IBH VWAP
Volume-Weighted Average Price

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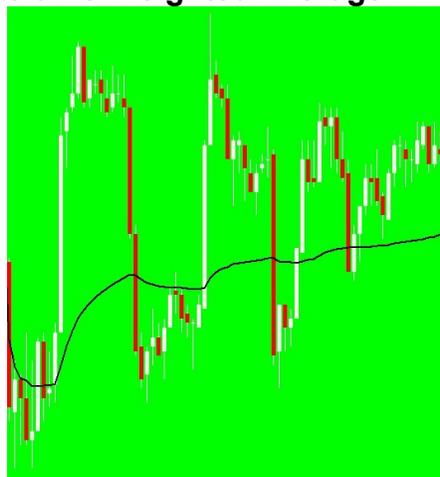
Overview

The indicators calculate and display the VWAP (Volume-Weighted Average Price) in chart and RadarScreen windows. In addition to the VWAP, the trader can configure the indicator to calculate and display standard deviation envelopes (think Bollinger Bands for VWAP) around the VWAP. The indicators can generate alerts when price crosses the VWAP and/or when price gets a trader-defined distance away from VWAP. Additionally, the indicators can be configured to 'transmit' the current VWAP to charts, workspaces, and desktops for display in charts of different intervals, into a RadarScreen, or to be used by a Strategy.

The indicators support equity index futures (".D" or continuous contracts), other futures (e.g. currency, interest rate, energy, metals, grains), and stocks. Forex is not supported since volume data is not available.

The indicator package includes **THREE** VWAP indicators:
- **IBH VWAP H.VWAP3** is the third generation indicator that displays the Volume-Weighted Average Price of the daily, weekly, or monthly session on a RadarScreen or minutes chart with color coding of the VWAP trend. An alert can be set when price crosses VWAP.
- **IBH VWAP H.VWAP3.Delta** to calculate and display the distance between the current price and VWAP on a RadarScreen or minutes chart. An alert can be set when price moves a trader-defined distance away from VWAP.
- **IBH VWAP H.VWAP.PlotR** to display the VWAP in charts of different time-frames or in a RadarScreen

There are other indicators in the package, they are older products with lesser functionality and remain in the package for subscribers who already have them inserted in their charts. Any new charts you create must use the indicators listed above to ensure compatibility with TradeStation 9.5 or 10.0.

New In Version 13

- Updates:
  - ○ Support for "Maximum Permissible Deviation" VWAP in **IBH VWAP H.VWAP3**
    - ■ Maximum Permissible Deviation VWAP works on intraday charts and generates an excursion band above and below VWAP based on the formula:
      - Upper band = VWAP + ((session high – session low)/2)
      - Lower band = VWAP - ((session high – session low)/2)
  - ○ Support for Foreign Exchange (requires "For volume = tick count" in symbol's settings tab)

Getting Started – Quick Start

This indicator includes a sample workspace.

TradeStation should install the workspace into your default workspace folder. Open that workspace to see a number of chart windows with the indicators installed in various different configuration settings. If you can not find the workspace or TradeStation did not download it, keep the following points in mind:

- The default reset time of the indicator was developed for a platform that uses the Exchange* Display time zone of the @ES futures symbol (Central time zone in the USA). If you use a different display time zone for the charted product, or the charted product has different session open time, then click on "Prompt for Format" when you insert the indicator. Go to the Inputs tab and adjust the Reset_Time accordingly. Read the "Configuration: Inputs Tab" section for more information.

To start H.VWAP3 (or H.VWAP3.Delta) on a new <u>".D" index futures chart</u> that trades on CME (@es, @nq) or CBOT (@ym), perform the following steps:
1. Create a new Chart Analysis chart
2. Insert the @ES.D symbol on the chart; make sure the display time zone is set to "Exchange"*
3. Set the chart interval to 1 minutes
4. Insert the IBH VWAP H.VWAP3 (or IBH VWAP H.VWAP3.Delta) indicator (turn on "Prompt for Format"). Select the "Input" tab, set Reset_Time to 0830.

To start H.VWAP3 (or H.VWAP3.Delta) on a new <u>continuous index futures chart</u> that trades on CME (@es, @nq) or CBOT (@ym), perform the following steps:
1. Create a new Chart Analysis chart
2. Insert the @es symbol on the chart; make sure the display time zone is set to "Exchange"*
3. Set the chart interval to 1 minutes
4. Insert the IBH VWAP H.VWAP3 (or IBH VWAP H.VWAP3.Delta) indicator (turn on "Prompt for Format"). Select the "Input" tab, set Reset_Time to 1700.

To start H.VWAP3 (or H.VWAP3.Delta) on a new equities chart that trades on the NYSE or NASDAQ, perform the following steps:

1. Create a new Chart Analysis chart
2. Insert the SPY symbol on the chart; make sure the display time zone is set to "Exchange"*
3. Set the chart interval to 1 minutes
4. Insert the IBH VWAP H.VWAP3 (or IBH VWAP H.VWAP3.Delta) indicator (turn on "Prompt for Format"). Select the "Input" tab, set Reset_Time to 0930.

* There is nothing "magic" about Exchange versus Local time for your charts. The instructions in this document use Exchange time so that the information is correct for all traders regardless of their timezone and country. Should you prefer Local time then adjust the Reset_Time as needed.

Note: Minutes are the only interval supported. Selecting different minutes intervals (e.g. 1, 3, 5, etc.) may generate slightly different VWAP. Using a 1 minute chart interval will generally result in the most accurate VWAP calculation and one that is used by a majority of traders. Use IBH VWAP H.VWAP.PlotR to plot the VWAP onto a non-minute chart.

Saving Configuration

As you will read in the following sections, there are several Input Names that can be set by the trader to change the default behavior of the indicator. Since this indicator was installed by the TradeStation TradingApp Store, you can not change the default configuration as you would with the built in indicators (studies). Instead, use the following steps when you have the indicator(s) configured as you prefer to save the configuration of all the indicators inserted in the chart, for future use in different charts by:

1. Right click the chart,
2. Select "Save Analysis Group" (TS 9.5) or "Save Study Group" (TS 10.0),
3. Enter a group name add any notes,
4. Click OK.

Then you Insert Analysis Group (TS 9.5) or Insert Studies Group (TS 10.0) to replicate the indicator configuration in a new chart.

IBH VWAP H.VWAP3 Indicator

This picture represents the default output (with Show_SD_Env set to True) of the **IBH VWAP H.VWAP3** indicator installed on a @ES.D 1 minute chart. The indicator works on minute interval charts only and updates the lines only at the close of the bar/candlestick.

The Red/Green line represents the VWAP since the Reset_Time (usually set to the beginning of the session). The Yellow dotted lines represent the standard deviation envelopes (default is +/-1 and +/-2 standard deviations based on the all VWAP calculations since "Reset_Time").

While this chart does not show it, the indicator also draws "naked VWAPS." A naked VWAP is a VWAP from a previous session (daily, weekly, monthly) that price has not yet returned to on any of the following days.

Configuration

When you format the indicator there are several tabs of interest.

Configuration: General Tab

In the default configuration, the "Update value intra-bar (tick-by-tick)" is NOT selected. Select "Update value intra-bar (tick-by-tick)" only if the alert functionality is used.

If using **IBH VWAP H.VWAP3** in a RadarScreen then
1. Check "Load additional data for accumulative calculations"
2. Enter a value for Additional bars to load to be GREATER than the number of bars in the session:
   - An equity that trades on NYSE or NASDAQ during regular trading hours trades for 6.5 hours or 390 minutes, therefore use 390 or larger
   - An index future that trades on the CME, during regular trading hours, trades for 6.75 hours or 405 minutes, therefore use 405 or larger
   - An index future that trades on the CME, during a continuous trading session, trades for 23 hours or 1380 minutes, therefore use 1380 or larger
   - When in doubt, use a number larger than you might require; there are 1440 minutes in a 24 hour day

Configuration: Inputs Tab

Name	Default Value	Description
Session	"D"	Defines the session for which VWAP should be generated: "**D**" **Daily** (VWAP is reset at Reset_Time) "**W**" **Weekly** (VWAP is reset on the first bar of the week) "**M**" **Monthly** (VWAP is reset on the first bar of the month) "**S**" **Session** (VWAP is reset on the first bar of the intraday session(s)) "**A**" **Anchor** (VWAP begins on Anchor_Date at Reset_Time; Reset_Time is ignored if chart interval is Daily or larger). An "anchored VWAP" is never reset once it starts. "**R**" **Moving** VWAP (in this instance, Reset_Time, has a unique definition) "**MPD**" Maximum Permissible Deviation – analyzes price range as though a Daily Session, The MPD is drawn by using the Band1 plot.
Reset_Time	830	Only used when Session = "D", "MPD" or "A" (and chart interval is minutes) or "R" Defines the beginning of the time period that the indicator will use to reset the VWAP calculation. Time selected will usually be the beginning of the session. <u>If the chart is in "Exchange" display time zone then</u> typical session settings are: • NYSE, NASDAQ Equities: 0930 • CME, CBOT continuous equity index

Name	Default Value	Description
		futures: 1700 • CME, CBOT ".D" equity index futures: 0830 While these are the typical settings, the trader may select any time for the indicator to reset. When Session = "R" then Reset_Time represents the number of time periods (bars) to use to calculate the VWAP.
Anchor_Date	20181008	Only used when Session = "A" Format is YYYYMMDD Specifies the start day of the anchored VWAP i.e. October 8, 2018 = 20181008.
Show_SD_Env	FALSE	If True then the standard deviation envelope will be calculated and displayed.
Round_Output	FALSE	If True then the VWAP and Standard Deviation Envelopes are rounded to the nearest trade-able price (e.g. for @ES that would be the nearest 0.25 points). If False then the VWAP and Standard Deviation Envelopes displayed are based on the *pure calculation* and may not be a trade-able price.
First_Alertable_Candle	15	Defines the first candle (or bar) in the session when an alert condition can be tested. This input is only relevant if Alerts are enabled. VWAP is a "reversion to the mean" concept so trading in the first few minutes of a session would generally cause price to test and retest the early session VWAP many times. The trader should look through previous trading sessions to determine"when" VWAP crosses/tests are relevant and then set this input below that value. The default is 15 so if VWAP is on a one minute chart then no price crossing VWAP during the first 15 minutes of the session will generate an Alert (if alerts are enabled).
Band1	1	Number of standard deviations used to calculate the inner most standard deviation envelope. Ignored when Session = "MPD" since the MPD is drawn as Band1 instead.
Band2	2	Number of standard deviations used to calculate the outer most standard deviation envelope.

Name	Default Value	Description
VWAP_upColor	GREEN	The color used when plotting the VWAP and the value is larger than the VWAP of the previous bar. Any of the colors: Black, Blue, Cyan, Green, Magenta, Red, Yellow, White, DarkBlue, DarkCyan, DarkGreen, DarkMagenta, DarkRed, DarkBrown, DarkGray, LightGray. Or use RGB(r,g,b) to select any other color.
VWAP_ncColor	CYAN	The color used when plotting the VWAP and the value is the same as the VWAP of the previous bar. Any of the colors: Black, Blue, Cyan, Green, Magenta, Red, Yellow, White, DarkBlue, DarkCyan, DarkGreen, DarkMagenta, DarkRed, DarkBrown, DarkGray, LightGray. Or use RGB(r,g,b) to select any other color.
VWAP_dnColor	RED	The color used when plotting the VWAP and the value is smaller than the VWAP of the previous bar. Any of the colors: Black, Blue, Cyan, Green, Magenta, Red, Yellow, White, DarkBlue, DarkCyan, DarkGreen, DarkMagenta, DarkRed, DarkBrown, DarkGray, LightGray. Or use RGB(r,g,b) to select any other color.
VWAP_Transparency	25	0=solid through 100=transparent
nVWAP_Show	0	Whether to display a naked VWAP and if so, what to do when price touches the VWAP in a later session (naked VWAP is never displayed when Session = "A" or "R"): 0=Do Not display 1=Display and remove nVWAP when touched, 2=Display and truncate nVWAP when touched
nVWAP_Style	0	0=solid,1=dashed,2=dotted,3&4=other dashed
nVWAP_Transparency	20	0=solid through 100=transparent
nVWAP_Color	RGB(128,255,	The color used to draw the naked VWAP.

Name	Default Value	Description
	255)	Any of the colors: Black, Blue, Cyan, Green, Magenta, Red, Yellow, White, DarkBlue, DarkCyan, DarkGreen, DarkMagenta, DarkRed, DarkBrown, DarkGray, LightGray. Or use RGB(r,g,b) to select any other color.
nVWAP_Weight	1	0-thinest,6-thickest
Channel	""	Specifies the UNIQUE name of the global dictionary that this indicator uses to 'transmit' VWAP information to Leave as "" if the 'transmission' is not required. Think of the usage of the *Channel* input as you do the "symbol link" on chart analysis windows with added functionality to share across workspaces, and desktops (in addition to charts).

The following chart shows the impact of the nVWAP_Show indicator on the output of the indicator:

Configuration: Alerts Tab

Alerts are supported. If enabled then the indicator will generate an alert on the:
- Close of the bar/candle where price crosses the VWAP. If "Update value intra-bar (tick-by-tick)" IS NOT selected on the General Tab.
- On tick of the bar/candle where price crosses the VWAP. If "Update value intra-bar (tick-by-tick)" IS selected on the General Tab.

No alerts are generated when/if price crosses any of the standard deviation envelopes.

Configuration: Style Tab

Sets the style and weight of Band2Up, Band2Dn, Band1Up, Band2Dn, and VWAP.
If Session = "MPD" then the maximum permissible bands drawn use Band1Up and Band1Dn configuration.

Configuration: Color Tab

Sets the color of Band2Up, Band2Dn, Band1Up, and Band2Dn.
If Session = "MPD" then the maximum permissible bands drawn use Band1Up and Band1Dn configuration.

Configuration: Scaling Tab

There is nothing on this tab that should be changed.

Configuration: Advanced Tab

There is nothing on this tab that should be changed.

Chart Intervals Supported

Session	Chart Intervals Supported
D	Minutes
W	Minutes
M	Minutes
S	Every intra-day chart interval
A	Minutes, Daily, Weekly, Monthly
R	All
MPD	Minutes

- **If you would like to use "Daily bars"** with Session = "W", "M", or "Y" then calculate the number of minutes in the daily trading session and create a minutes interval chart of that amount. For example, equities that trade on NYSE, trade for 6.5 hours or 390 minutes.

IBH VWAP H.VWAP3.Delta Indicator

VWAP trading is generally classified as a "reversion to the mean" trading methodology. The **IBH VWAP VWAP3.Delta** indicator displays the difference between the close price of the candle and the VWAP value calculated when the candle closes. It is <u>possible</u> that a maximum 'delta' value signifies a potential turning point in price (reviewing the indicator output over many trading days may assist in finding this value). This indicator makes it easy to see the delta and plan trades accordingly.
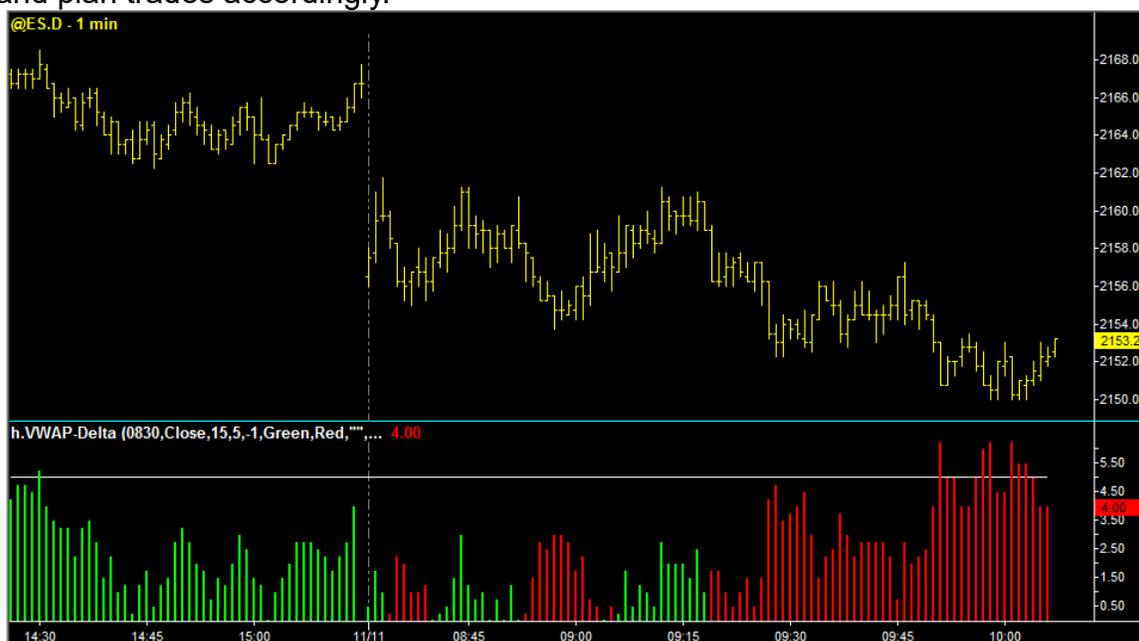
This picture represents the default output of the **IBH VWAP H.VWAP3.Delta** indicator installed on a @ES.D 1 minute chart. The indicator works on minute interval charts only and updates the lines only at the close of the bar/candlestick.

The Green histogram line represents the positive VWAP delta, the RED histogram line represents the negative VWAP delta, the white horizontal line represents the Upper Delta Alert Price. No Lower Delta Alert Price is displayed since the default is "don't display".

You can install both **IBH VWAP H.VWAP3** and **IBH VWAP H.VWAP3.Delta** indicators onto the same chart.

Configuration

After you import the indicator you can insert it in any chart analysis window on minutes interval. The name of the indicator is **IBH VWAP H.VWAP3.Delta**

When you format the indicator there are several tabs of interest.

Configuration: General Tab

In the default configuration, the "Update value intra-bar (tick-by-tick)" is NOT selected. Select "Update value intra-bar (tick-by-tick)" only if the alert functionality is used.

If using **IBH VWAP H.VWAP3.Delta** in a RadarScreen then
3. Check "Load additional data for accumulative calculations"
4. Enter a value for Additional bars to load to be GREATER than the number of bars in the session:
    ○ An equity that trades on NYSE or NASDAQ during regular trading hours trades for 6.5 hours or 390 minutes, therefore use 390 or larger
    ○ An index future that trades on the CME, during regular trading hours, trades for 6.75 hours or 405 minutes, therefore use 405 or larger
    ○ An index future that trades on the CME, during a continuous trading session, trades for 23 hours or 1380 minutes, therefore use 1380 or larger
    ○ When in doubt, use a number larger than you might require; there are 1440 minutes in a 24 hour day

Configuration: Inputs Tab

Name	Default Value	Description
Session	"D"	Defines the session for which VWAP should be generated. "D" - Daily (VWAP is reset at Reset_Time) "S" - Session (VWAP is reset on the first bar of the intraday session(s))
Reset_Time	830	Only used when Session = "D" Defines the beginning of the time period that the indicator will use to reset the VWAP calculation. Time selected will usually be the beginning of the session. If the chart is in "Exchange" display time zone then typical session settings are: • NYSE, NASDAQ Equities: 0930 • CME, CBOT continuous equity index futures: 1700 • CME, CBOT ".D" equity index futures: 0830 While these are the typical settings, the trader may select any time for the indicator to reset.
VWAP_Price	Close	This defines one of the variables used to calculate the VWAP delta at the candle close. When Close is used, the VWAP.Delta = Close – VWAP. High, Low, Open, Close or a formula of these

Name	Default Value	Description
		values, e.g. (High+Low)/2, can be used.
Round_Output	FALSE	If True then the VWAP and delta VWAP are rounded to the nearest trade-able price (e.g. for @ES that would be the nearest 0.25 points). If False then the VWAP and delta VWAP displayed are based on the *pure calculation* and may not be a trade-able price.
First_Alertable_Candle	15	Defines the first candle (or bar) in the session when an alert condition can be tested. This input is only relevant if Alerts are enabled. The default is 15 so if VWAP.Delta is on a one minute chart then no VWAP.Delta crossing over UDeltaAlertPrice or under LDeltaAlertPrice will generate an Alert (if alerts are enabled).
UDeltaAlertSize	4.99	The value that VWAP.Delta must cross OVER to generate an alert. -1 signifies no alert check. Set this to a value which is a tick or so smaller, that you have noticed over time, as signifying a potential turning point in price.
LDeltaAlertSize	-1	The value that VWAP.Delta must cross BELOW to generate an alert. -1 signifies no alert check. Set this to a value that is close to zero to represent the end of the reversion to mean trade.
PositiveColor	Green	The color displayed by the indicator when the VWAP.Delta is ABOVE zero (Positive). Valid colors are: Black, Blue, Cyan, Green, Magenta, Red, Yellow, White, DarkBlue, DarkCyan, DarkGreen, DarkMagenta, DarkRed, DarkBrown, DarkGray, LightGray
NegativeColor	Red	The color displayed by the indicator when the VWAP.Delta is BELOW zero (Negative). Valid colors are: Black, Blue, Cyan, Green, Magenta, Red, Yellow, White, DarkBlue, DarkCyan, DarkGreen, DarkMagenta, DarkRed, DarkBrown, DarkGray, LightGray
Channel	""	Specifies the UNIQUE name of the global dictionary that this indicator uses to 'transmit' VWAP and delta values to

Name	Default Value	Description
		Leave as "" if the 'transmission' is not required. Think of the usage of the *Channel* input as you do the "symbol link" on chart analysis windows with added functionality to share across workspaces, and desktops (in addition to charts).

Configuration: Alerts Tab

Alerts are supported. If enabled then the indicator will generate an alert on the:
- Close of the bar/candle where the delta value crosses above (not merely touches) the Upper VWAP delta size. If "Update value intra-bar (tick-by-tick)" IS NOT selected on the General Tab.
- On tick of the bar/candle where the delta value crosses below (not merely touches) the Lower VWAP delta size. If "Update value intra-bar (tick-by-tick)" IS selected on the General Tab.

Configuration: Style Tab

Sets the style and weight of VWAP.Delta, UpperAlert, and LowerAlert.

Configuration: Color Tab

Sets the color of UpperAlert and LowerAlert. Use the Inputs Tab to set the color of VWAP.Delta.

Configuration: Scaling Tab

Set Axis Scale On and Axis Sub-graph as desired. Generally you will not set Sub-graph to be the same value as the charted product.

Configuration: Advanced Tab

There is nothing on this tab that should be changed.

Chart Types Supported

Only minutes intervals are supported on the chart window unless Session = "S". When Session = "S" then every intra-day chart type is supported by IBH VWAP H.VWAP3.Delta.

IBH VWAP H.VWAP.PlotR Indicator

This indicator receives VWAP value from the Global Dictionary and plots those values on any chart interval or a RadarScreen. The following is an example of the indicator running on a RadarScreen (from the sample workspace):

Created with TradeStation. ®TradeStation Technologies, Inc. All rights reserved.

Note: If VWAP.PlotR is running in a RadarScreen both VWAP and VWAP.Delta columns are displayed by default. However, values for VWAP.Delta will be displayed only if H.VWAP.Delta is the transmitting indicator. H.VWAP3 does not transmit a delta value. To remove the VWAP.Delta column right-click the column heading to toggle show/hide plots.

Configuration: General Tab

In the default configuration, the "Update value intra-bar (tick-by-tick)" is NOT selected.

Configuration: Inputs Tab

Name	Default Value	Description
Channel	""	Specifies the UNIQUE name of the global dictionary that the VWAP.PlotR indicator uses to 'receive' VWAP variable information from If "" then this indicator does nothing. Think of the usage of the *Channel* input as you do the "symbol link" on chart analysis windows with added functionality to share across workspaces, and desktops (in addition to charts).

Configuration: Alerts Tab

Alerts are not supported.

Configuration: Style Tab

Sets the style and weight of VWAP line.

Configuration: Color Tab

Sets the color of the VWAP line.

Configuration: Scaling Tab

There is nothing on this tab that should be changed.

Configuration: Advanced Tab

There is nothing on this tab that should be changed.

Chart Types Supported

RadarScreen and all interval charts are supported.

How To Develop Your Own Indicator for the Global Dictionary

This section assumes you know EasyLanguage and is intended as a reference for the trader to develop their own indicator or strategy that relies upon (receives) the VWAP variables.

Format of Stored Variables in the Global Dictionary

When the Channel input variable is not NULL (""), the VWAP indicators create two global dictionaries as follows:

```
variables:
     GlobalDictionary VWDict( Null ),
     GlobalDictionary VWDictSignal( Null );

     VWDict = GlobalDictionary.Create( true, Channel );
     VWDictSignal = GlobalDictionary.Create( true, Channel & "-Signal" );
```

Your strategy/indicator to access the VWAP variables from the Global Dictionary should use the same code. VWDict contains the VWAP variables and VWDictSignal exists for the "transmitting" VW indicator to signal to the "receiving" strategy/indicator that values in VWDict have changed. The information shared by the VWAP indicators are stored into the Global Dictionary as follows:

```
     VWDict.Items[ Channel & ".VWap"] = VWAPv astype double;
     VWDict.Items[ Channel & ".VWap.Delta"] = Close - VWAPv astype double;
     VWDict.Items[ Channel & ".VWap.date"] = Date astype double;
     VWDict.Items[ Channel & ".VWap.time"] = Time astype double;
```

The transmitting VWAP indicator (H.VWAP2 or H.VWAP.Delta) places the most recent VWAP variables into the Global Dictionary at the close of candle/bar.

Strategy/Indicator Initialization

When items in the VWDict have been updated a dummy item is stored into VWDictSignal. Indicators or strategies should wait for a change or add event in VWDictSignal as follows:

```
Method void NewVWValue( elsystem.Object sender,
elsystem.collections.ItemProcessedEventArgs args )
Begin
     // called when the signal dictionary has an added or modified item
     // occurs when new VWAP is calculated
     // Perform required processing, e.g. capture new value from the dictionary
End;

Once
Begin
     // Initialization and setup of the dictionaries
     VWDict = GlobalDictionary.Create( true, Channel );
     VWDictSignal = GlobalDictionary.Create( true, Channel & "-Signal" );
     VWDictSignal.ItemAdded += NewVWValue;
     VWDictSignal.ItemChanged += NewVWValue;
End;
```

Capturing The VWAP Variables: Source Code

Sample source code is provided to assist subscribers to create additional indicators and strategies that use the VWAP data transmitted by the H.VWAP3 and H.VWAP3.Delta indicators. The source code shows the proper mechanism to use to access the global dictionary and the specific types for each datum provided by the H.VWAP3 and H.VWAP3.Delta indicators.

```
Using elsystem.collections;

inputs:
      string Channel( "" );   // Defines the UNIQUE chart that is the source of
                              // the VWAP data

variables:
      GlobalDictionary VWDict( Null ),
      GlobalDictionary VWDictSignal( Null ),
      Intrabarpersist double ddate( -1 ),
      Intrabarpersist double dtime( -1 ),
      Intrabarpersist double VWAPv( -1 ),
      Intrabarpersist double VWAPd( -1 );

Method void NewVWValue( elsystem.Object sender,
elsystem.collections.ItemProcessedEventArgs args )
Begin
      // called when the signal dictionary has an added or modified item
      // if the value exists in the dictionary then extract it; this indicator
      // NEVER modifies the Channel values; only captures the latest value
      If VWDict.Contains( Channel & ".VWap" ) <> False then
          VWAPv = IBDict.Items[Channel & ".VWap"] astype double;
      If VWDict.Contains( Channel & ".VWap.date" ) <> False then
          ddate = IBDict.Items[Channel & ".VWap.date"] astype double;
      If VWDict.Contains( Channel & ".VWap.time" ) <> False then
          dtime = IBDict.Items[Channel & ".VWap.time"] astype double;
      // VWap.Delta is only generated by VWAP.Delta indicator
      If VWDict.Contains( Channel & ".VWap.Delta" ) <> False then
          VWAPd = IBDict.Items[Channel & ".VWap.Delta "] astype double;

End;  // Method void NewVWValue

Once  // Initialization
Begin
      VWDict = GlobalDictionary.Create( true, Channel );
      VWDictSignal = GlobalDictionary.Create( true, Channel & "-Signal" );
      VWDictSignal.ItemAdded += NewIBValue;
      VWDictSignal.ItemChanged += NewIBValue;

      // Capture the VWAP variable, if it exists
      // This code may have begun execution after the IB hi/lo was set
      // Do this rather than to wait for the next write of developing values
      If VWDict.Contains( Channel & ".VWap" ) <> False then
          VWAPv = IBDict.Items[Channel & ".VWap"] astype double;
      If VWDict.Contains( Channel & ".VWap.date" ) <> False then
          ddate = IBDict.Items[Channel & ".VWap.date"] astype double;
```

```
        If VWDict.Contains( Channel & ".VWap.time" ) <> False then
            dtime = IBDict.Items[Channel & ".VWap.time"] astype double;
        // VWap.Delta is only generated by VWAP.Delta indicator
        If VWDict.Contains( Channel & ".VWap.Delta" ) <> False then
            VWAPd = IBDict.Items[Channel & ".VWap.Delta "] astype double;

        // If VWap.date = date then the variables were updated today and are fresh
        // and OK to use; if VWap.Date <> date then any strategy or indicator that
        // requires current VWAP value must wait.
End;
```

Support

send email to indy.by.harvey@gmail.com

In addition to a clear description of the problem, configuration details of the symbol and indicator, include the version of **IBH VWAP** indicator package and your TradeStation platform.

Disclaimer

- Success in trading is not guaranteed
- The developer of this indicator has made good efforts to produce a quality product, however the developer is not liable should importing and inserting this indicator impact the performance or utility of the customer's TradeStation platform
- The results of any and all trades that the customer takes which may have been influenced by this indicator are the customer's and the customer's alone, regardless of whether it is a profit or a loss

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