underlying asset. Instead, if held to term, they culminate in a cash credit or debit for the difference in value from purchase to expiration.

# OPTIONS SYMBOLOGY

As part of an industry-wide initiative known as the OSI (Options Symbology Initiative), all stock and index options symbology changed to a more descriptive system starting in February, 2010. All of the stock and index options supported by TradeStation, including yield-based options and short-dated options, were affected. Futures options were not part of this initiative.

Options symbols originally consisted of a symbol root, followed by a space, followed by one character that represented both the expiration month and option type (Call or Put), followed by a one-character code that represented the strike price.

*[Symbol Root] + [Space] + [Expiration Month / Option Type Code] + [Strike Code]*  
*Here's how a sample option originally looked as a tradable symbol: XYZ CW.*

The TradeStation consolidated and regional exchange symbology now consists of an underlying symbol root, followed by a two-digit expiration year, followed by a two-digit expiration month, followed by a two-digit expiration day, followed by one character (either C or P) indicating the option type (Call or Put), followed by the strike price, followed by an optional regional exchange designation.

## **Composite Symbol Attributes**

XYZ Corp., 7/17/2010 expiration, \$30 Call  
XYZ Corp., 7/17/2010 expiration, \$29 Put

## **Composite Symbol**

XYZ 100716C30  
XYZ 100716P29

## **Regional Symbol Attributes**

XYZ Corp., 7/17/2010 expiration, \$30 Call, CBOE  
XYZ Corp., 7/17/2010 expiration, \$29 Put, AMEX

## **Regional Symbol**

XYZ 100716C30-CO  
XYZ 100716P29-AM

# HOW OPTIONS ARE PRICED

The premium you pay for an option is made up of both intrinsic and time value, and is based on the theoretical risk in dollars that the options writer is willing to take. Therefore, the options premium is a theoretical measurement of risk and is calculated using a mathematical formula called an Options Pricing Model. This formula takes into account the many factors we have discussed that make up the components of an options contract. The options value calculated by the pricing model is called the “Theoretical Value” of the option.

Modern options pricing techniques with roots in stochastic calculus are often considered among the most mathematically complex of all applied areas of finance. These modern techniques derive their impetus from a formal history dating back to 1877, when Charles Castelli wrote a book entitled *The Theory of Options in Stocks and Shares*. Castelli’s book introduced the public to the hedging and speculation aspects of options. In 1962, another paper, this time by A. James Boness, entitled “A Theory and Measurement of Stock Option Value,” discussed a pricing model that made a significant theoretical pricing advancement from that of all his predecessors. More significantly, his work served as a precursor to that of Fischer Black and Myron Scholes, who in 1973 introduced their landmark options-pricing model that was awarded, along with Robert Merton, the Nobel Prize for Economics in 1997.

Today, the Black-Scholes model is still one of the industry-standard measurements for calculating stock and index options’ theoretical value based on these inputs to the formula: asset price, strike price of the option, volatility, days to expiration, the risk-free interest rate, and dividends for stock options. Additional models and variations have been written to improve upon the initial model, or to calculate theoretical values for futures options and other derivatives.

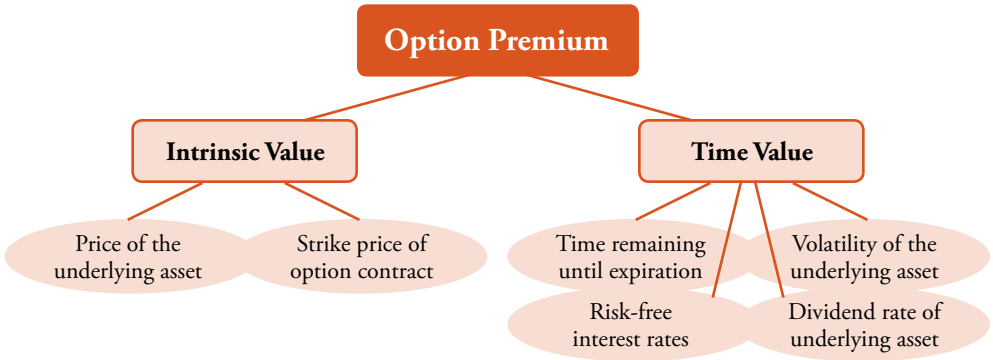
It is important to note that although there are models that are fractionally more accurate, Black-Scholes is the most computationally efficient of all the pricing models available, and is the default pricing model in TradeStation’s OptionStation.

You do not have to be a mathematical wizard to understand or use these calculations. OptionStation handles this for you, and displays the information in an organized and efficient way. However, if you are going to trade options, you should have an understanding of the factors that can affect the price of an option and therefore the performance of your trades. We are not going to explore the complex details of the various theoretical pricing formulas for options in this book. There are many more detailed references on this subject, but we will look at the basic pricing factors.

# Determining Factors of an Options Premium

The options premium is made up of two components: intrinsic value and time value.

The intrinsic value is the difference between the strike price and the current price for a Put, and the difference between the asset price and the strike price for a Call. The time value portion is made up of several risk factors such as volatility, days to expiration, dividends, and interest rates.



## Intrinsic Value

A Call option has intrinsic value if the strike price is below the current asset price. A Put option has intrinsic value if the strike price is above the current asset price. In these instances, an option's intrinsic value is the difference between the underlying asset price and the strike price of the option. Intrinsic value can never be less than zero.

For example:

If XYZ is trading at \$80 per share and you own a 90 Call option:

$$\$80 - 90\text{Call} = -10, \text{ intrinsic} = \$0.$$

However, if XYZ is trading at \$100 per share:

$$\$100 - 90\text{Call} = 10, \text{ intrinsic} = \$10.$$

If XYZ is trading at \$80 per share and you own a 90 Put option:

$$90\text{Put} - \$80 = 10, \text{ intrinsic} = \$10.$$

However, if XYZ is trading at \$100 per share:

$$90\text{Put} - \$100 = -10, \text{ intrinsic} = \$0.$$

## In-the-Money, Out-of-the-Money, and At-the-Money

The terms In-the-Money, Out-of-the-Money, and At-the-Money are key to understanding the intrinsic value of your options contract. These terms describe the relationship of the underlying asset (i.e., stock, futures, index, etc.) relative to the strike price of the option. An In-the-Money option has positive intrinsic value; an Out-of-the-Money option has no intrinsic value.

When the price of the underlying asset is at the strike price, the option is said to be At-the-Money.

### Call Option Contract at Expiration

Purchase 1 XYZ 160.00 Call at \$2.00 for a cost of \$200 for the position

Stock Price	Intrinsic Value	Profit at Expiration	Position
155	\$ 0	\$ -200.00	Out-of-the-Money
160	\$ 0	\$ -200.00	At-the-Money
165	\$ 5	\$ 300.00	In-the-Money
170	\$ 10	\$ 800.00	In-the-Money

### Put Option Contract at Expiration

Purchase 1 XYZ 160.00 Put at \$2.00 for a cost of \$200 for the position

Stock Price	Intrinsic Value	Profit at Expiration	Position
150	\$ 10	\$ 800.00	In-the-Money
155	\$ 5	\$ 300.00	In-the-Money
160	\$ 0	\$ -200.00	At-the-Money
165	\$ 0	\$ -200.00	Out-of-the-Money

*Note: Each stock options contract normally represents 100 shares of stock.*

A Call option is said to be In-the-Money (ITM) if the underlying asset price is higher than the strike price; this is when the Call option has intrinsic value. Conversely, a Call option is considered Out-of-the-Money (OTM) if the underlying asset price is lower than the strike price. Remember, buying Call options is generally a bullish strategy and will benefit from an increase in the price of the underlying asset.

A Put option is said to be In-the-Money (ITM) if the underlying asset price is lower than the strike price; this is when the Put option has intrinsic value. Conversely, a Put option is considered Out-of-the-Money (OTM) if the underlying asset price is higher than the strike price. Remember, buying Put options is generally a bearish strategy and will benefit from a decrease in the price of the underlying asset.

## Time Value

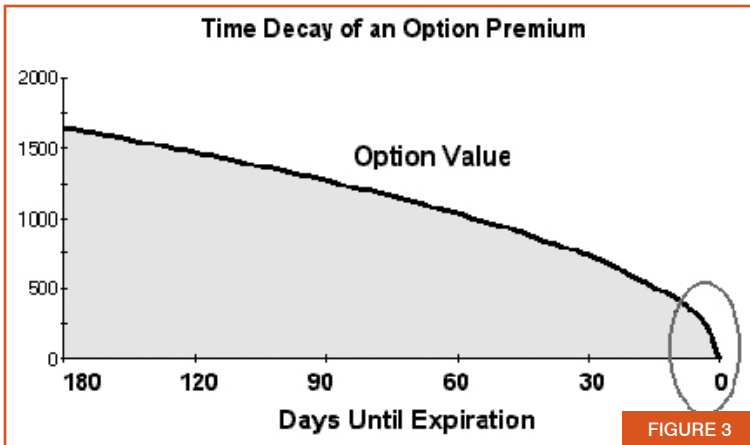
Most options will trade at a price greater than their intrinsic value; this is the time-value portion of the option's premium. Time value is the amount in dollars the writer of an option is charging the buyer to assume the price, time, and volatility risk of the option.

Time (days remaining until expiration) and volatility are the two main components of time value; interest rates and stock dividends are a much smaller factor in the pricing equations. The more time remaining until expiration or the higher the volatility, the greater the risk to the option seller and therefore the greater the time-value component of the option's premium.

## Days to Expiration

Any option you buy is considered a depreciating asset; as the option expiration date gets closer, the value of the option decreases. The more days there are remaining until expiration, the more time value is expressed in the option's premium. When the option expires, the only premium value the options contract has left is its intrinsic value; that is, the amount by which the options contract is In-the-Money, if any (see Greeks - Theta).

In the following chart (Figure 3), the option loses its time value much faster in the days closest to expiration.



*Note: When an option expires it is only worth its intrinsic value, if any.*

## Interest Rates

Another input into the options pricing formula that affects time value is the risk-free interest rate during the time remaining until expiration of the option. In most cases, traders use the 90-day T-Bill rate. For longer-term options or LEAPS, you can find a suitable substitute in the one- or two-year notes. Although interest rates are a minor factor in most options pricing models, the higher the interest rate and the longer the time until expiration, the more significant it becomes.

## Dividends

For stock options, index options, and index futures options, dividends also play a minor role in the time value of an option. However, the larger the stock dividend, the greater the impact on the option's premium. Due to the adjustment of the underlying asset price for a dividend distribution, dividends subtract premium value from Call options, and add premium value to Put options.

## Volatility

Volatility is one of the main components that affect the time-value portion of an option's premium.

Volatility is a risk assessment value normally calculated in annual percent terms. There are many ways to measure volatility, the goal being to estimate the expected price movement of the underlying asset over a specific time frame. In addition, knowing this value can also help us determine the relative risk between various assets (See Greeks - Vega).

There are two types of volatility in options analysis that measure the risk of expected price movement: statistical volatility and implied volatility.

## Statistical Volatility

Statistical volatility, sometimes referred to as historical volatility, is based on the historical price movement of the underlying asset. Statistical volatility is expressed as an annualized percentage value. Statistical volatility can be based on various time frames; the most common look-back periods for the statistical volatility calculations are 20, 30, and 60 days back.

This TradeStation chart (Figure 4) shows the statistical volatility value for XYZ using the built-in indicator "Volatility Std Dev," and requires a daily chart.



## Implied Volatility

Implied volatility is a volatility value implied in the current option's price. This is the Black-Scholes model in reverse; by plugging in the current option's price, you can back out the implied volatility for that option's price.

This type of volatility can also give us insight into what the options markets are saying about the potential future price movement of the underlying asset. When options prices rise or fall without a corresponding rise or fall in the asset price, those options price changes are caused by changes in the implied volatility. Higher options prices in these cases imply higher risk or uncertainty in the market. Therefore, implied volatility can be seen as a measurement of risk; higher volatility means higher risk for the options seller.

This chart (Figure 5) shows the historical implied volatility using the built-in indicator “Impl Volty - AllOpts” and requires a daily chart of any optionable underlying symbol.



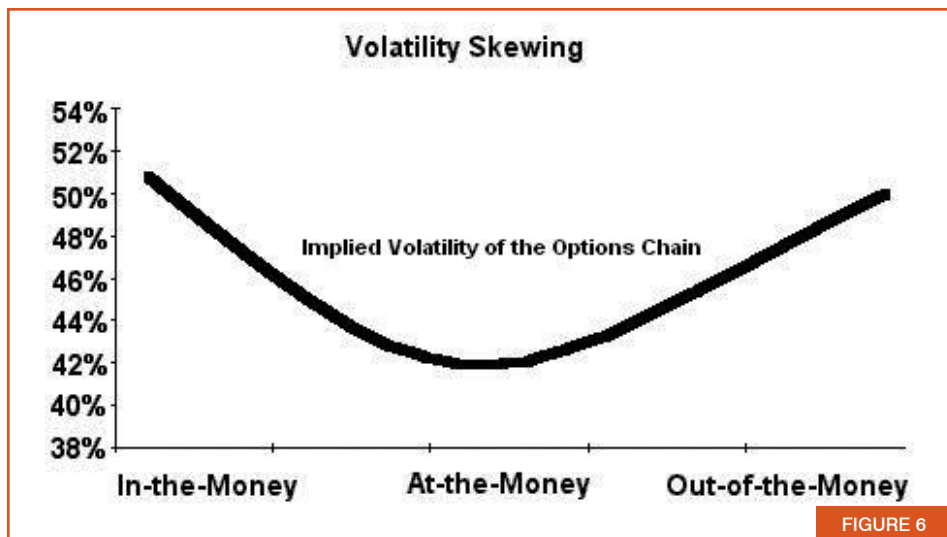
By looking at historical implied volatility, we can determine whether today's options prices are relatively higher or lower than historical norms. This historical implied volatility is a weighted average of the raw implied volatilities for the options of this asset as calculated at the end of each day.

The TradeStation Data Network calculates this daily historical implied volatility for all optionable stocks, ETFs and indices going back 5 to 10 years and makes it available in Chart Analysis, OptionStation, RadarScreen, and Scanner. This data can be plotted in a chart along with the asset price data and compared to statistical volatility to determine over- or under-valued options prices.

**The TradeStation OptionStation Analysis window calculates both implied volatility and theoretical prices for all options in real time.**

## Volatility Skewing

Implied volatility values are not linear across strike prices and are, in fact, skewed higher as strike prices get away from the At-the-Money strikes. Options that are deeply In-the-Money or Out-of-the-Money tend to have higher implied volatility levels than At-the-Money options. This is referred to as volatility skewing (Figure 6).



Volatility skewing is the market's way of adjusting for the lognormal distribution limitation found in most options pricing models. Most options pricing models assume that market prices follow a lognormal distribution. However, observed price movements are often much more random and extreme than a normal distribution model would allow. Stated another way, deep In-the-Money and Out-of-the-Money options have a greater chance of becoming At-the-Money options than is accounted for by the normal distribution and so the market charges more for deep in or Out-of-the-Money options. That is, they command a higher implied volatility and therefore a higher options premium.

*Note: It is important to note that different market types (stocks and futures) may have different volatility skew characteristics.*

You can see the volatility skew in any series of options in the OptionStation Option pane by looking at the "MIV on Bid Ask" column.

# THE GREEKS

The option Greeks calculations measure the expected influence on the price of the option for a given change in one of the specific risk factors.

The Greeks are: Delta (price risk); Gamma (delta risk); Theta (time risk); Vega (volatility risk); and Rho (interest rate risk). OptionStation calculates the raw Greek risk values for each option, a cumulative total for each of your positions, and the Greek risk values in dollars.

## Delta

Delta is the amount by which an option's price is expected to change for each 1-point change in the underlying asset price. That is, option prices move only in some proportion to the asset price, expressed as the delta.

Delta ranges from 0 to +1 for a Call and 0 to -1 for a Put. This means that the maximum delta for a Call option is +1, and for a Put option is -1. The more In-the-Money a Call option is, the closer to +1 the delta becomes; the more In-the-Money a Put option is, the closer to -1 the delta becomes; and the more Out-of-the-Money an option is, Call or Put, the closer to 0 the delta becomes.

An At-the-Money Call option typically has a delta of .5, which means if the asset goes up one dollar, the option will increase in value by \$.50.

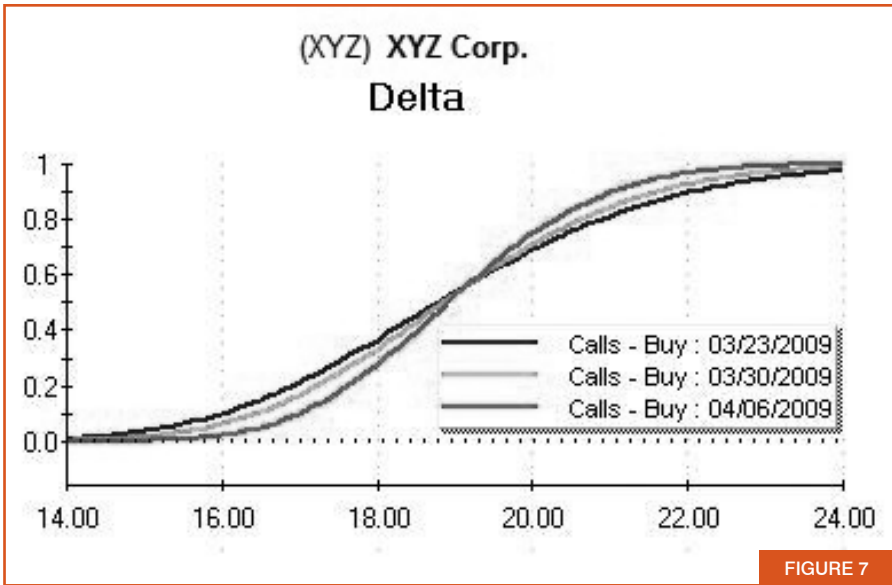
A Long Call position has a positive delta, and a Long Put position has a negative delta. The positive or negative sign indicates whether the delta represents a value positively or negatively correlated with the asset price movement.

The following example shows how delta works:

XYZ stock is trading @ \$39.00 a share. The XYZ May 40 Call is trading for **1.50** (option price) and has a Delta of **.45**. If XYZ stock rises one point to \$40.00, the XYZ May 40 Call is estimated to increase in price to **1.95** (**1.50 + .45**).

The delta for an option can give a trader a good indication of how the overall value of a position may increase or decrease with changes in the underlying asset price. This is particularly helpful in assessing price risk for a short-term options trade.

Here is a chart (Figure 7, next page) of delta for a XYZ April 19 Call with XYZ trading at 18.25. Delta rises as XYZ moves up and the option becomes In-the-Money, and falls as it moves down and the option becomes Out-of-the-Money. Also, delta values change faster as the option gets closer to expiration.



## Gamma

Gamma measures the expected change in an option's delta for every 1-point change in the price of the underlying asset. This is used to estimate the delta values as the asset price moves.

## Theta

Theta measures the amount an option's price will decline due to the passage of one full calendar day (time value). Time is a depreciating asset and so theta is expressed as a negative value and can be measured for one option or for an entire options position. The theta value is not linear; options lose time value at a faster rate as expiration approaches. The farther away from expiration an option is, the smaller the effect of theta. At expiration, the option's time value drops to zero and what is left is the option's intrinsic value, if any.

Theta provides traders with a method to determine how time value will erode their position today and in the future until expiration.

## Vega

Vega measures the expected change in the price of an option due to a 1-percentage point increase or decrease in the volatility that is used to calculate theoretical values. As we discussed earlier, volatility is a measure of the amount by which an underlying asset is expected to fluctuate over a given period of time.

The volatility of the underlying asset has a major influence on the price of an option. Knowing the volatility characteristics of an underlying asset, along with how the volatility is expected to change the option's price, is a valuable risk-management tool for evaluating options trading strategies.

## Rho

Rho measures the expected change in the price of an option due to a 1-percent change in the risk-free interest rate for the period of the option contract. Although rho is not commonly used or referred to in most options trading materials, it still offers valuable information regarding the relationship between an options position and the risk-free interest rate money could earn.

Generally, the risk-free interest rate used for calculating theoretical options prices is the current 90-day Treasury bill rate. Longer-term options contracts use longer-term notes: 1-year or 2-year note rates are often used in the pricing model for LEAPS. High interest rates result in slightly higher options premiums; lower interest rates suggest lower premiums. Rho is an efficient way to measure exposure to interest rates over the period of the option's contract.

*Note: Interest rate is a parameter in OptionStation pricing models that must be set manually.*

**The TradeStation OptionStation Analysis window allows you to view the Greeks for all options and positions, and also to graph the Greeks in a Position Chart.**

# OPTIONS STRATEGIES

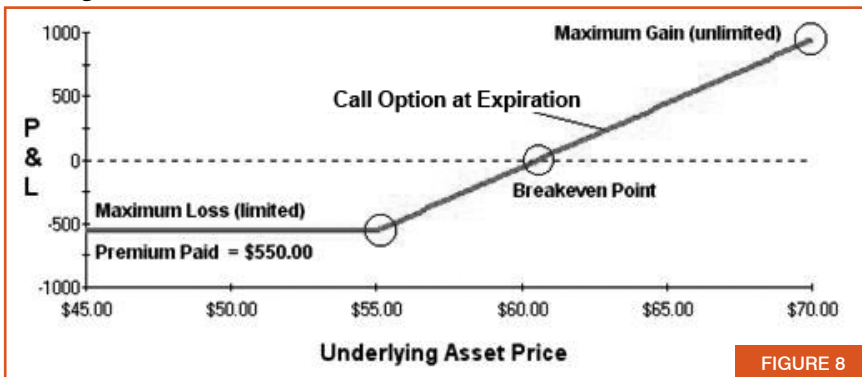
Understanding the basic options strategies and knowing which strategies to use under different market conditions and outlooks is important for long-term success.

The four basic building blocks of all options strategies are: Buy Call, Buy Put, Write Call, and Write Put. Every options strategy is made up of one or more of these four basic options positions, or legs. These four positions can be combined into many positions that can take advantage of almost any market situation: rising markets, falling markets, quiet markets, rising volatility, falling volatility, and other market situations. Options trading strategies also offer unique ways of managing and limiting risk.

The underlying asset is also sometimes used in options strategies to create a hedged or covered position as in a Covered Call strategy.

We will look at some of the most popular strategies traders are using today. Each strategy chart provided shows the option position profit/loss profile at expiration. You can also derive the maximum gain, maximum loss, and breakeven points from these charts. Most options strategies reach their maximum gain and loss points at expiration. However, there are many other options strategies that can be employed for various market outlooks.

## Reading a Position Chart



- Each option position chart shows the position profit and loss (P&L) on the left Y-axis.
- Strike prices of the position are generally at the angle points of the P&L line, which are also generally the points of maximum gain or maximum loss of the position.
- The dotted line (Figure 8) is the breakeven line. When the P&L line crosses the breakeven line, you can read the position breakeven price of the underlying asset on the X-axis.
- The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations.

**With TradeStation OptionStation, you can create Position Charts for any options position or strategy, even custom positions that include LEAPS or the underlying asset. You can also overlay multiple options positions in the same Position Chart.**

# Buy Call

A Buy Call is one of the strategies with which most traders begin trading options. It is a bullish (or very bullish) position that generally requires the underlying asset to move higher. It gives the buyer or holder the right, but not the obligation, to buy the underlying asset at a fixed price (strike price) on or before a specific date (expiration date).

The Buy Call strategy benefits from an increase in the price of the underlying asset or an increase in implied volatility. The potential profit is unlimited. The risk for the Call buyer is limited to the premium paid for the option. Buying Calls can be used as an alternative to the outright purchase of the underlying asset, with the benefits of limited risk and increased leverage.

Here is an example of a Buy Call option strategy:

Long 1 XYZ OCT 55 Call @\$5.50, \$550.00 premium paid (debit to your account).

Results:

Maximum Loss is limited to the premium paid for the option.

Maximum Gain is unlimited.

## Risk Factor

Price Sensitivity (Delta)

## Effect

Position generally increases in value as the underlying asset price rises and decreases in value as the underlying asset price falls.

Time Decay (Theta)

Position generally decreases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from rising volatility and decreases from falling volatility.

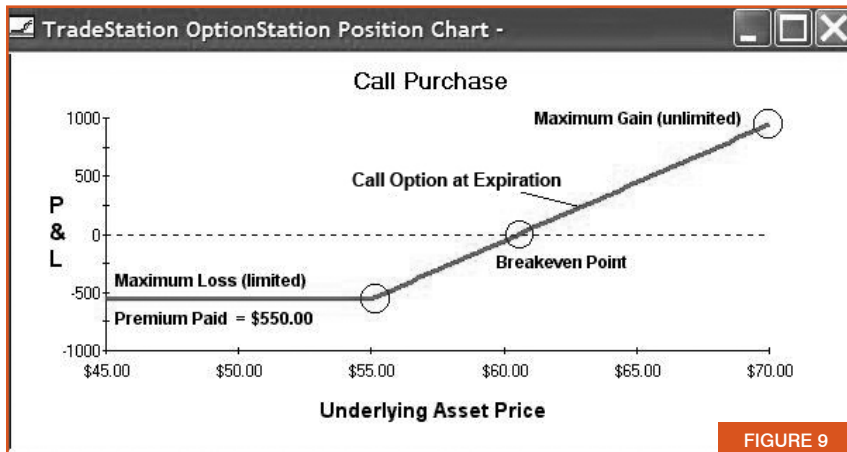


FIGURE 9

Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations.

The underlying asset breakeven point for a Call option is calculated by adding the strike price of the option to the premium paid:  $55 \text{ Call Strike} + \$5.50 \text{ Premium} = \mathbf{\$60.50}$  breakeven price (Figure 9).

# Buy Put

A Buy Put is another strategy with which most option traders get started. It is a bearish (or very bearish) position that generally requires the underlying asset to move lower. It gives the buyer or holder the right, but not the obligation, to sell the underlying asset at a fixed price (strike price) on or before a specific date (expiration date).

The Buy Put strategy benefits from a decrease in the price of the underlying asset or an increase in volatility. The risk for the Put buyer is limited to the premium paid for the option. The potential profit is almost unlimited. Buying Puts can be used as an alternative to selling the underlying asset with the benefits of limited risk and increased leverage.

Here is an example of a Buy Put option strategy:

Long 1 XYZ OCT 60 Put @\$5.50, \$550.00 premium paid (debit to your account).

Results:

Maximum Loss is limited to the premium paid for the option.

Maximum Gain is almost unlimited (the asset can only drop to zero).

## Risk Factor

Price Sensitivity (Delta)

## Effect

Position generally increases in value as the underlying asset price falls and decreases in value as the underlying asset price rises.

Time Decay (Theta)

Position generally decreases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from rising volatility and decreases from falling volatility.

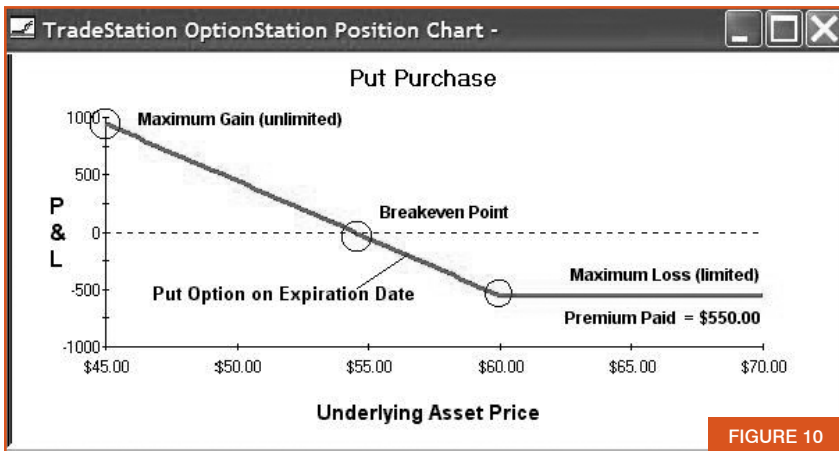


FIGURE 10

Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations.

The underlying asset breakeven point for a Put option is calculated by subtracting the premium paid from the strike price of the option: 60 Put Strike - \$5.50 Premium = **\$54.50** breakeven price (Figure 10).

# Write Call

A Write Call is a strategy that most traders use in combination with other options or the underlying asset to create spreads or Covered Call strategies. It is a bearish or neutral position that generally requires the underlying asset to move lower. The Call option writer has an obligation to sell the underlying asset at a fixed price (strike price) on or before a specific date (expiration date). The Write Call strategy benefits from a decrease in the price of the underlying asset or a decrease in volatility. The risk for the Call writer is unlimited as the underlying asset rises. The potential profit is limited to the amount collected in option premium. Writing Calls (naked Calls) is a very risky strategy and is not suitable for most novice traders.

Here is an example of a Write Call option strategy:

Short 1 XYZ OCT 55 Call @5.50, \$550.00 premium collected (credit to your account).

Results:

Maximum Loss is unlimited.

Maximum Gain is limited to the premium received for the option.

### Risk Factor

Price Sensitivity (Delta)

### Effect

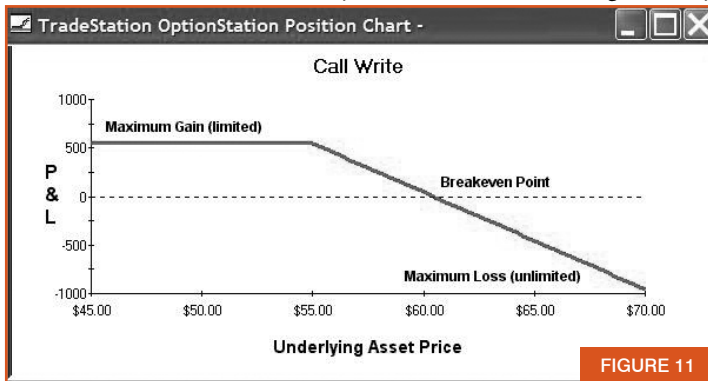
Position generally increases in value as the underlying asset price falls and decreases in value as the underlying asset price rises.

Time Decay (Theta)

Position generally increases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from falling volatility and decreases from rising volatility.



Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations.

The underlying asset breakeven point for a Write Call option is calculated by adding the strike price of the option to the premium collected:  $55 \text{ Call Strike} + \$5.50 \text{ Premium} = \mathbf{\$60.50}$  breakeven price (Figure 11).

Note: Writing naked Calls requires broker account approval based on trading experience and that margin be maintained in your account until the position is closed.

# Write Put

A Write Put is a strategy that most traders use in combination with other options or the underlying asset to create spreads or covered Put strategies. It is a bullish or neutral position that generally requires the underlying asset to move higher. The Put option writer has an obligation to purchase the underlying asset at a fixed price (strike price) on or before a specific date (expiration date.) The Write Put strategy benefits from an increase in the price of the underlying asset or a decrease in volatility. The risk for the Put writer is almost unlimited as the underlying asset falls. The potential profit is limited to the amount collected in option premium. Writing Puts (naked Puts) is a very risky strategy and is not suitable for most novice traders.

Here is an example of a Write Put option strategy:

Short 1 XYZ OCT 60 Put @\$5.50, \$550.00 premium collected (credit to your account).

Results:

Maximum Loss is almost unlimited. (The asset cannot fall below 0).

Maximum Gain is limited to the premium received for the option.

### Risk Factor

Price Sensitivity (Delta)

### Effect

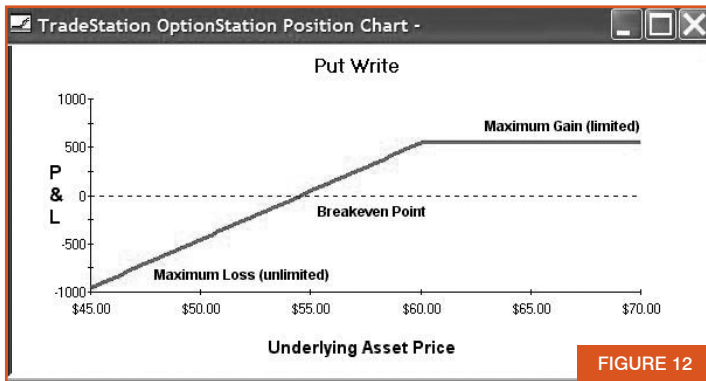
Position generally increases in value as the underlying asset price rises and decreases in value as the underlying asset price falls.

Time Decay (Theta)

Position generally increases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from falling volatility and decreases from rising volatility.



Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations.

The underlying asset breakeven point for a Write Put option is calculated by subtracting the premium collected from the strike price of the option:  $60 \text{ Put Strike} - \$5.50 \text{ Premium} = \text{\$54.50}$  breakeven price (Figure 12).

Note: Writing naked Puts requires broker account approval based on trading experience and that margin be maintained in your account until the position is closed.

# General Options Spread Strategy Theory

Now that we have looked at the four basic options strategies, we can use these strategies as building blocks to create more complex options strategies known as Spreads. Spread strategies are multi-leg options positions that can take advantage of virtually any market situation.

The behavior and characteristics of options spread positions have several things in common across most spread strategies. By understanding these characteristics, you can quickly determine important profit/loss and risk information that can help you better analyze your positions.

An options spread position is an options position that has two or more different options contracts (legs) traded in combination. Usually, a spread is comprised of buying and writing the same options type (Puts or Calls) of different strike prices and/or expiration dates in order to take advantage of some market situation, or to increase the leverage of capital. When writing options in combination with buying options, the options you are buying can offset the margin requirements for the options you are writing, reducing or sometimes eliminating a margin requirement.

You can generally determine the underlying asset's maximum gain and maximum loss price points for any spread position by looking at the strike prices of the options that make up your strategy. The maximum gain price point of the underlying asset is generally at the strike price of the options you are selling, and the maximum loss price point is generally at the strike price of the options you are buying (Figure 13).

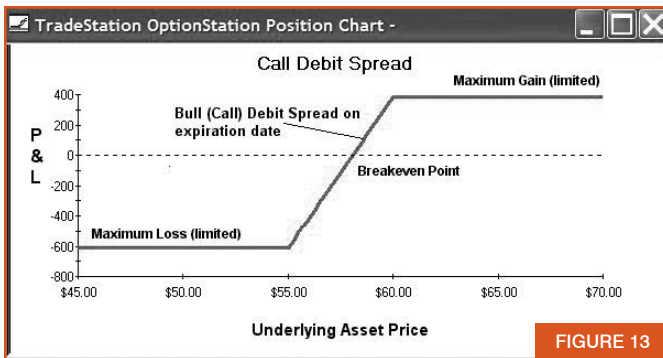


FIGURE 13

*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

## Maximum Loss

Any time you create or open an options spread position with a debit (a debit is incurred whenever the options you are buying are more expensive than the options you are selling), the debit is usually the maximum amount you can lose on the position. However, there is the risk of early exercise for options you are writing, and this can cause a generally safe strategy to lose considerably more money than expected.

## Maximum Gain

When you create a spread position with a credit, the credit is usually the maximum gain of the position. There will be a margin requirement equal to the maximum loss of the position.

# Bull (Debit) Call Spread

A Bull (Debit) Call Spread, also known as a Vertical Call Spread, is a bullish position taken when you expect a modest upward price movement in a defined time frame. This spread is made up by Buying a Call and Writing a Call with a higher strike in the same expiration month. Since the Buy Call has a lower strike price with a higher premium (cost) than the Write Call, you will be paying out more premium than you will be collecting, creating a debit. Since the Buy Call covers the Write Call, there is no margin requirement, and the theoretical maximum loss is the debit paid. The Bull Debit Spread benefits when the underlying asset rises to the level of the strike price of the Write Call.

Here is an example of a Bull (Call) Debit Spread options strategy:

Long 2 XYZ OCT 55 Call @6.00, \$1,200.00 premium paid (debit to your account).

Short 2 XYZ OCT 60 Call @3.00, \$ 600.00 premium collected (credit to your account).

Result:

\$3.00 debit is the Maximum Loss per spread.

Maximum Gain is the strike price difference minus the debit ( $60 - 55 = 5 - 3.00 = \$2.00$ ).

### Risk Factor

Price Sensitivity (Delta)

### Effect

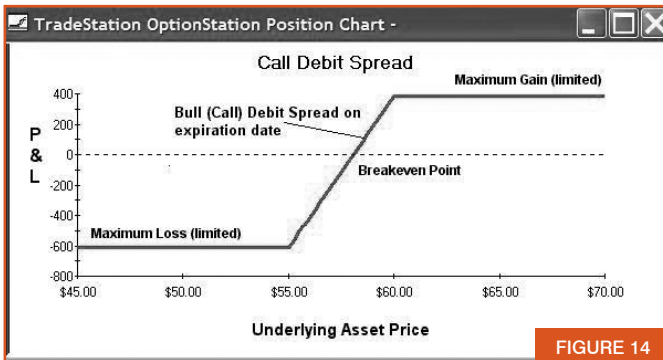
Position generally increases in value as the underlying asset price rises and decreases in value as the underlying asset price falls.

Time Decay (Theta)

Position increases or decreases in value depending on the asset price in relation to the strike prices.

Volatility Sensitivity (Vega)

Position generally increases in value from rising volatility and decreases from falling volatility.



*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

Maximum Loss is realized at expiration at the strike price of the options bought (55) or less. Maximum Gain is realized at expiration at the strike price of the options sold (60) or greater.

The breakeven point for a Bull (Call) Debit Spread is calculated by adding the strike price of the option bought to the net premium debit per contract:  $55 \text{ Call Strike} + \$3.00 \text{ Net Debit} = \text{\$58 breakeven price}$  (Figure 14).

# Bear (Debit) Put Spread

A Bear (Debit) Put Spread, also known as a Vertical Put Spread, is a bearish position taken when you expect a modest downward price movement in a defined time frame. This spread is made up by Buying a Put and Writing a Put with a lower strike in the same expiration month. Since the Buy Put has a higher strike price with a higher premium (cost) than the Write Put, you will be paying out more premium than you will be collecting, creating a debit. Since the Buy Put covers the Write Put, there is no margin requirement, and the theoretical maximum loss is the debit paid. The Bear Debit Spread benefits when the underlying asset falls to the level of the strike price of the Write Put.

Here is an example of a Bear (Put) Debit Spread options strategy:

Long 2 XYZ OCT 60 Put @5.00, \$1,000.00 premium paid (debit to your account).

Short 2 XYZ OCT 55 Put @2.75, \$ 550.00 premium collected (credit to your account).

Result:

\$2.25 debit is the Maximum Loss per spread.

Maximum Gain is the strike price difference minus the debit

$(60 - 55 = 5 - 2.25 = \$2.75)$ .

### Risk Factor

Price Sensitivity (Delta)

### Effect

Position generally increases in value as the underlying asset price falls and decreases in value as the underlying asset price rises.

Time Decay (Theta)

Position increases or decreases in value depending on the asset price in relation to the strike prices.

Volatility Sensitivity (Vega)

Position generally increases in value from rising volatility and decreases from falling volatility.

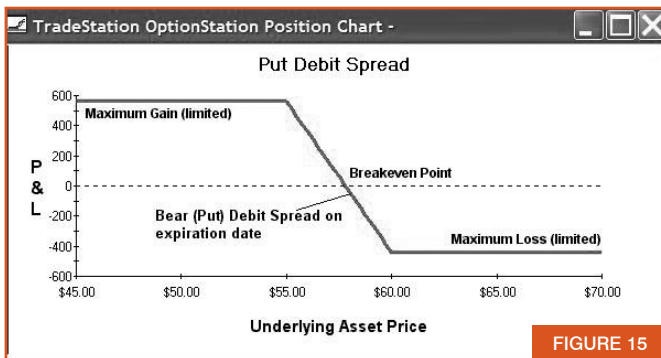


FIGURE 15

*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

Maximum gain is realized at expiration at the strike price of the options sold (55) or less.

Maximum loss is realized at expiration at the strike price of the options bought (60) or greater.

The breakeven point for a Bear (Put) Debit Spread is calculated by subtracting the net premium debit per contract from the strike price of the option bought: 60 Put Strike - \$2.25 Net Debit = **\$57.75** breakeven (Figure 15).

# Covered Call Writing

A Covered Call Write is a slightly bullish or neutral position taken when the price of the underlying asset is expected to remain at its current level or rise slightly. The purpose is to collect the premium of the Call written to generate additional returns on an underlying asset owned. A Covered Call Write is made up from two positions: owning shares or contracts of the underlying asset and then writing Call options in the correct ratio, generally one option for each 100 shares of stock owned. Covered Call writing requires no margin since the underlying asset covers the options sold.

The covered call writer forgoes participation in any increase in the stock price above the Call exercise price and continues to bear the downside risk of stock ownership if the stock price decreases more than the premium received.

Here is an example of a Covered Call Write options strategy:

Long 100 shares of XYZ @ \$58.00, \$5,800.00 paid (debit to your account).

Short 1 XYZ OCT 60 Call @ \$3.25, \$ 325.00 premium collected (credit to your account).

Result:

New cost basis for stock is lowered to \$54.75. Maximum Loss is unlimited to zero.

Maximum Gain is the premium collected and the difference between the strike price and the stock price ( $60 - 58 = 2 + 3.25 = 5.25 * 100 = \$525.00$ ).

### Risk Factor

Price Sensitivity (Delta)

### Effect

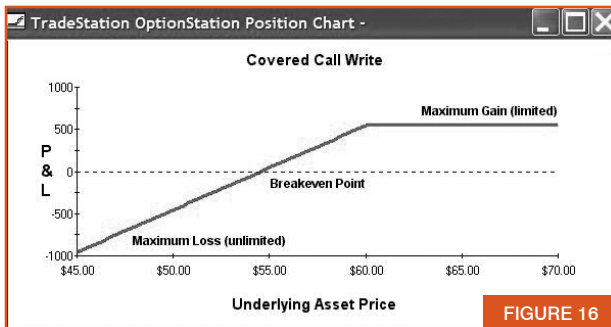
Position increases in value up to the strike price as the underlying asset price rises and decreases in value as the asset price falls below the new cost basis.

Time Decay (Theta)

Position generally increases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from falling volatility and decreases from rising volatility.



*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

FIGURE 16

The breakeven point for a Covered Call is calculated by subtracting the premium collected from the cost of the underlying asset.  $\$58$  cost of asset -  $\$3.25$  premium collected = **\$54.75** breakeven price (Figure 16).

*Note: A Covered Call chart looks the same as a Put Write. These are known as equivalent positions.*

# Put Hedge / Married Put

A Put Hedge is a bullish position taken when the price of the underlying asset is expected to decline from its current level. The purpose of this strategy is to protect an underlying position by locking in a profit or maximum loss in a falling market without selling the underlying asset. Put Hedging increases the cost basis of the underlying asset. A Put Hedge is made up of two positions: owning shares or contracts of the underlying asset, and then buying Put options in the correct ratio, generally one option for each 100 shares of stock owned. A Put Hedge strategy requires no margin.

Here is an example of a Put Hedge Write options strategy:

Long 100 shares of XYZ @ \$58.00, \$ 5,800.00 paid (debit to your account).

Long 1 XYZ OCT 55 Put @ \$3.25, \$ 325.00 premium paid (debit to your account).

Result:

New cost basis for stock is increased to \$61.25. Maximum Gain is unlimited.

Maximum Loss locked in at the \$55.00 strike until the option expires (\$625).

### Risk Factor

Price Sensitivity (Delta)

### Effect

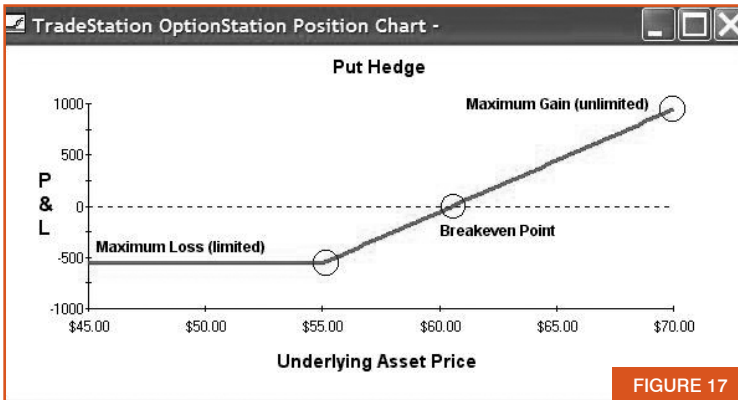
Position increases in value as the underlying asset price rises and decreases in value as the asset price falls.

Time Decay (Theta)

Position generally decreases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from falling volatility and decreases from rising volatility.



Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.

The breakeven point for a Married Put is calculated by adding the premium paid to the cost of the underlying asset. \$58 cost of asset + \$3.25 premium paid = **\$61.25** breakeven (Figure 17).

Note: A Put Hedge chart looks the same as the Buy Call. These are known as equivalent positions.

# Buy Straddle

A Buy Straddle is a neutral position taken when a large move is expected either up or down but the direction is uncertain. Normally, you would need to give this type of position plenty of time to produce profits as the asset needs to make a big move in some direction. The position can also benefit from an increase in volatility. There is no margin requirement and the maximum loss is the premium paid to purchase the straddle. The maximum gain is unlimited in either direction. A Buy Straddle is made up from a Buy Put and a Buy Call at the same strike price in the same expiration month. The position benefits from a large directional price move, and is not profitable if the underlying asset price movement becomes stagnant and does not move enough either way to cover the price of the options.

Here is an example of a Buy Straddle options strategy:

Long 1 XYZ OCT 60 Call @3.00, \$ 300.00 premium paid (debit to your account),  
 Long 1 XYZ OCT 60 Put @3.00, \$ 300.00 premium paid (debit to your account),

Result:

\$6.00 debit is the Maximum Loss per straddle.  
 Maximum Gain is unlimited in both directions.

### Risk Factor

Price Sensitivity (Delta)

### Effect

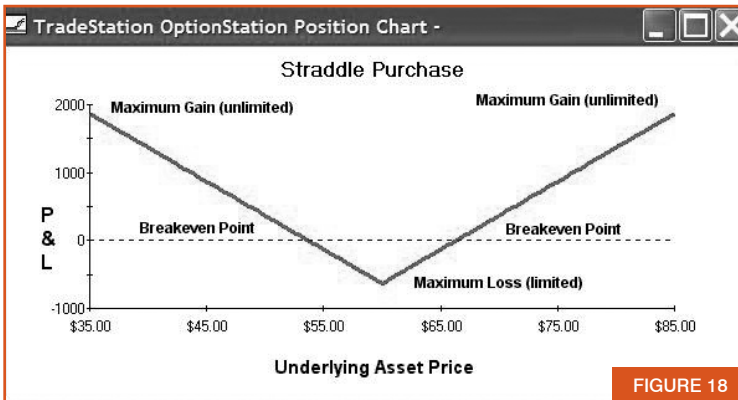
Position generally increases in value as the underlying asset price rises or falls beyond the breakeven points.

Time Decay (Theta)

Position generally decreases in value with the passage of time.

Volatility Sensitivity (Vega)

Position generally increases in value from rising volatility and decreases from falling volatility.



*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

Maximum Loss is realized on expiration date at each strike price of the options bought.

The breakeven points for a Straddle are calculated by adding and subtracting the total premium paid to and from the strike price ( $\$60 + \$6 = \$66$  and  $\$60 - \$6 = \$54$ ) (Figure 18).

# Calendar Spread

A Calendar Spread is a neutral market position, sometimes referred to as a Time Spread. It is used when the underlying asset price is stable and is not expected to make any major move over the life of the position. A Calendar Spread is made up from writing a nearer-term Call or Put and buying a longer-term Call or Put that covers the option sold. Both options must be of the same type and the same strike. The idea with a Calendar Spread is that the value of the near-term options will decay faster than that of the far-term options. Maximum gain occurs at the strike price of the near-term option at expiration. You can elect to close the entire position at that time or continue with the long-term options trade. Maximum loss is the debit you incur to put on the trade. Normally, there is no margin requirement.

Here is an example of a Calendar Spread options strategy:

- Short 1 XYZ OCT 60 Call @3.25, \$ 325.00 premium collected (credit to your account).
- Long 1 XYZ DEC 60 Call @6.25, \$ 625.00 premium paid (debit to your account).

Result:

\$3.00 debit is the Maximum Loss per spread.

Maximum Gain is the value of the far-term option at expiration of the near-term option, less the debit paid to open the position; (4.75 approximately) - 3.00 = 1.75 per spread.

### Risk Factor

Price Sensitivity (Delta)

### Effect

Position generally decreases in value as the underlying asset price rises or falls away from the strike price.

Time Decay (Theta)

Position generally increases in value with the passage of time until near expiration.

Volatility Sensitivity (Vega)

Position generally decreases in value from falling volatility.

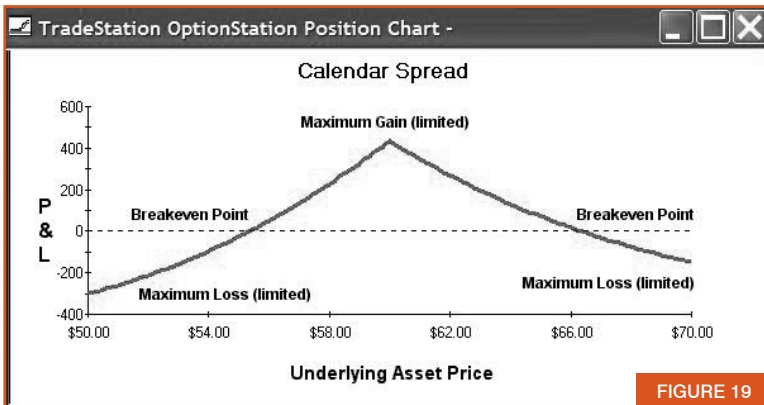


FIGURE 19

*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

The breakeven points for a Calendar Spread are approximated by adding and subtracting the premium paid for the long-term option to and from the strike ( $60 - 6.25 = 53.75$  and  $60 + 6.25 = 66.25$ ) (Figure 19).

# TRADING LIKE A PRO WITH TRADESTATION OPTIONSTATION

Now that we have gotten the options basics out of the way, we can talk about tools options traders need to find and evaluate options positions and to make options trades.

One of the most important factors in being successful in the options market is finding the right strategies with the best-priced options for your market assumptions. However, trying to manually evaluate every strategy and option would be virtually impossible, since this would require the trader to be familiar with many complex mathematical calculations and formulas. With computers and OptionStation, we can manage this complexity more easily by performing these calculations and evaluating any number of potential positions in a very short period of time.

With the introduction of OptionStation in 1996, many of the complexities of and obstacles to options trading were removed, making it easier for advanced and novice traders alike to trade options more effectively and efficiently. Today, OptionStation takes the entire options trading process forward with the tools you need to effectively analyze and monitor any options position.

If you are new to options trading, you will find that OptionStation will be a great learning tool, helping you to make your first successful trades and helping you avoid the bad ones.

The experienced options trader will appreciate how OptionStation can make the options trading and analysis process much easier and faster. OptionStation allows you to examine and analyze complex options positions with real-time data, perform unlimited “what-if” scenario testing, measure risk, and quickly execute and monitor trades.

## **Data Management**

Making options trading easier and more intuitive through automatic options data management is what makes OptionStation so effective. Options data for any optionable symbol is on-demand, and you can decide which options to analyze and track by setting strike price and expiration proximity boundaries. In addition, OptionStation takes data management a step farther by maintaining your custom proximities automatically, dynamically adding or removing options from the OptionStation analysis window as the underlying asset price fluctuates and as options expire.

OptionStation eliminates the “black box” approach to options analysis with EasyLanguage. With the integration of EasyLanguage in OptionStation, you can take your options analysis to a new level. Every OptionStation indicator and pricing model is written in EasyLanguage, so that you have unprecedented access to the options calculations, which gives you more control and more confidence in your options analysis.

# TRADESTATION OPTIONSTATION TOOLS

TradeStation with OptionStation is a powerful combination of asset and options data, analysis, and trading tools combined to give you the information you need to make more informed trading decisions.

## **The goal of OptionStation Search is to identify the best positions for your market ideas**

The first step in putting together a successful options trade is performing an OptionStation Search. With so many possible options positions that could be employed, you need a way to help determine what options may be the optimum options trade for your market outlook.

The goal of OptionStation Search is to allow you to quickly and easily evaluate the best options and positions to trade based on your market outlook or idea. Enter your assumptions for the underlying price target, target date to close the position, and the amount of money to risk. OptionStation will quickly calculate and analyze all of the options available and report the potential P&L for each options position evaluated.

In addition, OptionStation Search can search for the best position adjustment for an existing stock or options position based on your market outlook or idea. For example, you can evaluate which covered Call option to write for an existing stock position.

## **OptionStation Analysis tracks and analyzes options and positions**

OptionStation Analysis gives you access to all of the options chain data information you will need to track, analyze, and trade any options position. You can build options positions from all of the available options in the chain, including LEAPS.

**The OptionStation Analysis window is organized into four sections: Asset, Option, Spread, and Position.**

- **The Asset pane** gives you real-time price analysis of the underlying asset as well as cumulative options chain data for volatility and Put-Call volume.
- **The Options pane** gives you real-time options chain price analysis including bid-ask prices, implied volatilities, Greek risk measures, and probability information.
- **The Spreads pane** automatically builds any of the standard options position spreads from the available options and allows you to quickly analyze and compare positions side-by-side.
- **The Positions pane** allows you to create, analyze, and monitor multiple options positions, both actual and theoretical, in real time.

## **Position Charts perform “what-if” options strategy scenarios and position risk analysis**

Before you ever make a trade, a Position Chart allows you to make a complete examination of any options position or combination of options positions (at any price of the underlying asset, on any date in the future, at any volatility). Position Charts can also display the effects of time and volatility on your positions, and give a detailed graph of all of the Greek risk measures.

## **Additional options analysis and trading tools**

OptionStation also offers a Probability Calculator, based on volatility, to determine the probability of the asset price reaching specified targets within a certain number of days. Also, historical implied volatilities for optionable stocks are available in TradeStation Chart Analysis and can be compared to statistical volatility. In addition, historical Put and Call volume and open interest can also be plotted with TradeStation Chart Analysis.

## **Trade Simulator**

The TradeStation Simulator allows you to place trades and monitor positions in a simulated trading account using all the TradeStation platform trading tools. This allows you to gain confidence and experience in using the various trading and analysis tools, and also allows you to try out your trading strategies and ideas in a simulated account environment. *Note: you must subscribe to real-time data in order to trade on the Simulator.*

# OPTIONSTATION SEARCH

The goal of OptionStation Search is to allow you to quickly and easily evaluate the best options and positions to trade based on your market outlook or idea. Enter your assumptions for the underlying price target, target date to close the position, and the amount of money to risk. OptionStation will quickly calculate and analyze all of the options available and report the potential P&L for each options position evaluated.

## The Scenario

Begin a search by describing your market outlook: bullish, bearish, quiet market, or active market, along with a price target and position holding period.

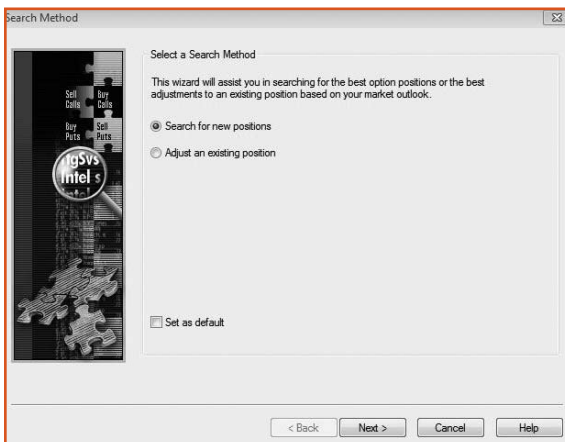
Let's say you believe that XYZ is going to make a modest 5% move up from its current level over the next 30 days. You want to look for a limited-risk options position to capitalize on this move and you want to risk no more than \$5,000 on the trade.

OptionStation Search will: a) look at the current prices for the available XYZ options that meet your assumptions; b) build options positions based on those options; and c) project the future value of those positions based on your idea, all in order to determine the best options position candidates for the trading idea.

## The OptionStation Search Wizard



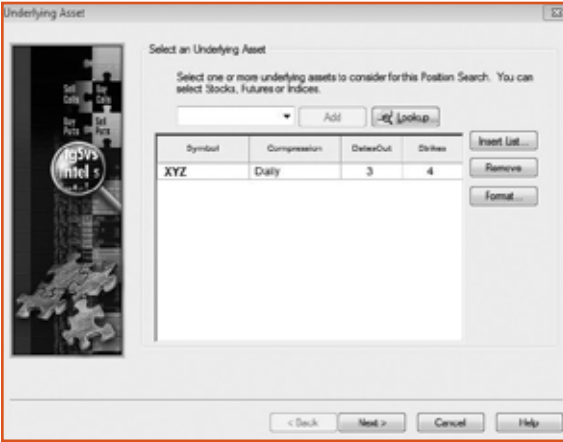
Start by clicking the OptionStation Search icon in the Shortcut Bar. The OptionStation position search wizard will step you through the process of selecting the underlying asset, options strategy, target price, time horizons, and volatility assumptions.



The **Search Method** dialog allows you to search for new positions or adjust an existing position. In this scenario, select “Search for new position.”

Click **Next**.

*Note: During the wizard process, you can click back to redo a step at any time. Help is available from all wizard dialogs.*



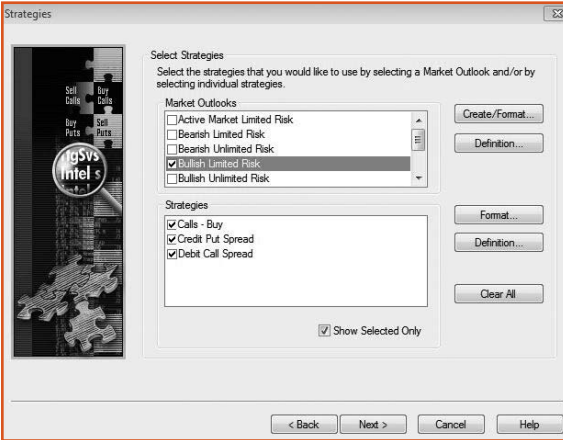
The **Underlying Asset** dialog allows you to select the symbol(s) to search.

Type XYZ for example; click **Add**.

“DatesOut” and “Strikes” determine which options to use for this search.

We will accept the default proximity strike settings of 4 “Strikes” above and below the current underlying asset price, and accept the default proximity of 3 expiration “DatesOut” which include the current month.

Click **Next**.

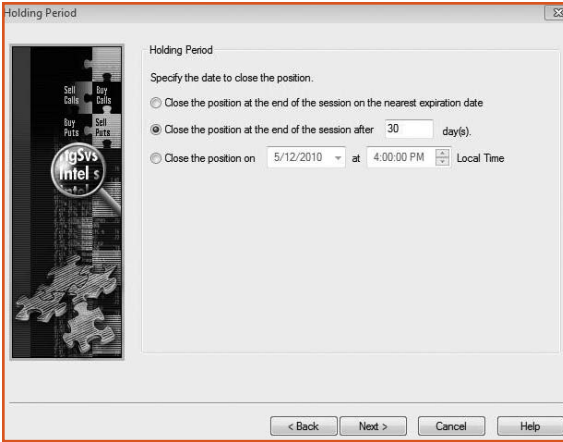


The **Strategies** dialog allows you to select the options strategies you wish to search. You can choose strategies by Market Outlook or specific Strategies.

If you are not sure which strategies are best for your market outlook, select strategies by Market Outlook.

In this case, select Bullish Limited Risk since we expect XYZ to rise and we want a limited risk position. Check “Show Selected Only” to see only the selected strategies for this search.

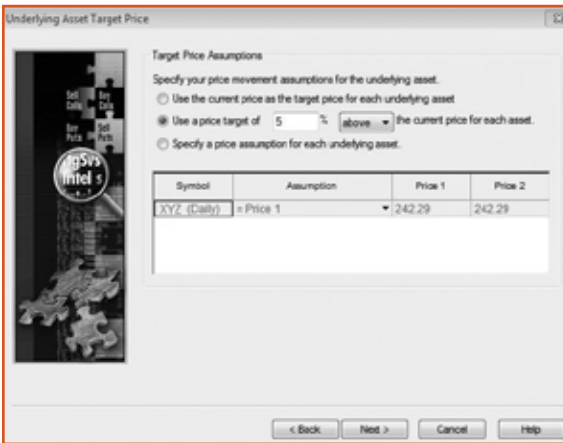
Click **Next**.



The **Holding Period** dialog allows you to select how long you expect to hold a position until closed. You have three ways to select a holding period: nearest expiration, some number of days, or a specific date.

We will select “Close the position at the end of the session,” and specify “30 days” from today.

Click **Next**.

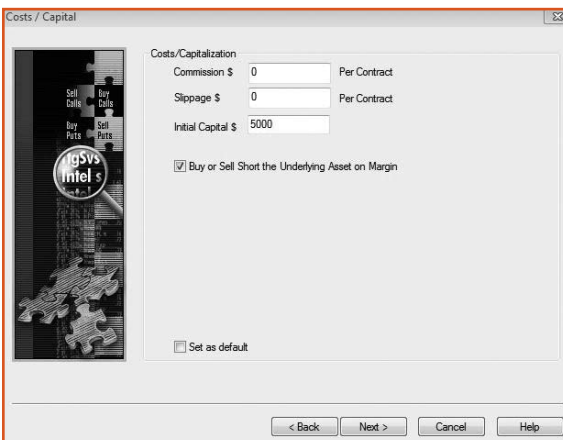


The **Underlying Asset Target Price** dialog allows you to specify the expected underlying asset price at the end of the holding period.

You can specify the underlying target price in one of three ways: current price, the current price plus or minus some percentage, or a specific price or range of prices.

We will enter a 5% increase above the current price for the target price.

Click **Next**.

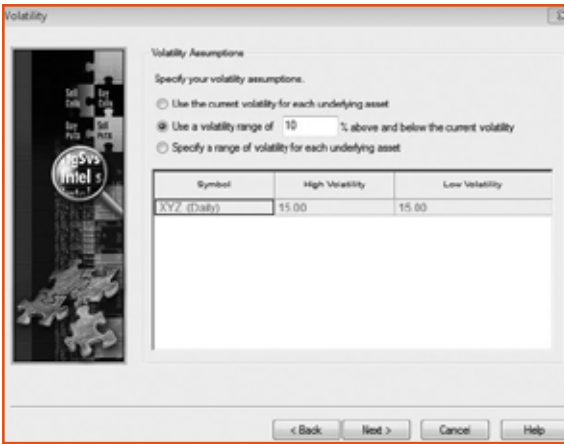


The **Cost / Capital** dialog allows you to specify the trading costs and how much money to risk on the position.

TradeStation offers options commissions at \$1.00 per contract with no ticket or minimum charge.

We will input \$5,000 as our Initial Capital.

Click **Next**.

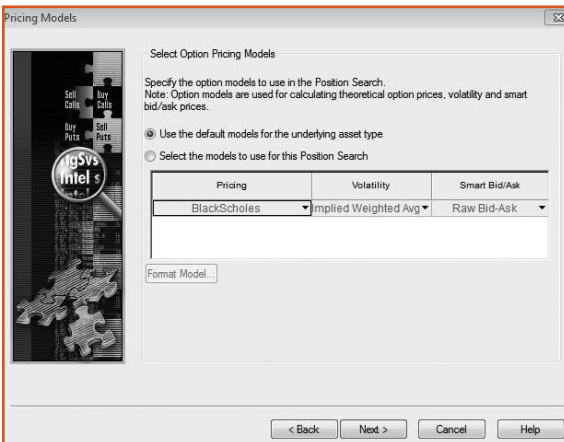


The **Volatility** dialog specifies the volatility assumption for future prices in order to calculate the options search results.

You can specify the volatility assumptions in one of three ways: current volatility calculated by OptionStation, a percentage range from the current volatility, or a range of volatility values.

We will select a volatility range of 10% above and below the current volatility value.

Click **Next**.

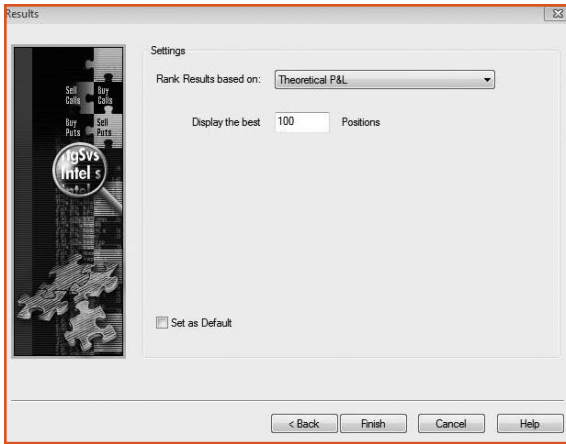


The **Pricing Models** dialog allows you to specify the theoretical pricing models used to calculate future options prices.

OptionStation uses three types of pricing models: Theoretical Pricing, Volatility, and Smart BidAsk. Each model type offers a number of different calculation methods you can use to test and analyze options and options strategies.

We will use the default pricing models for this example.

Click **Next**.



The **Results** dialog specifies the ranking method and the number of search results to display.

We will rank the results by Theoretical P&L and display a maximum of 100 positions.

Click **Finish**.

When you click Finish, OptionStation Search will look at the current prices for the available options and then build options positions based on the assumptions you put into the search. OptionStation Search then projects the future value of those positions, again based on your idea, in order to determine the best theoretical options position candidates for your trading idea and outlook.

*Note: OptionStation Search also allows you to search for position adjustments to existing positions based on the trading objective; you can search for Covered Calls for an existing stock position, hedge a stock position, maintain Delta or Gamma neutral.*

## Search Results

The Search Results window displays each options strategy name, the position description along with the number of contracts to trade, and the current price. It displays the theoretical profit and loss for each position with the potential maximum gain and maximum loss, as well as the Greek risk measures (Figure 20).

Search Strategy	Position Description	Theoretic...	Max Gain	Max Loss	Position Delta
Calls - Buy	{ XYZ 100522C220) Long 2 May 220 Call @ 24.8500	1914.35	Unlimited	(4970.00)	1.71
Calls - Buy	{ XYZ 100717C280) Long 16 Jul 280 Call @ 3.0500	1875.93	Unlimited	(4880.00)	3.03
Calls - Buy	{ XYZ 100717C270) Long 10 Jul 270 Call @ 4.8000	1857.22	Unlimited	(4800.00)	2.61
Calls - Buy	{ XYZ 100717C260) Long 6 Jul 260 Call @ 7.3500	1697.66	Unlimited	(4410.00)	2.09
Calls - Buy	{ XYZ 100522C240) Long 4 May 240 Call @ 10.8000	1678.04	Unlimited	(4320.00)	2.24
Calls - Buy	{ XYZ 100717C250) Long 4 Jul 250 Call @ 10.9500	1561.59	Unlimited	(4380.00)	1.80
Calls - Buy	{ XYZ 100717C240) Long 3 Jul 240 Call @ 15.7000	1544.97	Unlimited	(4710.00)	1.67
Calls - Buy	{ XYZ 100522C230) Long 2 May 230 Call @ 17.1000	1476.67	Unlimited	(3420.00)	1.44
Calls - Buy	{ XYZ 100717C230) Long 2 Jul 230 Call @ 21.6000	1285.80	Unlimited	(4320.00)	1.33

FIGURE 20

*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

If no results are displayed, try running the search again from the Format Menu: “Run Search.” You can add or remove columns from the Format Menu: “Indicator – All.” You can adjust colors and fonts from the Format Menu: “Window...”

The search results are sorted by Theoretical P&L, but you can sort on any of the columns by double-clicking on the column heading. There is also multi-key sorting from the Format Menu: “Sort...”

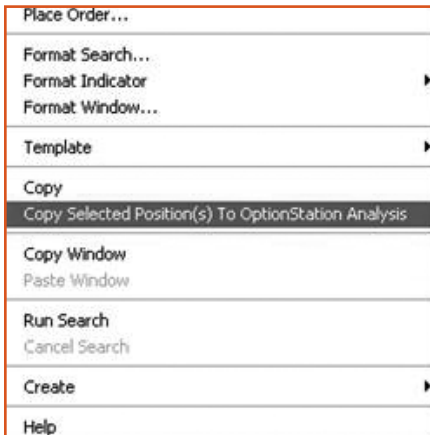
You can always reformat and rerun the search for your new assumptions by going to the Format Menu: “Search...” A new search is run if any changes to the assumptions are made.

Looking at the results report emphasizes how important it is to have OptionStation, a tool that allows you to discriminate between the numerous options positions that could be employed. The difference between one position and another could be thousands of dollars in lost potential profits. On the other hand, the potentially most profitable positions in the list may have a lower probability of success or greater risk based on volatility or time to expiration than other positions lower down in the list.

That is why finding the best position to trade for your market assumptions does not stop with only a position search; it is a multi-step analysis that involves not only finding potential positions but also assessing the risk and probabilities of those positions. This is where OptionStation Analysis and OptionStation Position Charts come into the process.

## Copy Results to OptionStation Position Analysis

Once OptionStation Search generates a set of potential positions, the next step is to copy one or more selected positions from the Search results window into an OptionStation Analysis window.



Right-click on any position row you want to copy to an Analysis window and select: “Copy Selected Position(s) to OptionStation Analysis” from the shortcut menu.

*Note: If an OptionStation Analysis window is open with the same asset as the position(s) being copied, the position(s) will be copied into that window. If there is no Analysis window open, OptionStation will automatically create one and the position(s) will be copied into it.*

# OPTIONSTATION ANALYSIS

The OptionStation Analysis window is your options trading control center. In this window, you can view all options for any optionable stock or index in real time, and utilize asset-, option-, spread-, and position-specific analysis techniques (indicators). With OptionStation Analysis, you can create, analyze, and monitor any number of actual or theoretical options positions, then place and track your trades.

The OptionStation Analysis window (Figure 21) is divided into four panes: Asset, Options, Spreads, and Positions. Each section is designed to give you information about a specific area of your options analysis and trading. Each section has its own set of analysis columns that can be modified and customized to your trading requirements. You can even create your own custom analysis columns with EasyLanguage.

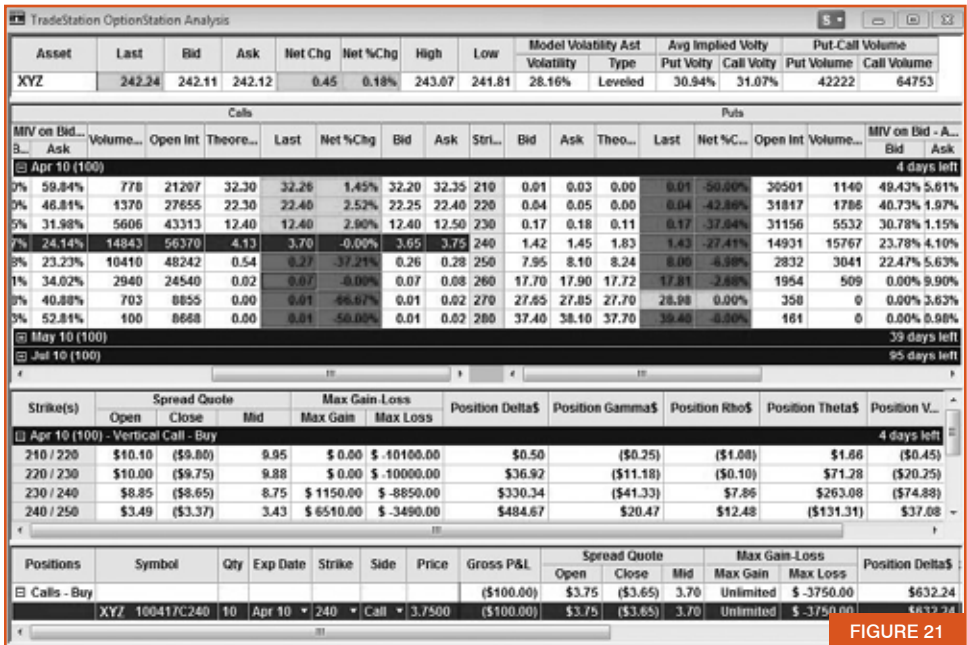


FIGURE 21

The **Asset pane** (below) gives you real-time price analysis of the underlying asset, as well as access to cumulative options data for implied volatility and Put-Call volumes. Cumulative values are only for those options displayed in the Options section based on your strike and expiration proximity settings.

Asset	Last	Bid	Ask	NetCh	Net%	H	L	ModelIV		Avg IV		P-C Vol	
								Volatility	Type	Put Volty	Call Volty	Put Volu...	Call Vol...
XYZ	31.39	31.37	31.39	0.22	0.71%	31.50	31.23	23.80%	Leveled	24.91%	23.06%	10430	48466

The Asset pane allows you to compare Put versus Call volatilities, volume, and open interest. The “Model IV” column displays the volatility input value to the pricing model for theoretical values and Greek calculations. In addition, you can also choose from hundreds of standard quote and indicator columns to add to the Asset pane.

The **Options pane** (Figure 22) gives you real-time options price analysis, including implied volatilities, Greek risk measures, and probability information. Each expiration month row header displays the expiration month and year, with the days to expiration. Strike prices run down the middle of this section, with Calls on the left and Puts on the right. You can also choose to display only Calls or only Puts so you can see more columns.

Which options are displayed in the section is controlled by the proximity settings in the Format Symbol dialog accessible from the main menu. This allows you to view only those options that are relevant to your trading. To see all options and LEAPS, set the proximity settings to the maximum values.

Calls														
Symbol	Delta	Gamma	Theta	Vega	MIV on Bid - Ask		Volume...	Open Int	Theore...	Last	Net %Chg	Bid	Ask	Strike
					Bid	Ask								
Apr 10 (100) 4 days left														
XYZ 100417C210	1.0000	0.0000	(0.0014)	0.0000	0.00%	59.84%	778	21207	32.30	32.28	1.45%	32.20	32.35	210
XYZ 100417C220	0.9995	0.0002	(0.0031)	0.0005	0.00%	46.81%	1370	27655	22.30	22.40	2.52%	22.25	22.40	220
XYZ 100417C230	0.9626	0.0114	(0.0744)	0.0207	27.95%	31.98%	5606	43313	12.40	12.40	2.90%	12.40	12.50	230
XYZ 100417C240	0.6322	0.0528	(0.3375)	0.0956	23.07%	24.14%	14843	56370	4.13	3.78	8.80%	3.65	3.75	240
XYZ 100417C250	0.1476	0.0323	(0.2062)	0.0585	22.78%	23.23%	10410	48242	0.54	0.27	37.21%	0.28	0.28	250
XYZ 100417C260	0.0087	0.0033	(0.0211)	0.0060	33.31%	34.02%	2940	24540	0.02	0.07	8.00%	0.07	0.08	260
XYZ 100417C270	0.0001	0.0001	(0.0004)	0.0001	37.98%	40.88%	703	8955	0.00	0.01	46.67%	0.01	0.02	270
XYZ 100417C280	0.0000	0.0000	0.0000	0.0000	49.23%	52.81%	100	8668	0.00	0.01	50.00%	0.01	0.02	280
May 10 (100) 39 days left														
Jul 10 (100) 95 days left														

FIGURE 22

In the Options pane, the “MIV on Bid - Ask” column displays the raw implied volatilities for the bid and ask prices for each option. This allows you to see the volatility skew and determine relative price value. The “Delta” column shows the current real-time price risk for each option. There are dozens of additional options-related analysis columns that you can add to the Options pane.

# Creating an Options Position

OptionStation allows you to automatically build complex options positions by selecting a base option, then right-clicking in the Bid or Ask columns, and then selecting the menu choices for the position.

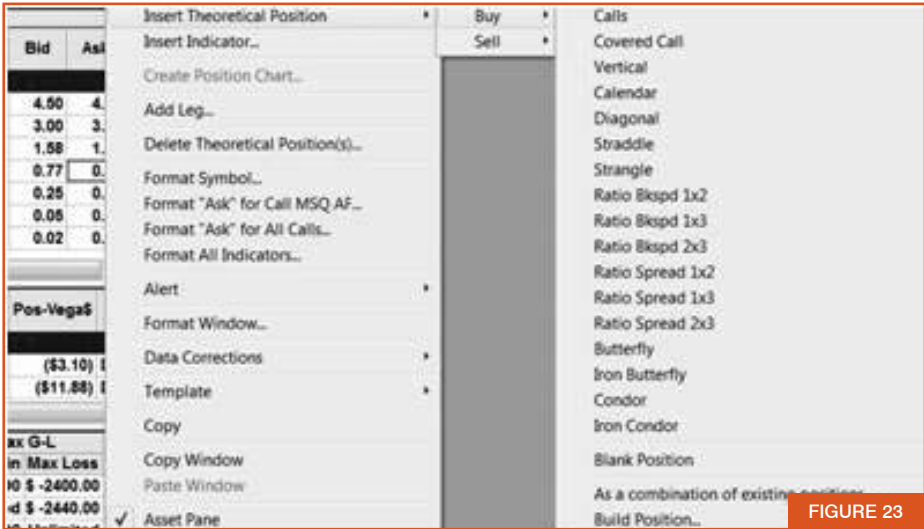
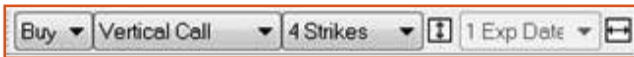


FIGURE 23

You can build a Buy or Sell for any of the standard options strategies. You can create a blank position and add any number of different options to create your own custom strategies.

You can also combine positions or use the Build Position dialog. The positions created are displayed in the Position pane of the window. You can create any number of positions to analyze, chart, and compare (Figure 23).

The **Spreads pane** allows you to automatically build options spread positions from the available options based on your strike and expiration criteria. The Spread building criteria is set in the toolbar (see below) at the top of the OptionStation Analysis window.



The Spread section allows you to quickly organize and build all of the available options into all of the possible combinations of positions for a specific spread. This makes it easier to compare, analyze, and select the right options strategy for your objectives (see below).

Strike(s)	Spread		Max G-L		Pos-Delta\$	Pos-Gamma\$	Pos-Rho\$	Pos-Theta\$	Pos-Vega\$	PosID
	Open	Close	Max Gain	Max Loss						
Jan 10 (100) - Vertical Call - Buy										
27.5 / 32.5	\$3.80	(\$3.73)	\$ 1200.00	\$ -3800.00	\$737.12	(\$192.17)	\$9.08	\$14.56	(\$20.99)	Debit Call (Vertical) \$ 17 days left
29 / 34	\$2.40	(\$2.37)	\$ 2600.00	\$ -2400.00	\$878.43	(\$4.93)	\$11.73	\$0.20	(\$0.54)	Debit Call (Vertical) \$
30 / 35	\$1.48	(\$1.45)	\$ 3520.00	\$ -1480.00	\$800.30	\$135.82	\$10.98	(\$10.54)	\$14.83	Debit Call (Vertical) \$
31 / 37.5	\$0.73	(\$0.71)	\$ 5770.00	\$ -730.00	\$606.65	\$237.83	\$8.47	(\$18.31)	\$25.97	Debit Call (Vertical) \$
Feb 10 (100) - Vertical Call - Buy										
Apr 10 (100) - Vertical Call - Buy										

When you allow your mouse to hover over a spread position, the corresponding options are highlighted in the Options pane above so you can drill into the analysis for those specific options. By right-clicking and selecting “Insert Theoretical Position,” you can copy one or

more spread positions into the Position pane for additional analysis or comparison, and to create position charts.

The “Spread Quote” column shows the bid ask spread for each position. The “Max Gain-Loss” columns show the maximum gain and loss in dollars allowing comparison of risk/reward for each position.

*Display Note: Once you have selected one or more positions to analyze, you can remove the Spread pane or any other section from the analysis window using the View menu.*

The **Positions pane** (Figure 24) allows you to analyze, chart, and monitor multiple options positions, actual and theoretical, in real time. You can adjust options position legs on the fly, changing strike, type, expiration date, quantity, and price, to create an unlimited number of potential position scenarios.

You can populate the Position pane using options positions copied from the Search results, or create positions from the Asset, Options, and Spreads panes of the window. You can add additional legs to any position, or combine positions to create any options position scenario.

From the position section, you can also quickly turn any position into a trade by right-clicking on the position and selecting Place Order.

Positions	Symbol	Qty	Exp Date	Strike	Side	Price	Gross P&L	Spread Quote			Max Gain-Loss		Position Delta
								Open	Close	Mid	Max Gain	Max Loss	
☐ Calls - Buy							(\$100.00)	\$3.75	(\$3.65)	3.70	Unlimited	\$ -3750.00	\$632.24
	XYZ 100417C240	10	Apr 10	240	Call	3.7500	(\$100.00)	\$3.75	(\$3.65)	3.70	Unlimited	\$ -3750.00	\$632.24
☐ Vertical Call							(\$120.00)	\$3.49	(\$3.37)	3.43	\$ 6510.00	\$ -3490.00	\$484.67
	XYZ 100417C250	-10	Apr 10	250	Call	0.2800	(\$20.00)	(\$0.28)	\$0.28	0.27	\$ 200.00	Unlimited	\$ -3750.00
	XYZ 100417C240	10	Apr 10	240	Call	3.7500	(\$100.00)	\$3.75	(\$3.65)	3.70	Unlimited	\$ -3750.00	\$632.24

FIGURE 24

The analysis columns in the Positions pane display values for both the overall position and individual legs. Real-time P&L for each position is calculated based on the editable “Price” column. Greek values are displayed in dollars so you can see exactly how the position P&L is affected for each risk factor. There are many other analysis columns that can be added to the section.

## Placing a Trade

Once you are ready to place a trade, you can right-click on a position and select “Place Order” at the top of the menu. If it is a single option, the Order Bar will automatically populate with the symbol and trade size. If it is a spread trade, the Options Spread Order Bar will open and will populate the position and trade size.

## Position Roll

If you are tracking an existing open position in the Positions pane near the time of expiration and want to roll the position to the next expiration date, right-click on the position and select “Roll Position.” If it is possible to roll the position, the Spread Order Bar will open and display the symbols and trade size for the roll, both closing and opening trades.

Once you have one or more positions, the next step in the process of analyzing an options position is to create a Position Chart.

# OPTIONSTATION POSITION CHART

The OptionStation Position Chart window is your option scenario testing tool. An options position chart allows you to graphically represent and evaluate the profit and loss and other risk measures for any options position or strategy, based on changes in asset price, time to expiration, and volatility.

By calculating and graphing the future theoretical values of your options positions, you are better prepared to manage each trade, anticipate position values under different market conditions, and determine potential exit points.

Position charts also allow you to compare one or more potential positions and determine the relative risk/reward ratios, breakeven points, and Max Gain and Loss points. In addition, possible changes in the asset price and volatility can also be factored into your decision-making process.

To create an OptionStation Position chart, right-click on the position and select “Create Position Chart” or, from the Menu bar, click “Insert > Create Position Chart.” The Create Position Chart dialog allows you to select one or more positions to graph. You can also choose to graph only a portion of a position by selecting specific legs of the position to graph.

Below is an OptionStation Position Chart (Figure 25) for a Debit Call Spread. It shows the theoretical Profit & Loss values of the position(s) along the left (Y-axis) of the graph, as of today (blue line), on an intermediate date (black line), and on the expiration date (green line), at any price of the underlying asset along the X-axis.

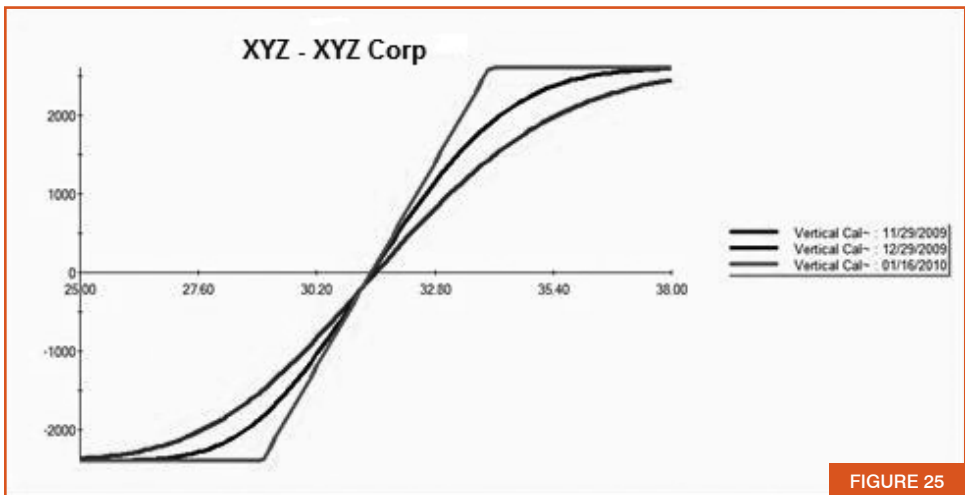


FIGURE 25

*Note: The profit or loss above does not factor in commissions, interest, bid/ask spread, or tax considerations. Multi-leg spreads incur multiple commissions and must also overcome multiple bid/ask spreads.*

Once you have created a chart, left-click to view the chart crosshairs and chart values data tip. You can use the chart stylus to view Profit & Loss values directly on the chart. You may want to review “Reading a Position Chart” from the options primer section of this book.

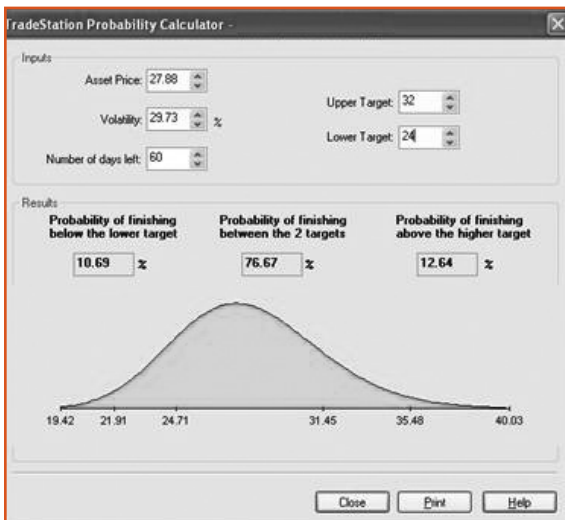
An OptionStation Position Chart can display up to 100 different plot lines in a single chart. Each plot represents a combination of two position characteristics: evaluation date, volatility, or price, for one or more positions. The Y-axis displays the P&L of the position, but may be changed to display any of the position Greeks. This is a great way to learn about the behavior of options risk factors. The X-axis can be set to Asset Price, Volatility, or Time to Expiration, providing flexibility in evaluating and comparing positions.

*Note: OptionStation Position Charts can graph any option position you create in the Position pane, allowing you to experiment in your own custom options laboratory to find trading opportunities that meet your trading objectives.*

# PROBABILITY CALCULATOR

The OptionStation Probability Calculator (below), available from the OptionStation Analysis window toolbar, can be used to determine the statistical probability of the underlying asset price reaching certain price targets over a period of time and given a volatility level. No concept of direction is implied in the probability results, which are based on normal distribution calculations. The premise is that there is a 50/50 chance that the market will go up or down from the current price level.

When you open the Probability Calculator, the asset price, current implied volatility, number of days left, and sample price targets are filled in automatically to get you started; adjust these values as needed.



The results displayed in the Probability Calculator show the probability percentages for the underlying asset price being below the lower target, between the two targets, or above the upper target based on the number of days left and the volatility.

The bell-curve graph displays the underlying asset prices at the 1st, 2nd, and 3rd standard-deviation levels from the current price level, also based on your volatility and number of days left assumptions.

Often used by options spread traders, the upper and lower targets may be derived from

the maximum gain and loss points on options position graphs. The number of days left is normally the time horizon for your trade.

If you are making a directional trade, these probabilities may seem low; however, keep in mind that in a directional trade, you are projecting that the probability of price movement in your direction is going to be higher than a normal distribution probability would allow for.

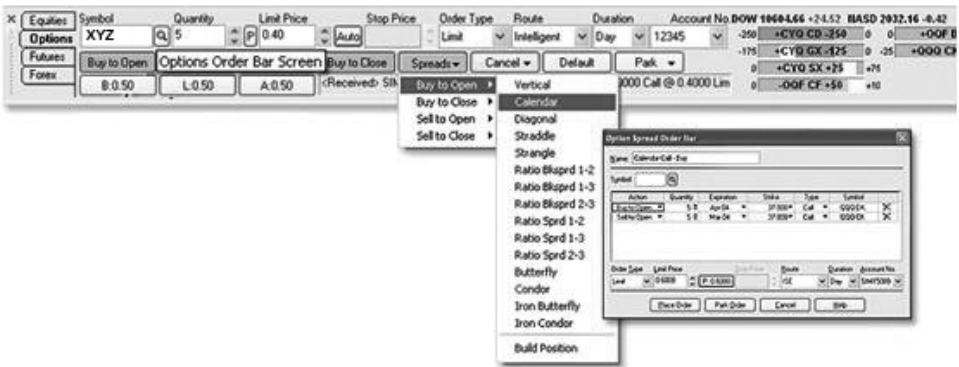
Probability calculations are also often used with risk/reward values to determine the expectation of profit in non-directional volatility or time-based options strategies.

# MAKING AN OPTIONS TRADE

As a direct-access options broker, TradeStation offers you the ability to enter trades for single contracts or multi-leg spreads using several trading tools. Each of these tools can be employed within the TradeStation platform. There are additional trading tools online, and of course you can always call the Trade Desk to place orders and close positions.

## Options Order Bar

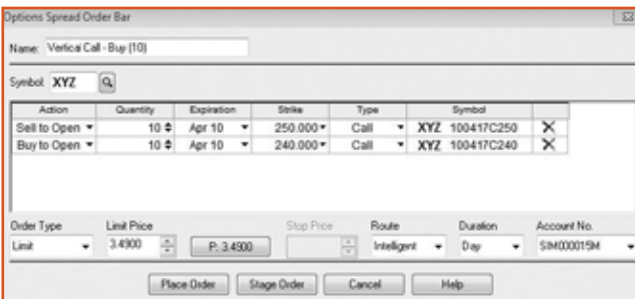
TradeStation's Order Bar (below) emphasizes simplicity and speed. With a click of your mouse, you can select the routing of your order to any of the six options exchanges, or simply select "Intelligent" and have the order automatically routed for you. You can even manage multiple accounts from the convenient drop-down list.



## Options Spread Order Bar

The Options Spread Order Bar (below) is accessed from the Options tab on the main Order Bar or by right-clicking an options position from the OptionStation Analysis Positions pane.

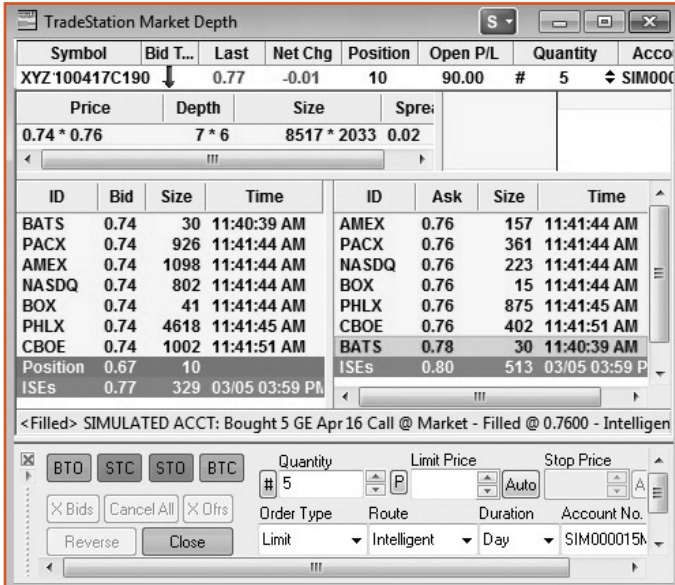
The Spread Order Bar allows you to quickly create and place multi-leg options orders in one action. You can place any type of order, and even specify the exchange route.



Orders can also be staged for later execution and can be seen in the TradeManager or in the Order Bar.

# Market Depth and Regional Options Price Data

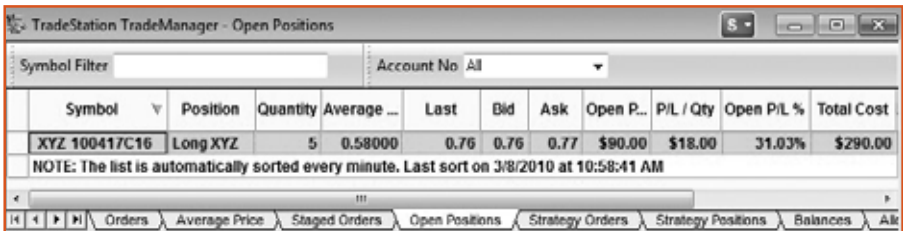
The TradeStation Market Depth window (below) allows you to view and track all real-time Bid, Bid Size, Ask, and Ask Size price data for all of the regional options exchanges for a given options symbol. Very similar to market depth for a stock, this is the limit order book for a specific options symbol; it displays the price and number of contracts available on each exchange. Market orders to Buy are filled at the Ask; Market orders to Sell are filled at the Bid.



You can also place orders directly from a Market Depth window using the Market Depth Trade Bar. Access the Trade Bar from the View menu. Just like the Matrix, open orders and positions can be seen in the Market Depth window, as well as the last order message in the Order Status Bar.

# TradeManager

The TradeManager (below) is the control center for all of your trading with TradeStation. Here you can monitor orders and positions, cancel orders or close positions, check real-time account balances, and place and manage staged orders.



For example, on the Open Positions tab in the TradeManager, you can track positions that are currently open. The entries are color-coded so you can see them at a glance; winning positions are highlighted in green and losing positions are highlighted in red.

## In Conclusion

Regardless of your level of options trading experience, OptionStation, an integral part of the TradeStation platform, offers unsurpassed power and flexibility in options analysis and trading. When you combine OptionStation with the powerful features of TradeStation, you have a complete options trading and analysis solution.

Of course, this book only skims the surface of what OptionStation and the TradeStation trading platform can offer you. As a direct-access broker in stocks, options, futures, and forex, we understand what you need as a trader and strive to deliver the best tools, service, and value in the industry.

Whether you need to analyze one symbol or the entire market, the TradeStation platform brings together both real-time and historical data, advanced technical and fundamental analysis, real-time and global scanning, strategy back-testing and forward testing, and the ability to automate your trading strategies for real-world order execution. Combine this with the trading tools that active traders need to quickly, accurately, and efficiently place orders in the markets, and you have everything you need to help achieve your trading objectives.

To get you up and running quickly with TradeStation and OptionStation, we offer an extensive array of FREE online educational tools that include “LiveOnTheWeb” courses and seminars, video tutorials, QuickTips, and books available in PDF format. These educational tools are designed to allow you to master the skills needed to start analyzing the markets, scanning for opportunities, and executing your trades with TradeStation.

**Thank you for taking the time to read this book, and good luck in your trading.**

## Suggested Additional Reading

*Options as a Strategic Investment* by Lawrence McMillan

*Option Volatility & Pricing* by Sheldon Natenberg

*Options for the Stock Investor* by James B. Bittman

*The New Options Advantage* by David L. Caplan

*Trading Options at Expiration* by Jeff Augen

# Options Glossary

## **Adjustment**

A trade made with the primary intention of maintaining certain position characteristics. For example, making an adjustment to keep a position Delta neutral.

## **All or None**

An order that must be filled completely or not at all.

## **American-style Option**

An option that can be exercised at any time prior to expiration.

## **Ask Price**

The price at which someone is willing to sell a stock, option, commodity, or other financial instrument.

## **Assign**

To require the seller of an option to sell (or sell short), in the case of a Call, or buy, in the case of a Put, at the specified exercise price.

## **Assignment**

The process by which the seller of an option is notified of the buyer's intention to exercise.

## **At-the-Money**

An option whose exercise price is equal to the current price of the underlying asset. On listed options exchanges, the term is more commonly used to refer to an option whose exercise price is the closest to the current price of the underlying contract.

## **Automatic Exercise**

The exercise by the clearinghouse of an In-the-Money option at expiration, unless the holder of the option submits specific instructions to the contrary.

## **Back Spread**

A spread (usually Delta neutral) in which more options are purchased than sold, and all options have the same underlying asset and expire at the same time.

## **Bear Spread**

Any spread which will theoretically increase in value with a decline in the price of the underlying asset.

## **Bearish**

An expectation that an underlying market will go down in price. The term may also be applied to any position that will profit from a decline in the underlying market.

## **Bid Price**

The price someone is willing to pay to purchase a stock, commodity, or other financial instrument.

## **Binomial Model**

A widely used options pricing model developed by John Cox, Stephen Ross, and Mark Rubenstein.. The model approximates the price distribution of the underlying asset by constructing a binomial tree where the price of the underlying is assumed to move up or down a given amount over each time interval. This model is often used to calculate theoretical values for American-style options more accurately.

## **Black Model**

A variation of the original Black-Scholes model, developed by Fischer Black. The Black model is designed to evaluate futures options.

## **Black-Scholes Model**

The first widely used pricing model for options, developed by Fischer Black and Myron Scholes. In its original form, the model was designed to evaluate European-style options on stock.

**Bull Spread**

Any spread that will theoretically increase in value with a rise in the price of the underlying asset.

**Bullish**

An expectation that an underlying market will rise in price. The term may also be applied to any position that will profit from a rise in the underlying market.

**Butterfly Spread**

The sale of two options with the same exercise price, together with the purchase of one option with a lower exercise price and one option with a higher exercise price. All options must be of the same type, have the same underlying asset, and expire at the same time, and there must be an equal increment between exercise prices.

**Calendar Spread**

The purchase of one option and the sale of another option expiring on different dates. Typically, both options are of the same type, have the same strike price, and have the same underlying stock or commodity. Calendar spreads are sometimes referred to as time spreads or horizontal spreads.

**Call Option**

A contract between a buyer and a seller whereby the buyer acquires the right, but not the obligation, to purchase a specified underlying asset at a fixed price on or before a specified date. The seller of the Call option assumes the obligation of delivering the underlying contract should the buyer wish to exercise his option.

**Carrying Cost**

The amount of interest that must be paid to finance a cash debit, or the amount of interest that can be earned on a cash credit, over some period of time.

**Class**

All options of the same type with the same expiration date and the same underlying instrument (asset).

**Clearinghouse**

The organization that guarantees the integrity of all trades made on an exchange.

**Collar**

Buying a Put and selling short a Call at different strikes so as to limit the potential loss from an investment position.

**Covered Write**

The sale of a Call or Put option against an existing long or short position in the underlying asset.

**Delta**

The sensitivity of an option's theoretical value to a change in the price of the underlying asset.

**Delta Neutral**

A position in which the sum of all the positive and negative Deltas is near zero.

**Derivative**

An instrument that derives its value from some underlying instrument or instruments. The most common types of derivatives are futures contracts, options, and swaps.

**Diagonal Spread**

A long Call or Put at one exercise price and expiration date, together with a short Call or Put at a different exercise price and expiration date. All options must have the same underlying asset. This is simply a time spread using different exercise prices.

**Dividend**

An amount paid by a company to the shareholders in the company. Dividends are usually paid from one to four times annually, with the quoted dividend representing the amount paid for each share of stock held.

**European-style Option**

An option that can only be exercised at expiration.

**Ex-dividend Date**

The day on which a dividend-paying stock is trading without the right to receive the next dividend.

**Exchange**

An organization whose members meet for the purpose of buying and selling stocks, futures, options, or other financial instruments. Depending on the type of exchange, members may conduct their trading either physically in a single location, or electronically over a computer network.

**Exercise**

The process by which the holder of an option notifies the seller of his intention to take delivery of the underlying asset in the case of a Call, or to make delivery of the underlying asset in the case of a Put, at the specified exercise price.

**Exercise (strike) Price**

The price at which the underlying asset will be exchanged in the event an option is exercised.

**Expiration**

The date and time after which an option may no longer be exercised.

**Fill or Kill**

An order that will automatically be cancelled unless it can be executed immediately and in its entirety.

**Futures Contract**

An exchange-traded contract whereby the buyer is obligated to take delivery and the seller is obligated to make delivery of a fixed amount of a commodity at a predetermined price on some future date.

**Gamma**

The sensitivity of an option's Delta to a change in the price of the underlying contract. Gamma is the acceleration of Delta.

**Good Till Cancelled (GTC)**

An order to be held by a broker until it can either be executed or is cancelled by the customer.

**Hedge**

A secondary position taken to protect the value of some primary position. If the value of the primary position declines, the losses are at least partially offset by an increase in the value of the hedge position.

**Hedge Ratio**

The theoretically correct number of options contracts required to establish a neutral hedge.

**Horizontal Spread**

The purchase of one option and the sale of another option expiring on different dates. Typically, both options are of the same type, have the same exercise price, and have the same underlying stock or commodity. Horizontal spreads are sometimes referred to as time spreads or calendar spreads.

**Implied Volatility**

Assuming all other inputs are known, the volatility that would have to be input into a theoretical pricing model in order to yield a theoretical value identical to the price of the option in the marketplace.

**In-the-Money**

An option that could be exercised and immediately closed out against the underlying asset for a cash credit. A Call is In-the-Money if its exercise price is lower than the current market price of the underlying asset. A Put is In-the-Money if its exercise price is higher than the current market price of the underlying asset.

**Index**

A number that represents the composite value of a group of similar or related items. The most common types of financial indices are stocks (a stock index), foreign currencies (a currency index), bonds (a bond index), or physical commodities (a commodity index).

**Interest Rate**

The cost of money. Interest rates are typically quoted as an annual percentage that can be earned on funds that have been loaned, or that must be paid on funds that have been borrowed.

**Intrinsic Value**

The amount by which an option is In-the-Money. Out-of-the-Money options have no intrinsic value.

**Iron Butterfly**

A long straddle, together with a short strangle. All options must expire at the same time and have the same underlying asset.

**Leg**

One side of a spread position, or component in a multi-leg options position or strategy.

**Limit Order**

An order to be executed at a specific price or better.

**Lognormal**

A statistical distribution that implies that a stock price can rise forever, but cannot fall below zero.

**Long**

A position resulting from the purchase of an asset. The term is also used to describe a position that will theoretically increase in value should the underlying market rise. Note that a long Put position is a short market position.

**Long Premium**

A position that will theoretically increase in value should the underlying contract make a large move in either direction. The position will theoretically decrease in value, because of time decay, if the underlying market sits still.

**Margin**

Money deposited by a trader to ensure the integrity of his trades.

**Market Order**

An order to be executed immediately at the current market price.

**Naked**

A short options position with no offsetting long option or asset position.

**Neutral**

A position that has no particular preference as to changes in a given market condition.

**Neutral Spread**

A spread that is Delta neutral.

**Normal Distribution**

A theoretical distribution resulting from an infinite number of random events. A normal distribution is symmetrical, with most of the events concentrated near the middle of the distribution and progressively fewer events falling at the tails of the distribution. A normal distribution is often referred to as a bell-curve distribution.

**Option**

The right to buy or sell a specific underlying asset over some period of time at a predetermined price.

**Out-of-the-Money**

An option that currently has no intrinsic value. A Call is Out-of-the-Money if its exercise price is higher than the current market price of the underlying. A Put is Out-of-the-Money if its exercise price is lower than the current price of the underlying.

**Premium**

The price of an option.

**Present Value**

Given a prevailing interest rate, the amount of money that would have to be invested at the present time in order to yield a given amount at the end of some period of time. This can often be approximated by deducting the carrying costs over the period from the terminal amount.

**Put Option**

A contract between a buyer and a seller whereby the buyer acquires the right, but not the obligation, to sell a specified underlying asset at a fixed price on or before a specified date. The seller of the Put option assumes the obligation of taking delivery of the underlying asset should the buyer wish to exercise his option.

**Ratio Back Spread**

A spread, usually Delta neutral, in which more options are purchased than sold, and where all options have the same underlying asset and expire at the same time.

**Ratio Spread**

Any spread in which the number of long market contracts (long underlying, long Call, or short Put) and short market contracts (short underlying, short Call, or long Put) are unequal.

**Ratio Vertical Spread**

A spread, usually Delta neutral, in which more options are sold than are purchased, and where all options have the same underlying contract and expire at the same time.

**Ratio Write**

The sale of multiple options against an existing position in an underlying asset. This is simply a covered write using more than one option.

**Rho**

The sensitivity of an option's theoretical value to a change in interest rates.

**Series**

All options with the same underlying instrument, same exercise price, and same expiration date.

**Short**

A position resulting from the sale of a financial instrument not already purchased. The term is also used to describe a position that will theoretically increase in value should the underlying market fall.

**Short Premium**

A position that will theoretically increase in value should the underlying market sit still. The position will theoretically decrease in value should the underlying asset make a large move in either direction.

**Short Ratio Spread**

A spread, usually Delta neutral, in which more options are sold than are purchased, and all options have the same underlying asset and expire at the same time.

**Short Sale**

The sale of a security that is not owned by the seller.

**Spread**

A long market position and a short market position usually, but not always, in the same underlying market.

**Standard Deviation**

In a normal distribution, a measure of how the events are distributed. A low standard deviation indicates that a large number of the events are concentrated near the middle of the distribution. A high standard deviation indicates that more of the events fall near the tails of the distribution.

**Stop Limit Order**

A contingency order that becomes a limit order if the asset trades at a specific price.

**Stop Order**

A contingency order that becomes a market order if the asset trades at a specific price.

**Straddle**

A long Call and a long Put, both options have the same underlying asset, the same expiration date, and the same exercise price.

**Strangle**

A long Call and a long Put, both options have the same underlying asset, the same expiration date, but different exercise prices.

**Strike Price**

The price at which the underlying asset will be delivered in the event an option is exercised.

**Synthetic**

A combination of positions having approximately the same characteristics as a different position.

**Synthetic Call**

A long underlying asset position together with a long Put.

**Synthetic Long Underlying**

A long Call and a short Put, both options have the same underlying asset, the same expiration date, and the same exercise price.

**Synthetic Put**

A short underlying asset position together with a long Call.

**Synthetic Short Underlying**

A short Call and a long Put, both options have the same underlying contract, the same expiration date, and the same exercise price.

**Theoretical Pricing Model**

A mathematical model designed to evaluate an option given certain assumptions about the characteristics of the option as well as other conditions in the marketplace.

**Theoretical Value**

An option value generated by a mathematical model based on the inputs to the model, which are the terms of the option contract, the price of the underlying asset, dividends (if any) and prevailing interest rates.

**Theta**

The sensitivity of an option's theoretical value to a change in the amount of time remaining to expiration.

**Time Premium**

The price of an option less its intrinsic value. The entire premium of an Out-of-the-Money option consists of time value.

**Time Spread**

The purchase of one option and the sale of another option expiring on different dates. Typically, both options are of the same type, have the same exercise price, and have the same underlying stock or commodity. Time spreads are sometimes referred to as horizontal spreads or calendar spreads.

**Time Value**

The price of an option less its intrinsic value.  
The entire premium of an Out-of-the-Money option consists of time value.

**Type of Option**

The designation of an option as either a Call or Put.

**Underlying Asset**

The stock, futures contract, cash index or forex pair to be delivered in the event an option is exercised.

**Vega**

The sensitivity of an option's theoretical value to a change in volatility.

**Vertical Spread**

The purchase of one option and sale of one option, in which both options are of the same type, have the same underlying asset, expire at the same time, but have different exercise prices.

**Volatility**

The degree to which the price of an underlying asset tends to fluctuate over time.

**Volatility Skewing**

The characteristic of most options markets to have different volatilities at different exercise prices, even among options that have the same underlying asset and expire at the same time.

**Write**

To sell short an option.







## MICHAEL BURKE

Michael Burke is Vice President of Institutional Training at TradeStation Securities, and has been part of the TradeStation team since 1997. During this time at TradeStation, he has been instrumental in developing innovative trading tools, platform features, and educational programs.

As a TradeStation educator, he has shown thousands of traders, novice and professional alike, how to better utilize the power of strategy back-testing, options trading, and the TradeStation platform, including EasyLanguage® programming.

A veteran stocks, futures, options, and forex trader with over 25 years of market analysis experience, he is often a featured speaker at industry events and conferences, sharing his practical knowledge of market analysis, trading, and TradeStation.



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