Print Profiler
Indicator User Manual NT 8

Order Flow Print + Volume Profile Suite

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Print Profiler Concepts Explained:

The Print Profiler indicator is a hybrid analysis tool which combines 2 distinct categories of analysis: 1) **Orderflow Print** and 2) **Volume Profile (Micro/Macro)**. The tool uses advanced pattern recognition, Orderflow algorithms & volume profile data that can be applied to all styles of trading.

Orderflow Print extracts executed Orderflow data which is transferred from the **Bid/Ask (DOM – Depth of Market) to the (T&S – Time and Sales)**. This analysis is used to identify:

- Executed volume at certain price levels
- Bid/Ask comparisons
- Amount of volume being traded
- Supply and demand Orderflow print imbalances
- Institutional sentiment
- Exhausted Orderflow
- Diverging Orderflow

The purpose for this data interpretation is to provide an in-depth view of what's happening inside each price bar by quantifying true Orderflow transparency. This information quantifies:

- Precise trade execution
- Better trade management
- Sound risk placement
- Increased probability
- Accurate trade selection
- X-Ray vision inside price bars

Volume Profile distribution represents the volume composite for both micro and macro analysis. Volume data provides insight into the POC (point of control), VAH (value area high), VAL (value area low) and VC (volume cluster). The purpose for this form of analysis is to provide insight into the auction market process. We can leverage volume data to identify fair value and whether the market accepts price levels, or it is expected to reject them based on volume sentiment. This can be done both on a macro and micro scale using the Print Profiler.

This data can be extracted in 3 ways using the Print Profiler**:**

1. **Bar Profile** – Micro volume profile for each price bar
2. **Composite Profile** – Macro volume profile (daily or time selected intervals)
3. **Manual Profile** – Individually drawn custom profiles (single or multiple)

Processing Mode: The PrintProfiler software can be operated in 2 modes:

1. **All** (both Orderflow and Volume Profile)
2. **VolumeProfileOnly**

Orderflow adds a substantial amount of calculations so the Processing Mode feature was included as an option when Orderflow is not needed.

Conclusion:

- Without this form of data analysis, traders are left to interpret price action and volume through means of rudimentary lagging indicators and blindfolded price bars. The Orderflow print allows for an internal view of what's taking place between executed volume and trade sentiment.

- This form of data analysis can be used for stocks, future and forex. It can also be used for Daytrading and swing/position trading.

Print, Zones, & Profile Concepts

Concept	Definition
Print	Orderflow print that displays executed bid/ask volume transactions
Net Delta	The net relationship between bid orderflow and ask orderflow
Bid/Ask Imbalance	The spread between the Bid/Ask (usually set by a multiplier)
Block Trades	Trades derived of a large amount of orders (large sized trades)
Trapped Trader	Exhausted orderflow at the low/high of a price bar
Delta Divergence	When price and net orderflow move in opposing directions
Supply zone	An orderflow supply imbalance
Demand zone	An orderflow demand imbalance
Broken Zones	Violated orderflow imbalances
Fresh Zones	Orderflow imbalances that have never been traded into by price
Tested Zones	Orderflow imbalances that have been traded into by price
VA (value area)	Area with highest concentration of volume within profile
VAH (value area high)	High point in the value area within profile
VAL (value area low)	Low point in the value area within profile
POC (point of control)	Price with the most trade volume within profile
VC (volume cluster)	3 adjacent prices with the most concentration of volume within profile
Inventory	Depth of market (Bid/Ask)
Volume Averages	Moving averages derived from volume profile data
Stop Loss Calculators	Average stop loss size for supply and demand zones

Print Profiler Indicator Parameters & Settings

Group	Parameters	Allowable Values	Description
Data	**Mode**	**All/VolumeProfileOnly**	Selecting **All** means both Orderflow and Volume Profile are calculated. Selecting **VolumeProfileOnly** means no Orderflow is calculated, only Volume Profile. When selecting **All** the user has the option to limit the number of minutes or bars for which Orderflow or Volume Profile will be calculated (see below).
	Limit Type	**Minutes/Bars/NoLimit**	This determines whether there will be a limit to the number of Minutes or Bars for which the Orderflow or Volume Profile is calculated. Selecting **NoLimit** means these calculations will be performed for every bar on the chart. Selecting **Minutes** or **Bars** means these calculations will be performed only for the last X number of minutes or bars, where X = the value defined by the **Limit Qty** parameter (see below).
	Limit Qty	**Integer > 0 Default = 120**	Number of **Minutes** or **Bars**. This defines the number of Minutes or Bars for which the Orderflow or Volume Profile calculations will be performed (it can be any positive integer). ***Reducing this number will reduce processing time.***
	Ignore last forex digit	**Select or de-select**	This is to control the print Orderflow for using forex data. It is used when using sub-pip vs pip settings.
Indicator Display	**Chart Button Size**	**Integer > 0 Default = 0**	This controls the size of the chart hover buttons
	Chart Button Text	**Default = Print Profiler**	This controls the font of the Print Profiler logo. It also allow you to input the text you want to read in the button.
Bar Display	**Right Side Margin (Min)**	**Integer > 0 Default = 100**	This automatically adjusts the right-side margin of the chart.
	Right Side Padding (Min)	**Integer > 0 Default = 15**	
	Bar Space (Min)	**Integer > 0 Default = 2**	This sets the minimum bar space between each bar.
	Bar Space (Max)	**Integer > 0 Default = 15**	This set the maximum bar space between each bar.

Print Display	**Print Enabled**	**True/False** **Default = True**	This enables the orderflow print in the bars.
	Current Bar Enabled	**True/False** **Default = True**	This enables the orderflow print on the current bar.
	Volume Numbers Enabled	**True/False** **Default = True**	This enables the orderflow print volume numbers inside each price bar.
	Heatmap Enabled	**True/False** **Default = True**	This enables the Orderflow heatmap.
	Heatmap Positive / Negative colors	**Default (Dark Green and Dark Red)**	These allow for color selections of the heatmap.
	Heatmap height period	**Integer >0** **Default = 3**	Number of bars lookback to calculate Average Volume (used for Heatmap Height)
	Heatmap color period	**Integer > 0** **Default = 10**	Number of bars lookback to calculate Average Net Delta (used for Heatmap Color)
	Heatmap Volume Enabled	**True / False** **Default = False**	This controls the heatmap volume numbers in histogram bars.
	Heatmap minimum line	**Default = Black**	This is the heatmap avg baseline color
	Heatmap skinny bars	**True / False** **Default = False**	This turns the heatmap bars to skinny mode for easier reading graphics when price reaches the low of the chart window. (best used to not overlap the bars)
	Heatmap min line thickness	**Integer > 0** **Default = 1**	This is the thickness of the heatmap line
	Show volume %	**True / False** **Default = False**	This displays the volume % on each bar relative to the total volume.
	Net Delta Enabled	**True/False** **Default = True**	This enables the (Net Delta) for each price bar. Net Delta is the relationship between the Bid/Ask of each bar. (Ask Volume – Bid Volume)
	Net Delta Color (+/-)	**Default (+) = Dark Green** **Default (-) = Maroon**	This sets the text color for the net delta figure above each price bar.
	Net Delta Font	**Default = 10pt, Arial, Bold**	This sets the font size and style for the Net Delta text.
	Text Color	**Default - Black**	This sets the text color for the orderflow print in the price bars
	Text Font	**Default = 8pt, Arial, Bold**	This sets the font size and style for the orderflow print in the price bars

Zone Display	**Zones Enabled**	**True/False** **Default = True**	Turns all zones on/off
	Minimum Size (ticks)	**Integer > 0** **Default = 4**	This sets the minimum # or Bid/Ask imbalances required to create a supply/demand zone
	Show Fresh Zones	**True/False**	Turns all zones that have fresh order flow or have not been touched by price on/off
	Show Tested Zones	**True/False**	Turns all zones that have been touched by price on/off
	Show Broken Zones	**True/False**	Turns all zones that have been breached by price on/off
	Draw – Extend Right	**True/False** **Default = True**	This extends zones to the right edge of the chart
	Draw – Tick Level Width	**Integer > 0** **Default = 2**	This sets the width for levels that consist of only one imbalance block when print is enabled.
	Zone Colors	**Custom/Web/System**	Allows for selecting zone fill colors for all zone types (Fresh/Tested/Broken)
	Zone Outline Colors	**Custom/Web/System**	Allows for selecting zone outline colors for all zone types (Fresh/Tested/Broken)
	Zone Opacity	**Integer > 0**	Allows for selecting the opacity of zone colors for all zone types (Fresh/Tested/Broken)
	Tested Marker Enabled	**True/False**	This turns the tested zone marker on/off. The tested zone marker signals how far price has traded into a supply/demand zone without breaching it.
	Tested Marker Color	**Custom/Web/System** **Default = White**	Allows for selecting the tested marker color.
	Tested Marker Opacity %	**Integer > 0** **Default = 100**	Allows for selecting the tested marker opacity %
	Tested Marker Width	**Integer > 0** **Default = 3**	Allows for setting the width of the tested marker line.
	Tested Shading Enabled	**True/False**	This turns tested shading on/off. Tested shading is a feature that highlights the zone into 2 colors (tested/fresh) depending on how far price has traded into it.

Bid/Ask Imbalances	**Bid/Ask Imbalances Enabled**	**True/False**	This enables the Bid/Ask Imbalances and is the (Master Control) for this entire section. Turning this off will not allow any other features to display.
	Bid/Ask Imbalances Dots Enabled	**True/False**	This enables the dots for the Bid/Ask imbalances.
	Bid/Ask Imbalances Text Enabled	**True/False**	This highlights the text for the Bid/Ask imbalance cells.
	Multiplier (X)	**Integer > 0** **Default = 2**	This is a number that sets the multiplier threshold between the Bid/Ask imbalances. **Ex: A number of 2 means that the Bid or the Ask must be 2 times greater than each other to signal an imbalance in orderflow print.**
			This is a very important part of the software because this controls not only the Bid/Ask imbalances, but it also sets the requirement for the imbalances that create the zones.
	Volume Qualifier (%)	**Integer > 0** **Default = 0**	This is a volume % threshold of each price bar that can be set to add volume requirements to the Bid/Ask imbalances. Increasing this value greater than (0) means you require the volume of the Bid/Ask imbalance to be a specific % of the bars volume. **Ex: 15% means that in order for the Bid/Ask imbalance to be created, it must be made up of 15% of the price bars volume. By default, we set this to 0 to avoid putting too much restrictive measures in the Bid/Ask imbalances.**
	Bid/Ask Dot Color	**Bid Dot Color = Yellow** **Ask Dot Color = Black**	This sets the color for the Bid/Ask dot imbalances on the price bars.
	Bid/Ask Dot Opacity %	**Integer > 0** **Default = 100**	This sets the opacity for the Bid/Ask dot color for the imbalances.
	Dot Size	**Integer > 0** **Default = 4**	This sets the size of the Bid/Ask imbalance dots
	Dot Mode	**Inside/Outside**	This determines where the Imbalance Dots appear: either along the middle of the candle or along the outer edge of the candle.
	Bid/Ask Text Color	**Bid Color = Green** **Ask Color = Red**	This sets the color for the Bid/Ask imbalance text appearing beside each price bar.

Block Trades	**Block Trades Enabled**	**True/False**	This enables the Block trade arrows on the price bars. Block trades are large sized orders at the Bid/Ask.
	Minimum Block Trade Size	**Integer > 0** **Default = 20**	This is a number threshold for setting the minimum block trade size. **Ex: A setting of 20 means that in order for a block trade arrow to plot on a price bar, an order of 20 or greater must have been executed at the Bid/Ask.**
	Bid/Ask Arrow Color	**Default = Black**	This sets the color for the Bid/Ask Block Trade arrows.
	Bid/Ask Opacity (%)	**Integer > 0** **Default = 100**	This sets the opacity for the Bid/Ask Block Trade arrows.
	Arrow Size	**Integer > 0** **Default = 5**	This sets the size of the Block Trade arrows.

Inventory Display	**Inventory Enabled**	**True/False**	This enables the Inventory (DOM – Depth of Market) histogram.
	Total Display	**True/False**	This enables the Inventory Bid/Ask totals
	Total Mode	**Contracts/Percent/Both** **Default = Both**	This allows for choosing the preferred totals of the Inventory in either (Total Contracts, Total % or Both).
	Max Levels	**Integer > 0** **Default = 10**	This is the # of levels/histogram bars above or below price on the Inventory DOM.
	Histogram Length	**Integer > 0** **Default = 100**	This is the length of the histogram inventory levels in (Pixels)
	Bid/Ask Inventory Opacity %	**Integer > 0** **Default = 80**	This sets the opacity for the histogram in the inventory DOM
	Ask Largest Fill Color	**Default = Maroon**	This sets the color for the histogram bar that marks the largest # of contracts at the Ask in the inventory DOM
	Ask Normal Fill Color	**Default = Red**	This sets the color for the histogram bars at the Ask in the inventory DOM
	Bid/Ask Outline Color	**Default = Black**	This is the outline color for the bars in the inventory DOM

	Bid Largest Fill Color	**Default = Line**	This sets the color for the histogram bar that marks the largest # of contracts at the Bid in the inventory DOM
	Bid Normal Fill Color	**Default = Green**	This sets the color for the histogram bars at the Bid in the inventory DOM
	Outline Enabled	**True/False**	This enables the inventory histogram outline color.

Avg Stop Loss Calculators	**Tick Buffer**	**Integer > 0** **Default = 3**	This is the average stop size for the Supply/Demand zones created by the Bid/Ask imbalances. The buffer assumes a certain tick distance below demand or above supply for stop placement. **Ex: With a setting of 3, this assumes you would place your stop 3 ticks below demand or 3 ticks above supply and the average stop size includes this buffer.**

DSA Alert	**Enable DSA**	**True/False** **Default = True**	**This turns on the Delta Spread Signal Bars.**
	DSA Sensitivity	**Integer > 1-9** **Default = 8**	**This controls the strength of the Delta used in the DSA. A lower number will create more delta signals but be less strength. A higher number will be stronger delta signals but less signals.**
	Buy/Sell Color	**Buy = Lime** **Sell = Red**	**This is the color of the DSA bars.**
	Op HM Bar Outline	**Integer > 0-100** **Default = 100**	**This is the opacity of the heatmap outline.**
	Width Heatmap Outline	**Integer > 0-9** **Default = 4**	**This is the width of the Heatmap outline.**
	Opacity Price Bar Outline	**Integer > 0-100** **Default = 100**	**This is the opacity of the price bar outline.**

Profile (All)	**Value Area %**	**Integer > 0** **Default = 70**	This sets the (Value Area %) across all volume profiles in the print profiler. By default we have set this to the industry norm (70%). **Changing this number affect all profiles!!!**

Signal Display	**Show Long/Short Signals**	**True/False**	This is the master control of all signals in the software. When turned on or off, this controls all visual short or long plot signals for all orderflow and volume signals.

Trapped Trader / Delta Divergence / Volume Divergence Signals	**Trapped Trader Enabled**	**True/False**	This enables the trapped trader signals. A Trapped Trader signal is when a price bar has declining volume at the highs/lows of the price bar. This signals exhausted volume. **The close of the price bar relative to its open also qualifies this signal. For a long-Trapped Trader to qualify, the close must be above the open. For a short-Trapped Trader to qualify, the close must be lower than the open. Dojis are not included.**
	Trapped Trader High/Low Range Filter	**True/False** **Default = True**	This sets a requirement that the trapped trader be compared to the prior bars price range. **When set to True, the bar in which the signal is located must make a Higher High (Trapped Trader Short Signals) and a Lower Low (Trapped Trader Long Signals).** **When set to False, there is no prior bar comparison therefore any bar with exhausted volume can signal a trapped trader.**

Trapped Trader Declining Levels	**Integer > 0** **Default = 3**	This sets the minimum threshold requirement for declining volume levels on the price bar. **Ex: When set to 3, price must make 3 consecutive declining volume levels at the Bid/Ask located at the high/low of each price bar in order to qualify**.
Delta Divergence Enabled	**True/False**	This enables the Delta Divergence signals. A Delta Divergence signal is when price and net delta orderflow move in opposing directions. **Delta Short means price must make a Higher High on (-) Net Delta.** **Delta Long means price must make a Lower Low on (+) Net Delta.**
Delta Divergence Bars Look Back	**Integer > 0** **Default = 3**	This sets the prior bar comparison factor for the Delta Divergence signal. **Ex: A setting of 3 means 3 bars back.** **For Delta Shorts, price must make a higher high over the last 3 bars on (-) Net Delta.** **For Delta Longs, price must make a lower low over the past 3 bars on (+) Net Delta.**
Combined Signals Enabled	**True/False**	This enables a combined signal for when there is both a Trapped Trader and Delta Divergence on the same bar. Rather than have both arrows plot, this engages a double signal to save screen real-estate on the charts.
Volume Divergence Enabled	**True/False**	This enables the Volume Divergence signals. A Volume Divergence signal is when the bar cluster is on the opposite side of the close and outside of the bar body. **Volume Divergence Short means the bottom of the cluster must be above the open with a down bar, Dojis included.** **Volume Divergence Long means the top of the cluster must be below the open with an up bar, Dojis included.**
Arrows – Size	**Integer > 0** **Default = 7**	This sets the size of the signal arrows for the trapped trader and delta divergence.
Arrows – Offset	**Integer > 0** **Default = 0**	This sets the offset for the signal arrows to the price bar.

	Diamond – Size	**Integer > 0** **Default = 5**	This sets the size of the signal arrows for the volume divergence signals
	Diamond – Offset	**Integer > 0** **Default = 0**	This sets the offset for the signal diamond to the price bar.
	Signals – Fill Color (Long/Short)	**Long = Lime Short = Red**	This sets the signal arrow fill color
	Signals – Outline Color (Long/Short)	**Default = Black**	This sets the signal arrow outline color
	Signals – Opacity (%)	**Integer > 0** **Default = 100**	This sets the opacity % for the signal's arrows
	Label Enabled	**True/False**	This turns the text labels for the signal arrows on/off
	Label Font	**Default = 10pt, Arial, Bold**	This sets the font size and style for the signal text
	Labels (Trapped Trader, Delta Divergence, Combined Signals and Volume Divergence Long/Short Signals)	**User Defined**	These are the text place holders for the trapped trader, delta divergence, combined signals and volume divergence signals. These can be changed based on user preference.
	Sound Timing	**On Tick/On Close/ No Alerts**	When sound alerts are turned on, this determines whether the sound alert will occur while the candle is still forming or only occur once the candle closes.
	Alert Sounds	**OFF or WAV File**	These are all the signal alerts for the full suite of signals. You can choose the alert WAV file you want.

VCR Alert	**Enable VCR**	**True/False**	This enables or disables the Volume Cluster 2bar and 3bar Signals.
	Show 2/3 bar pattern	**True/False**	This turns on/off the 2/3 bar volume cluster pattern individually.
	Absolute High in 3-bar	**True/False** **Default = False**	This filter requires the last signal bar volume cluster to break above both preceding volume clusters (longs) or break below the last 2 volume clusters (shorts)
	Buy/Sell Colors	**Buy = Line** **Sell = Red**	This is the signal colors for the 2/3 bar patterns.
	Arrows – Size	**Integer > 0** **Default = 7**	This sets the size of the signal arrows for the 2/3 bar pattern signals
	Arrows – Offset	**Integer > 0** **Default = 0**	This sets the offset for the signal arrows to the price bar.
	Alert Sounds	**OFF or WAV File**	These are all the signal alerts for the full 2/3 bar patterns.

Profile Bar	**Profile Bar Enabled**	**True/False**	This enables the bar profile
	Current Bar Enabled	**True/False**	This enables the bar profile on the most recent trading bar. This allows for looking at the current bar profile even when the master bar profile is disabled.
	Display (VAH/VAL, POC, VWAP)	**True/False**	This enables each individual component of the bar profile. **Please note: there is a hierarchy with each profile component.** **Ex: If the VAH and POC is on the same price level, the POC will take precedence over the VAH. The VWAP & POC are the primary components then the VAH/VAL.**
	Histogram Width	**Integer > 0** **Default = 5**	This sets the width of the bar profile components.
	Bar Fill Color Options	**User Defined**	These allow you to select independent color options for the different volume profile components.
	Bar Fill Opacity %	**Integer > 0** **Default = 100**	This sets the opacity of the bar fill profile.
	Cluster Box Fill Opacity %	**Integer > 0 Default = 50**	This sets the opacity for the cluster box fill
	Cluster Box Color (Print Off)	**Default = Black**	This sets the color for the cluster box fill when the Print is turned off.

Profile Composite	**Profile Composite Enabled**	**True/False**	This enables the volume composite
	Composite Type	**Default = Day**	This allows for displaying the composite profile as (a single day) or by (time intervals)
	Start Time	**Default = 9:30**	This is where you set the start time of your (interval) composite profiles.
	Time Intervals (Minutes)	**Integer > 0** **Default = 60**	This is the time setting in (minutes) that resets the composite profile.

		Ex: When set to 60, this means every 60 minutes a new composite profile will start.
Display Mode	**Histogram / Shape**	This controls the visual preference of the profile graphics.
Rectangle Fill Opacity %	**Integer > 0** **Default = 0**	This sets the opacity for the rectangle fill color.
Histogram Fill Color Options	**User Defined**	These allow you to select independent color options for the different volume profile components.
Histogram Fill Opacity %	**Integer > 0** **Default = 60**	This sets the opacity for the histogram fill color.
Histogram Length (Pixels)	**Integer > 0** **Default = 100**	This sets the length of the volume profile histogram bars in (Pixels)
Current Profile Enabled	**True/False**	This enables the current day profile
Historical Profiles Enabled	**True/False**	This enables historical volume composite profiles (previous day profiles)
Levels Line Width	**Integer > 0** **Default = 2**	This sets the width of the composite profile lines.
Volume Numbers Enabled	**True/False**	This enables the volume numbers for each profile histogram bars.
Developing Level Area Fill Color (EX)	**Default = Yellow**	This shades the area outside of the Value Area in the developing profile. This identifies above the VAH and below the VAL.
Developing Level Area Fill Color (VA)	**Default = Steel Blue**	This shades the Value Area of the Developing Profile.
Developing Level Fill Opacity %	**Integer > 0** **Default = 20**	This sets the opacity for the Developing Profile.
Developing Profile Enabled	**True/False**	This enables the developing profile.
Developing Levels Current Enabled	**True False**	This enables the developing levels for the current day profile
Developing Levels Historical Enabled	**True False**	This enables the developing levels for the historical day profiles
Developing Levels (EX/POC/VA/VWAP)	**True False**	This enables the different components of the developing profile.
Developing Levels Area Fill	**True/False**	This enables filling in the areas on the developing profile
Draw On Top	**True/False**	This enables drawing the profiles above the price bars
Horizontal Display	**Left/Right** **Default = Left**	This displays the composite profiles on either the left or right side of the chart
Levels Extend	**True/False**	This enables extending the profile labels
Level Labels	**True/False**	This enables the profile labels.

Profile (Manual)	**Display Mode**	**Default = Histogram**	This displays the auto profile as either a histogram or a line graph.
	Rectangle Fill Color	**Default = White**	Sets the color for the rectangle fill color
	Rectangle Fill Opacity %	**Integer > 0** **Default = 0**	This sets the opacity for the rectangle fill color.
	Rectangle Outline Color	**Default = Black**	Sets the color for the rectangle outline color
	Histogram Fill Colors (POC/VA/VAH/VAL/VWAP)	**User Defined**	Sets the colors for the different volume profile components
	Histogram Fill Opacity %	**Integer > 0** **Default = 60**	Sets the opacity for the histogram
	Levels Line Width	**Integer > 0** **Default = 2**	Sets the width for the profile levels
	Draw On Top	**True/False**	This enables drawing the profiles above the price bars
	Horizontal Display	**Left/Right** **Default = Left**	This displays the composite profiles on either the left or right side of the chart
	Level Labels	**True/False**	This enables the profile labels.

Volume Averages 1 **Volume Averages 2** **Settings are the same for both types**	**Enabled**	**True/False**	This enables the volume averages.
	MA Period	**Default #1 = 20** **Default # 2= 50**	These are the default volume average periods
	MA Type	**Default = EMA**	This allows for selecting either an EMA – Exponential Average or SMA – Simple Average.
	Cluster Enabled	**True/False**	This enables the volume cluster in the averages.
	Cluster Color	**Default = Black**	This sets the color for the volume cluster in the averages.
	Cluster Dash Style	**Default = Solid**	This sets the dash style for the cluster. It's best to leave this set to solid to improve PC performance
	Cluster Fill Color	**Default = Black**	This sets the color for the cluster fill color in the averages
	Cluster Fil Opacity %	**Integer > 0** **Default = 20**	This sets the opacity for the cluster fill in the averages.
	Cluster Width	**Integer > 0** **Default = 2**	This sets the width for the cluster lines.
	POC Enabled	**True/False**	This enables the POC – Point of Control in the averages
	POC Color	**Default = Yellow**	This sets the color for the POC in the averages.
	POC Dash Style	**Default = Solid**	This sets the dash style for the POC. It's best to leave this set to solid to improve PC performance
	POC Width	**Integer > 0** **Default = 2**	This sets the width for the POC lines.

	VWAP Enabled	**True/False**	This enables the VWAP – Volume Weighted Average Price in the averages
	VWAP Color	**Default = Cyan**	This sets the color for the VWAP in the averages.
	VWAP Dash Style	**Default = Solid**	This sets the dash style for the VWAP. It's best to leave this set to solid to improve PC performance
	VWAP Width	**Integer > 0** **Default = 2**	This sets the width for the VWAP lines.

Set Up	**Calculate**	**OnBarClose / OnEachTick / OnPriceChange** **Default = OnEachTick**	**MUST ALWAYS BE SET TO Calculate = OnEachTick**

Orderflow Print

The print section looks at quantifying executed Bid/Ask orderflow by placing the orderflow numbers inside each price bar. This provides X-Ray vision inside the candles by taking orders that are executed at certain price levels and showing them at the Bid/Ask for each bar.

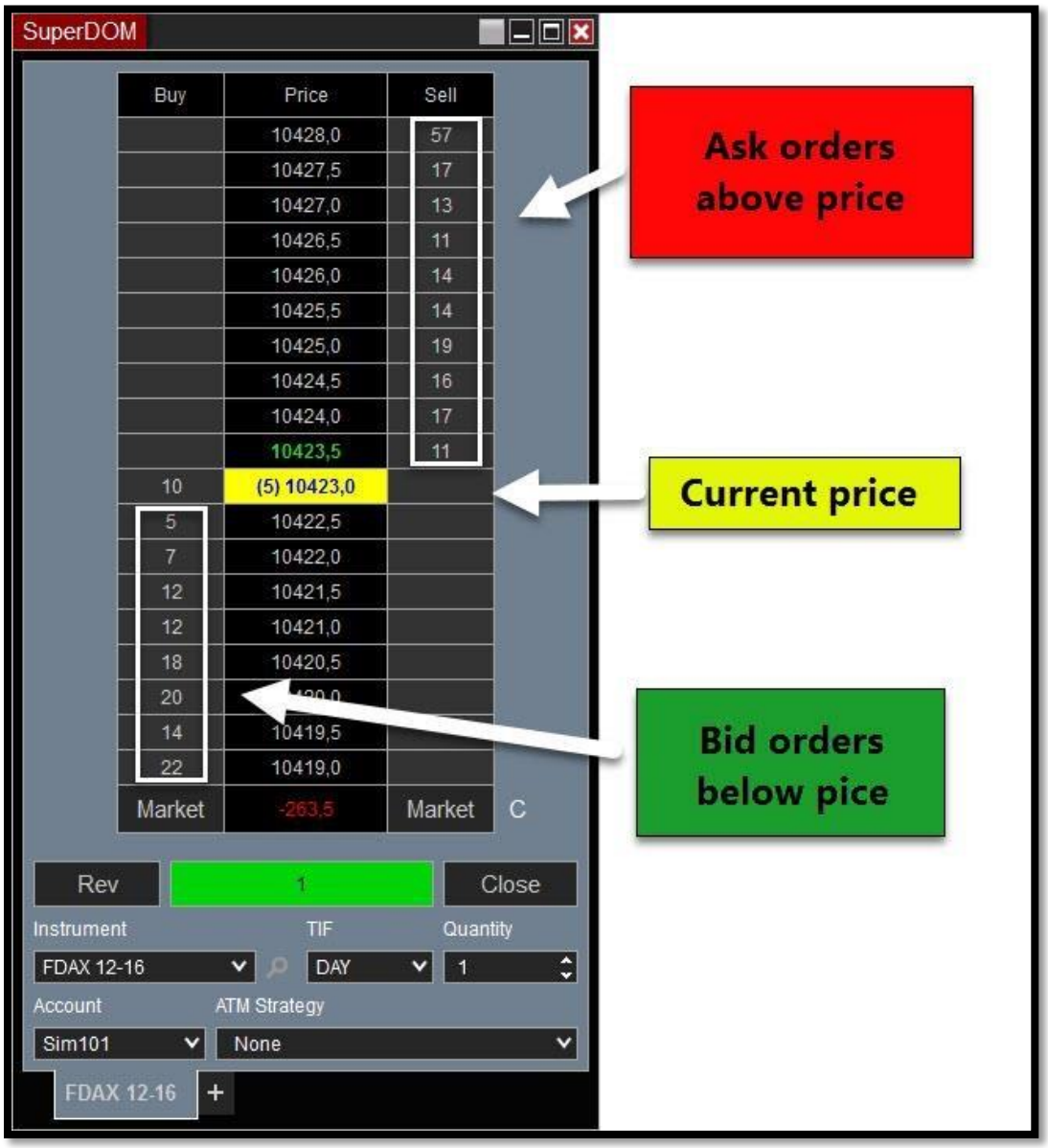
Step 1: (DOM – Depth of Market)

Orderflow is always going to be present above price (ask orders/supply) and below price (bid orders/demand). This data can be viewed using the DOM – Depth of Market.

It is important to know; these orders are not certain – meaning they can be removed (cancelled) from the DOM at any time. **This is also referred to as "SPOOFING" or "Lifting Orders".**

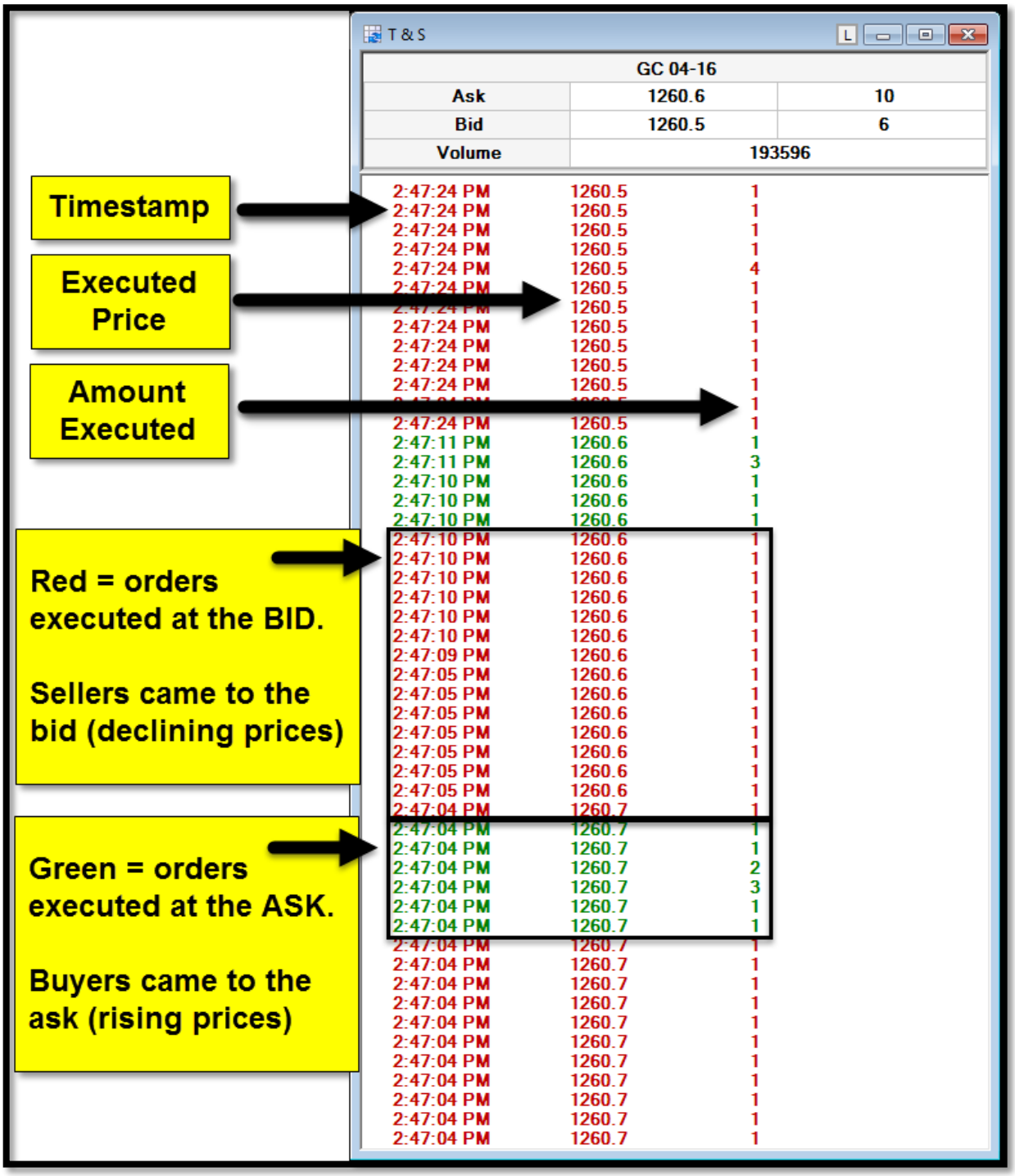
Example: A trader puts an order above price by 10 ticks but then decides to not take a trade and removes the order from the market. This can be done as a form of market manipulation or it can also be done as a simple choice to put orders in play but then remove them.

In conclusion, the DOM is not a Firm example of true orderflow sentiment, but rather a way to see intentions.



Step 2: (T&S – Time & Sales)

The time and sales is a window that show us (True Executed Orderflow). This is a definite representation of sentiment based on orders executed at the Bid/Ask. **Unlike the DOM, the T&S allows us to know exactly the number of orders executed, at which price this takes place at and the timestamp for which this occurs**. We can also identify whether the orders were executed at the Bid or Ask which provides a more detailed depiction of sentiment.



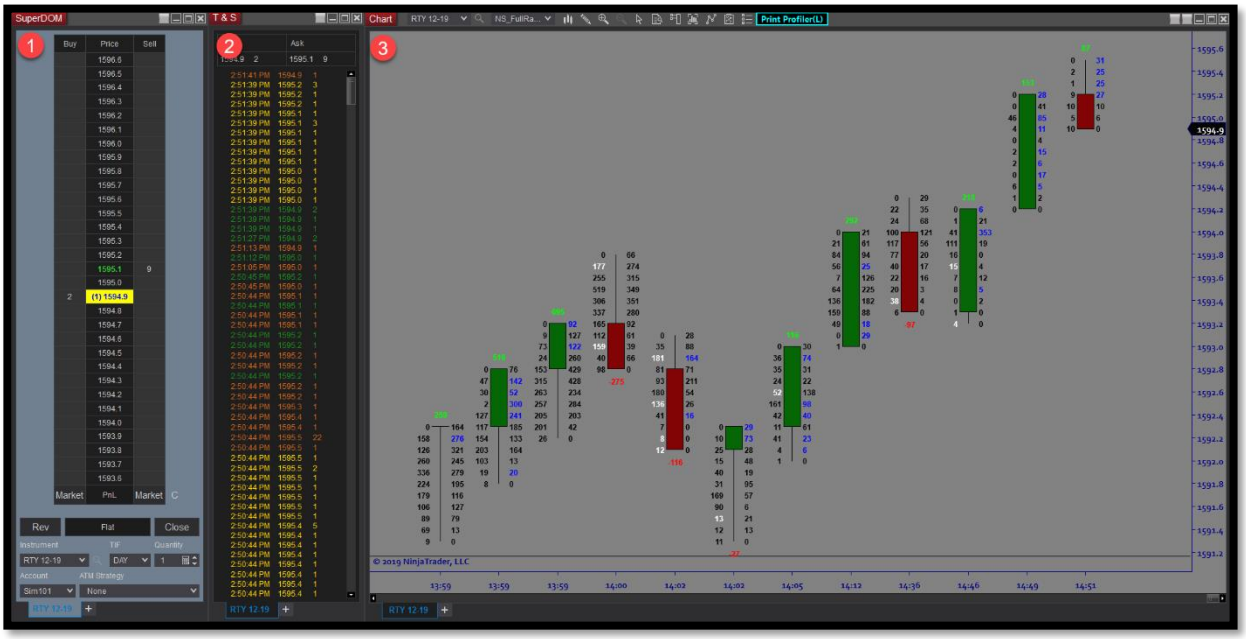
Step 3: Transferring Data to Price Charts

The print profiler allows us to transfer the executed time & sales orderflow and display it directly on the price chart. We separate each price bar into 2 sides (Left & Right).

The left side of each price bar is the orders executed at the BID – which signals sellers coming to the bidding price which in turn equals bearish sentiment.

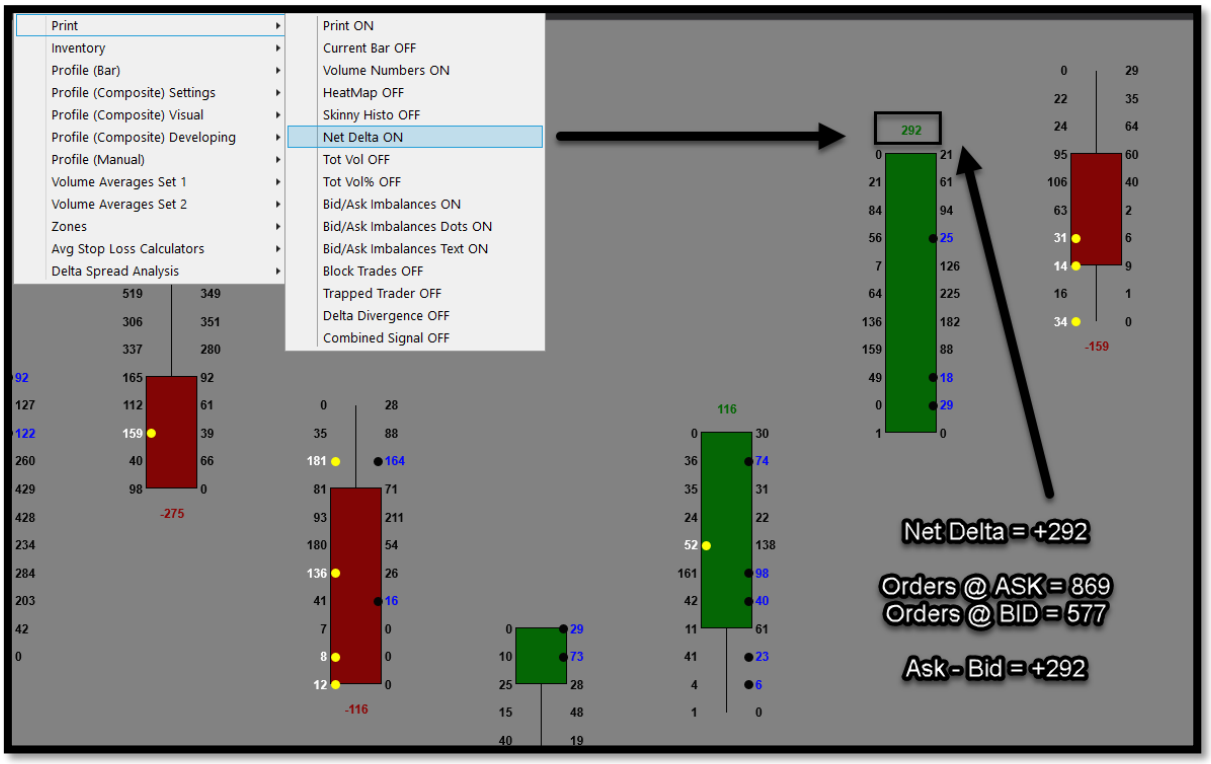
The right side of each price bar is the orders executed at the ASK – which signals buyers going to the asking price which in turn equals bullish sentiment.

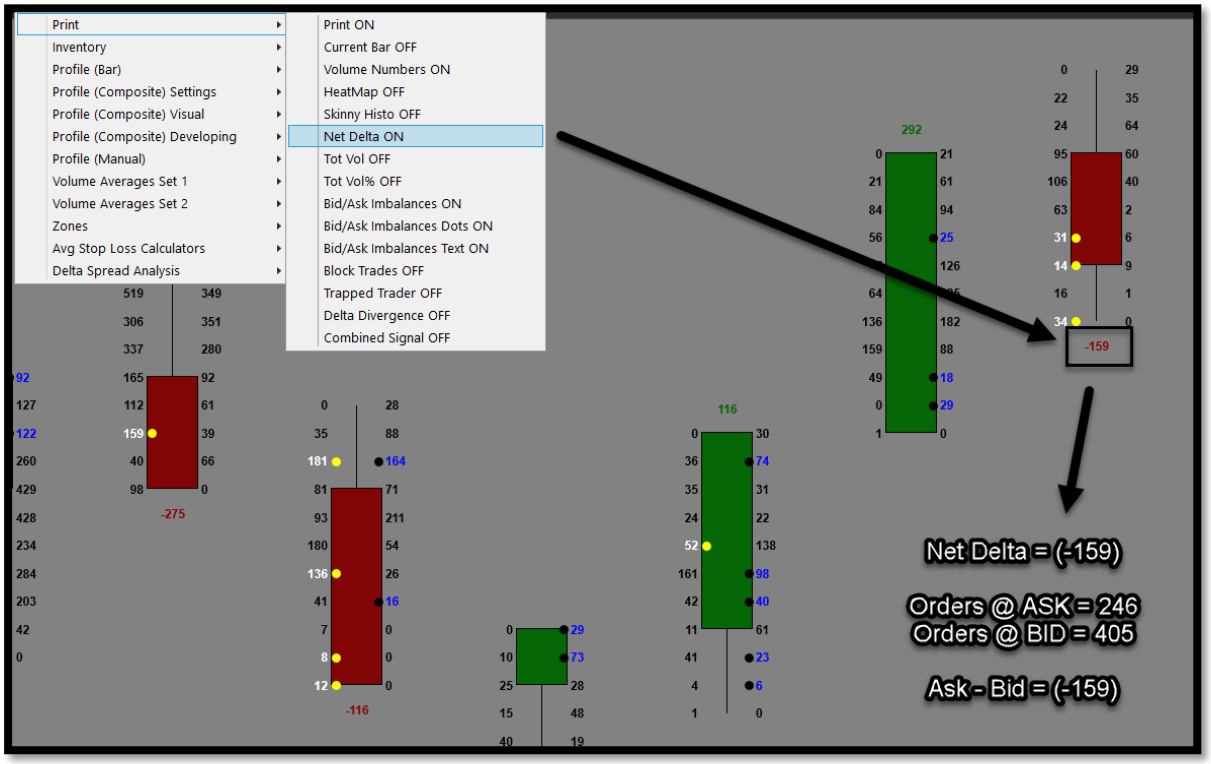
Piecing It All Together



Print Features Expanded:

Net Delta – is a feature that allows us to calculate the (NET) relationship between the orders executed at the Bid vs orders executed at the Ask. This is displayed above each price bar so we can identify the net orderflow relationship for each price bar.



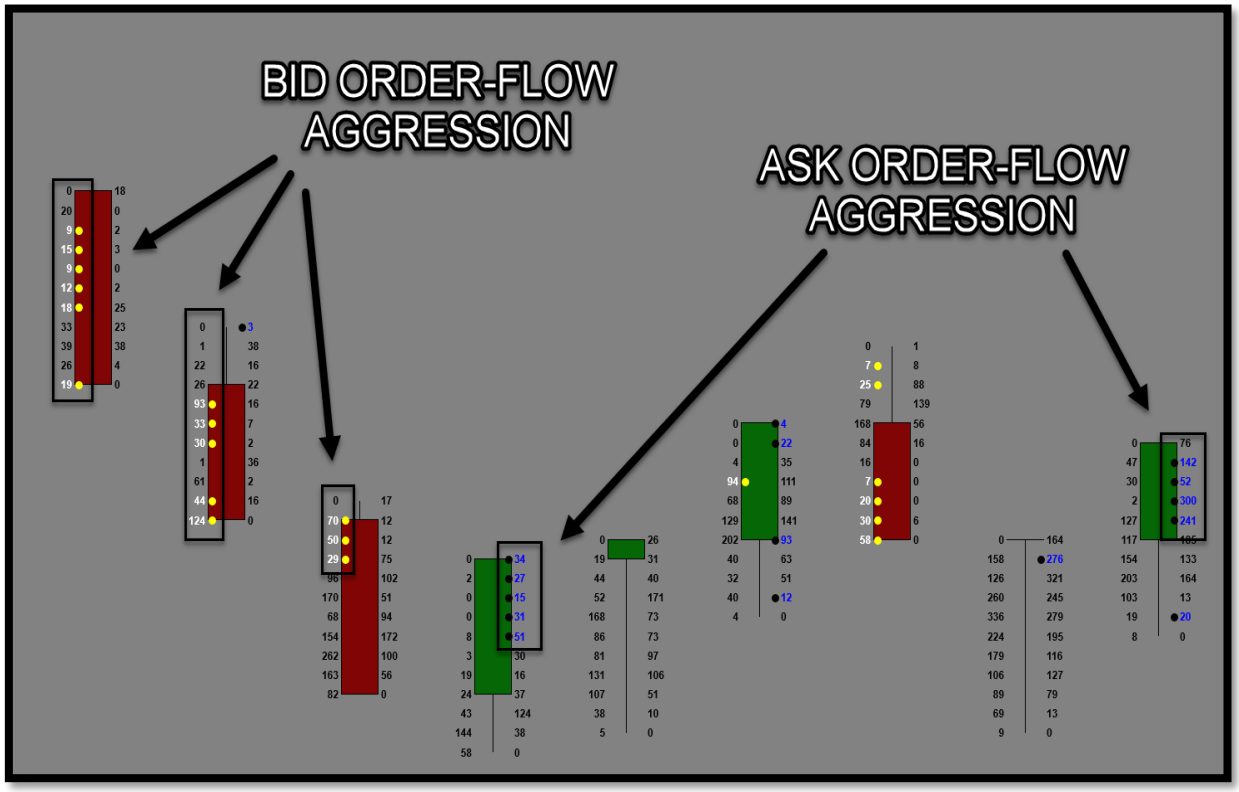


Bid/Ask Imbalances:

The print profiler allows us to compare the BID to the ASK. This involves a (Multiplier "X") which acts as a threshold. This threshold allows us to see when the BID is greater than the ASK by a certain amount or when the ASK is greater than the BID by a certain amount.

The multiplier operates in an (X) format which means if this is set to "2" then we would identify an imbalance in the orderflow if the BID was (2X) greater than the ASK or if the ASK was (2X) greater than the BID.

Like the DOM – Depth of Market, the Print Profiler price bars compare the BID/ASK diagonally to each other. The image below uses a multiplier of (2)



Tape Aggression is the study of orders stacked at the bid or the ask. When orderflow is aggressive to one side of the market we need to see this in the charts.

This information can tell us market sentiment based on executed Orderflow

- **Ask Aggression – Buyers aggressively going to asking price.**
  - **BULLISH**
- **Bid Aggression – Sellers aggressively going to the bid price**
  - **BEARISH**

Block Trades:

The print profiler has a feature that identifies when big block orders are executed in the T&S – Time and Sales. **Block Orders** – are when large quantity is being traded in one transaction. We have a threshold that allows us to set the minimum block trade size.

Trade Signals – Driven by Orderflow

The print profiler has 4 built in trade signals which are focused around exhausted orderflow, Net Delta Divergence and Volume Divergence. These signals are:

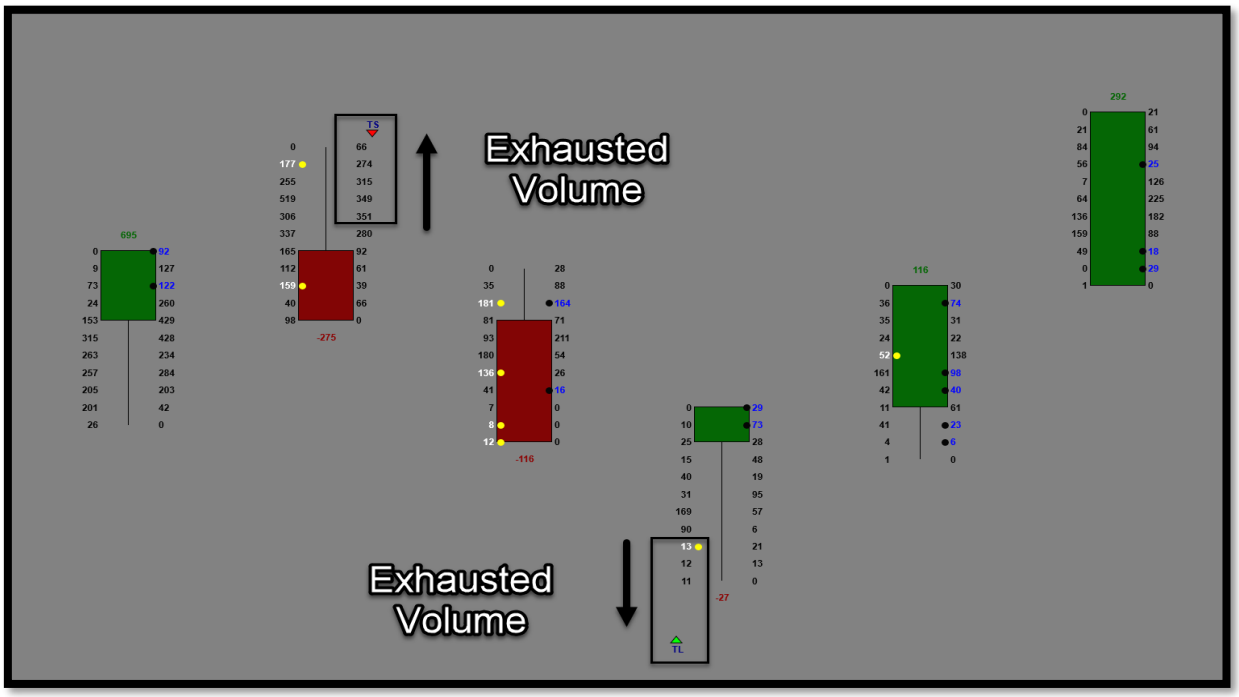
1. **Trapped Trader**
2. **Delta Divergence**
3. **Combined Signals**
4. **Volume Divergence (located under "Profile (Bar)" submenu)**
5. **Volume Cluster Reversal**

Trapped Trader Signals:

The trapped trader is a **reversal signal** driven by exhausted orderflow at the High/Low of a price bar. Exhausted orderflow is signaled by declining BID/ASK volume combined with directional price movement.

Declining levels – is a threshold setting to identify how many declining levels of orderflow at the BID/ASK must take place to produce a signal.

High Low Range Filter – is a setting that blocks the trapped trader from producing signals despite the declining levels of orderflow unless price has made a Higher High (shorts) or Lower Low (longs).

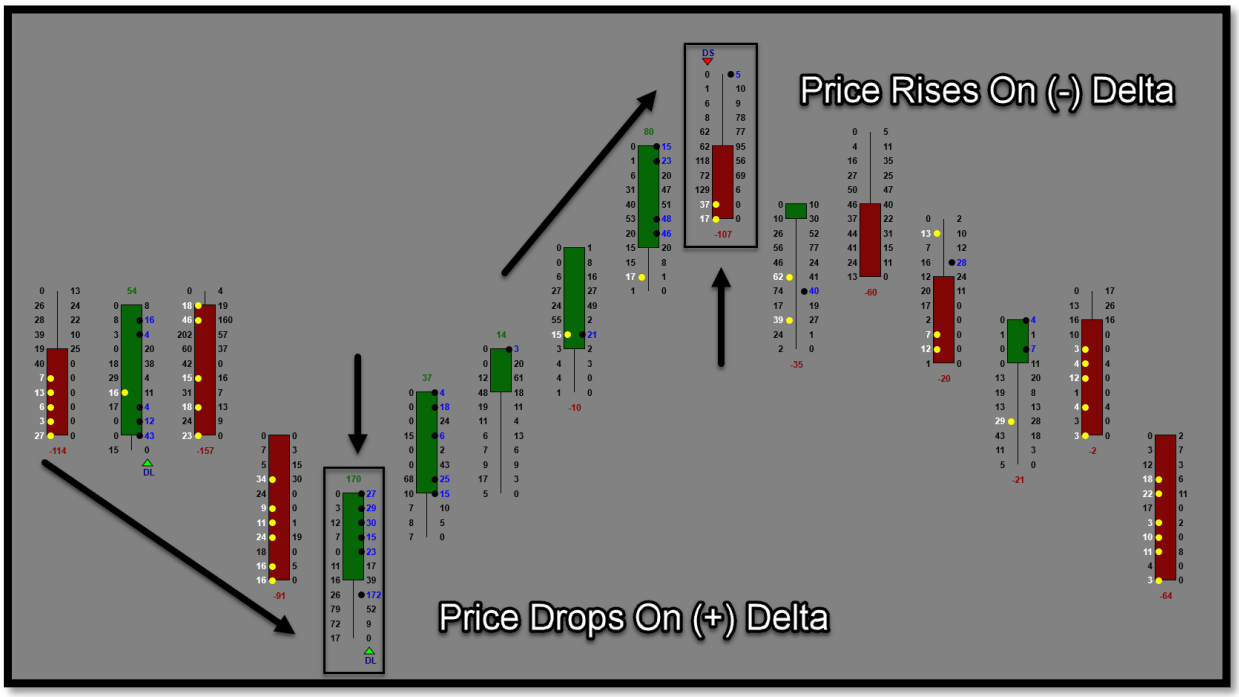


Delta Divergence Signals:

The Delta Divergence **reversal signals** are driven by (Net Delta) and (Directional Price Movement). The first component is (Net Delta) which is explained at an earlier point in the manual above. The second component is (Directional Price Movement) which is a form of divergence when used with Net Delta.

The Delta Divergence signals have a filter called "Delta Divergence Bars Look Back" which is a (# - integer) setting that identifies how many bars back price must make a Higher High (HH) for shorts or Lower Low (LL) for longs.

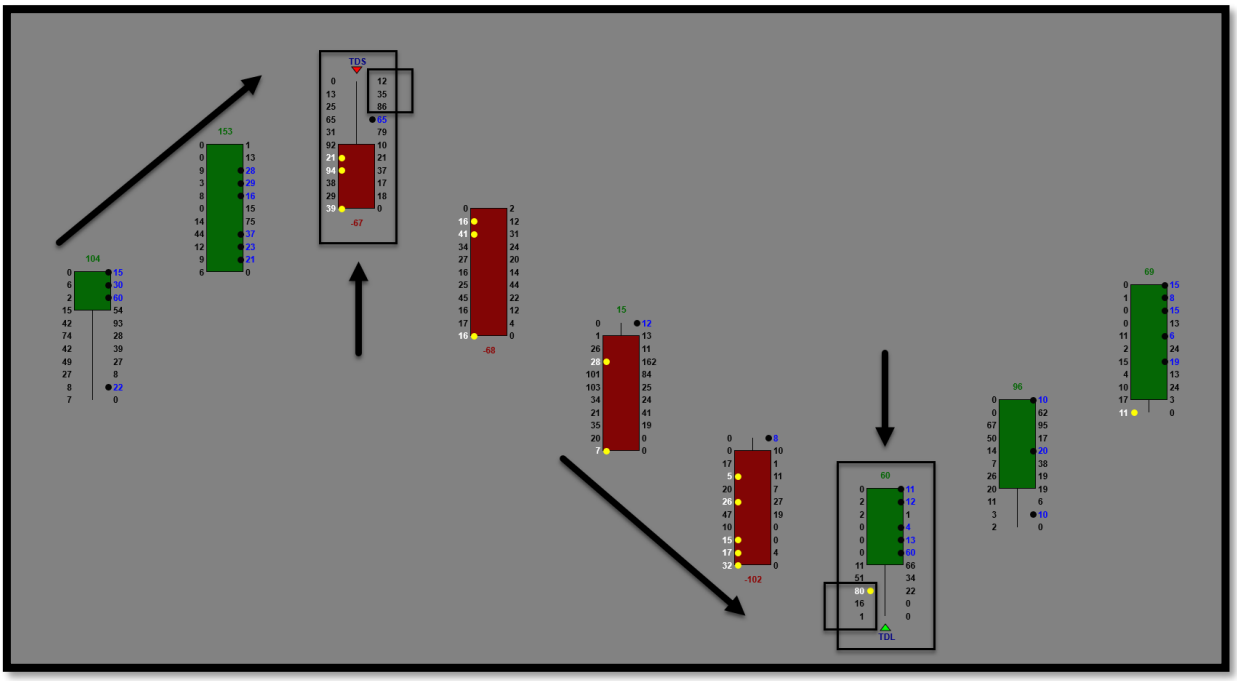
Example: When this is set to (3), in order for a Delta Divergence short to be enabled, price must make a (Higher High) over the prior 3 bars and for a Delta Divergence long to be enabled, price must make a (Lower Low) over the prior the 3 bars**.**



Combined Signals:

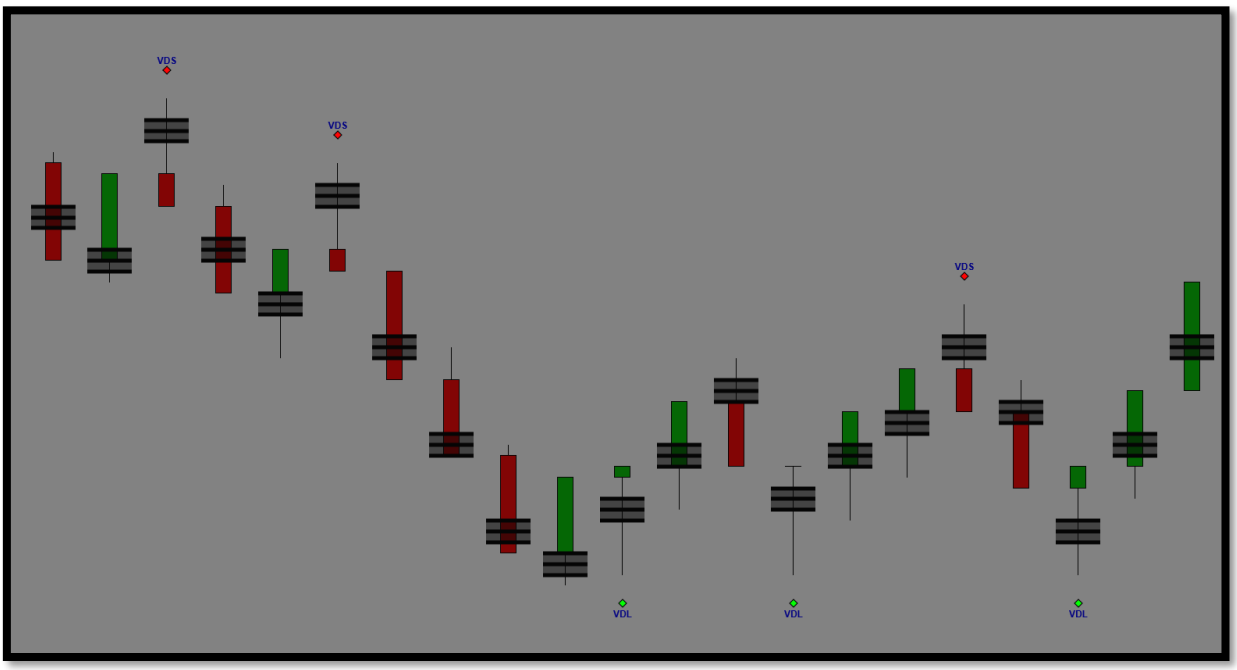
The Combined Signals are when a **(Trapped Trader Long "TL" & Delta Divergence Long "DL") happen on the same bar and is labeled (TDL) or when a (Trapped Trader Short "TS" & Delta Divergence Short "DS") happen on the same bar and is labeled (TDS).**

These signals can provide very strong reversal signs when combining the Trapped Trader with Delta Divergence.

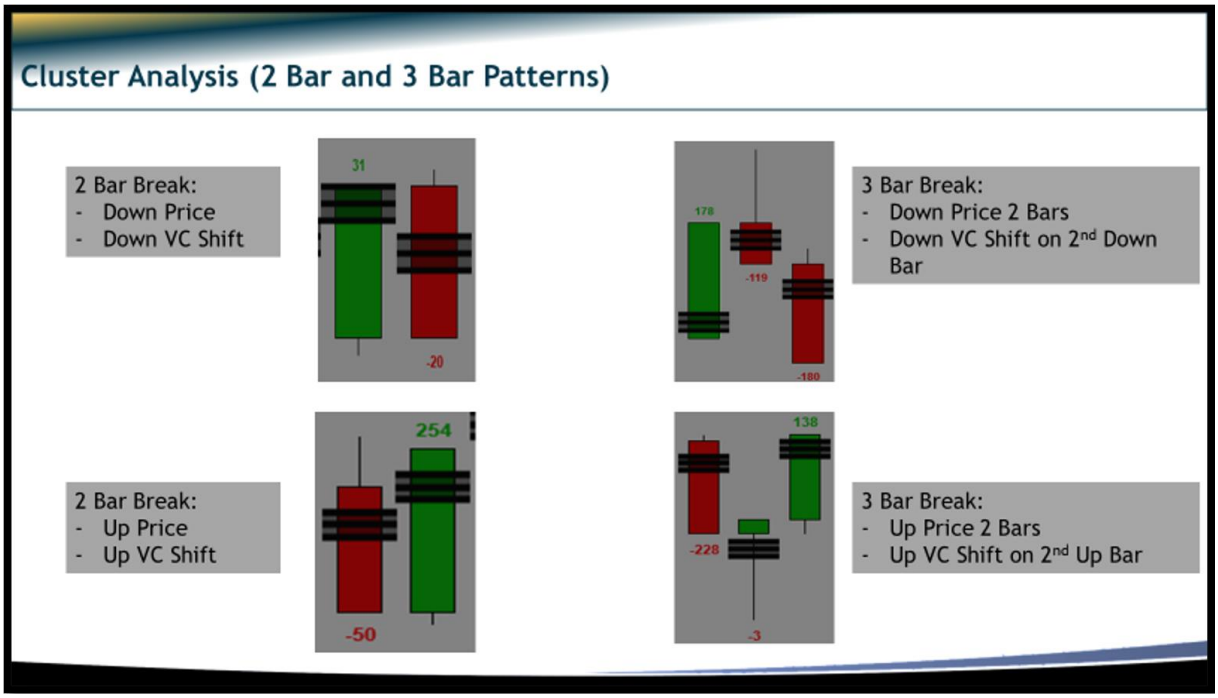


Volume Divergence Signals:

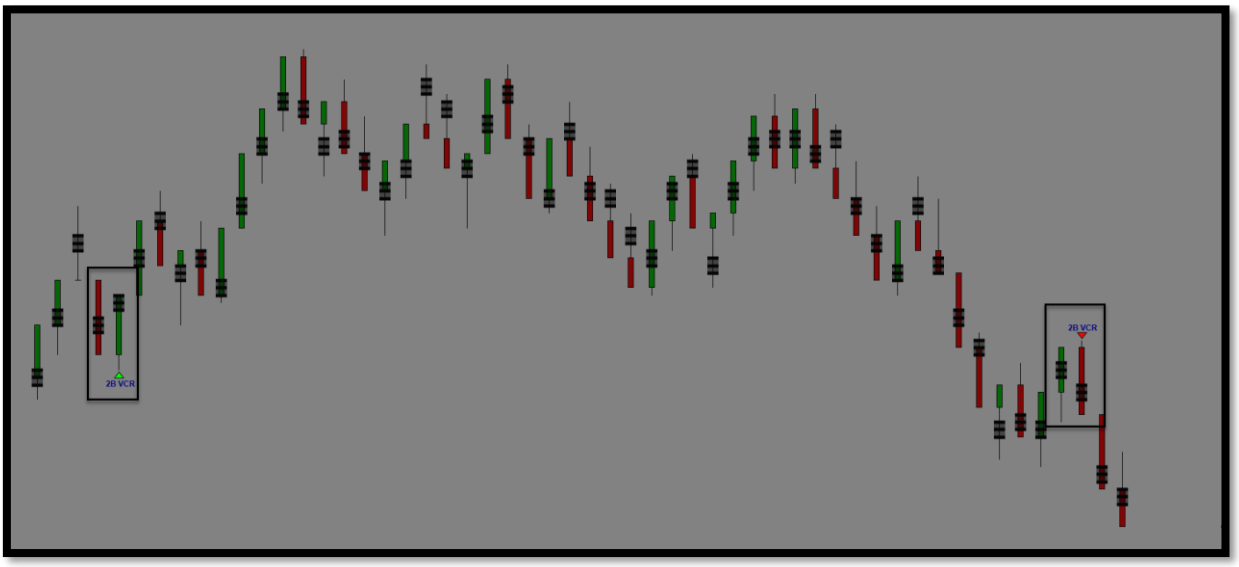
The Volume Divergence signals are driven by (Volume Cluster) and (Directional Price Movement). The first component is (Volume Cluster) which is explained at a later point in the manual above. The second component is (Directional Price Movement) which is a form of divergence when used with Volume Cluster.



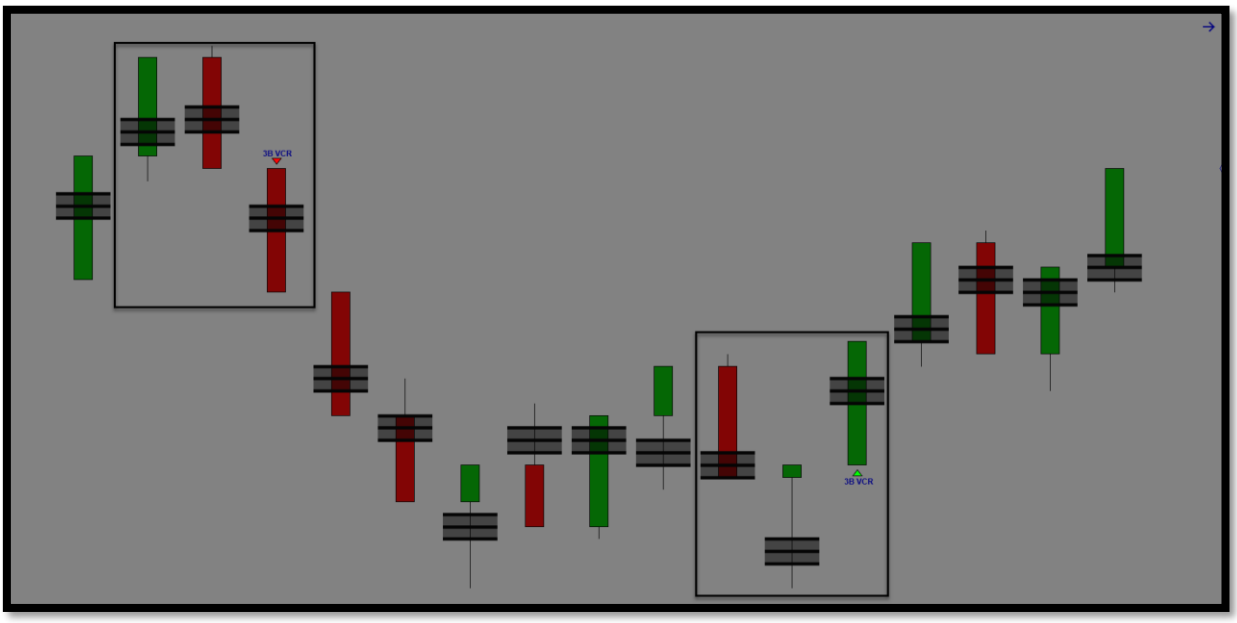
Volume Cluster Analysis



2 Bar Volume Cluster Reversals



3 Bar Volume Cluster Reversals



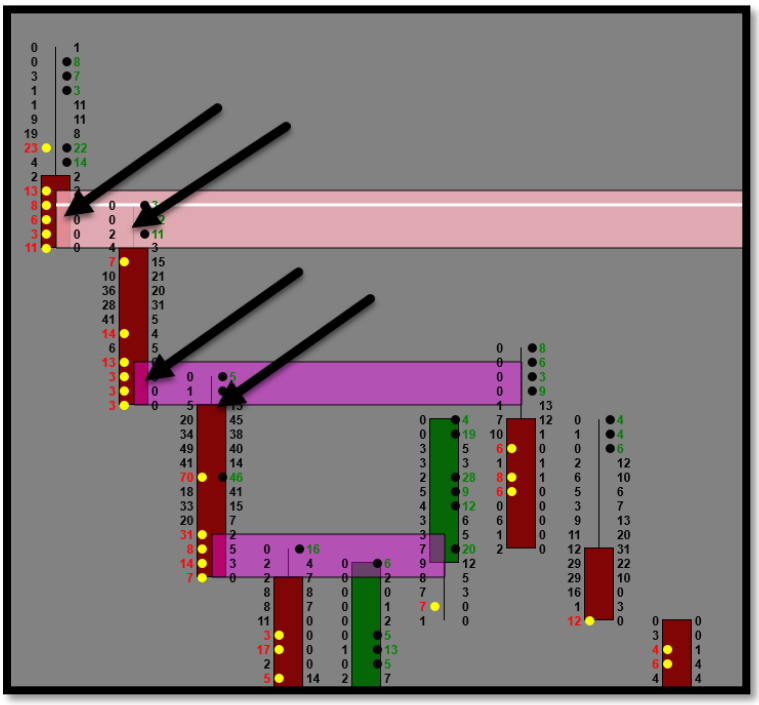
Zones:

The Print Profiler has (Supply & Demand) zone built into the BID/ASK orderflow print. The zones are driven by the BID/ASK imbalances. Trading supply and demand zones can be very effective because these are created by levels of stacked BID/ASK imbalances.

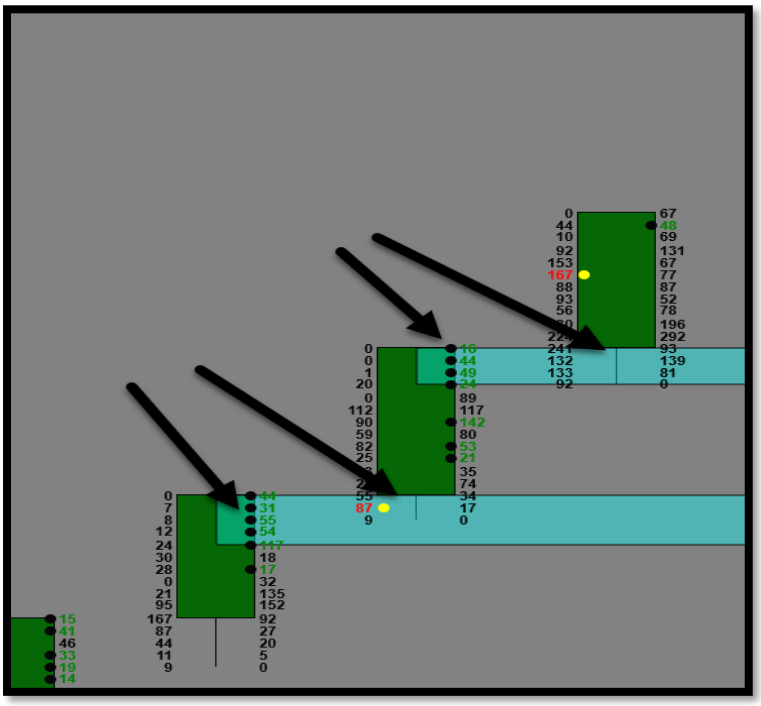
We can set the threshold for creating zones from the imbalances by selecting the number of imbalances used for creating the zones.

Example: The setting is called "**Minimum Size (Ticks)**". If we set this number to (4), this means we need 4 levels of BID imbalances stacked together to form a supply zone or we need 4 levels of ASK imbalances stacked together to form a demand zone.

Supply Zones



Demand Zones



Both supply and demand zones have color settings to identify the following:

- **Fresh Zones (Zones that are created and price has not traded back into them)**
- **Tested Zones (Zones that are created and price has traded back to them)**
- **Broken Zones (Zones that are created and price has traded through them completely)**

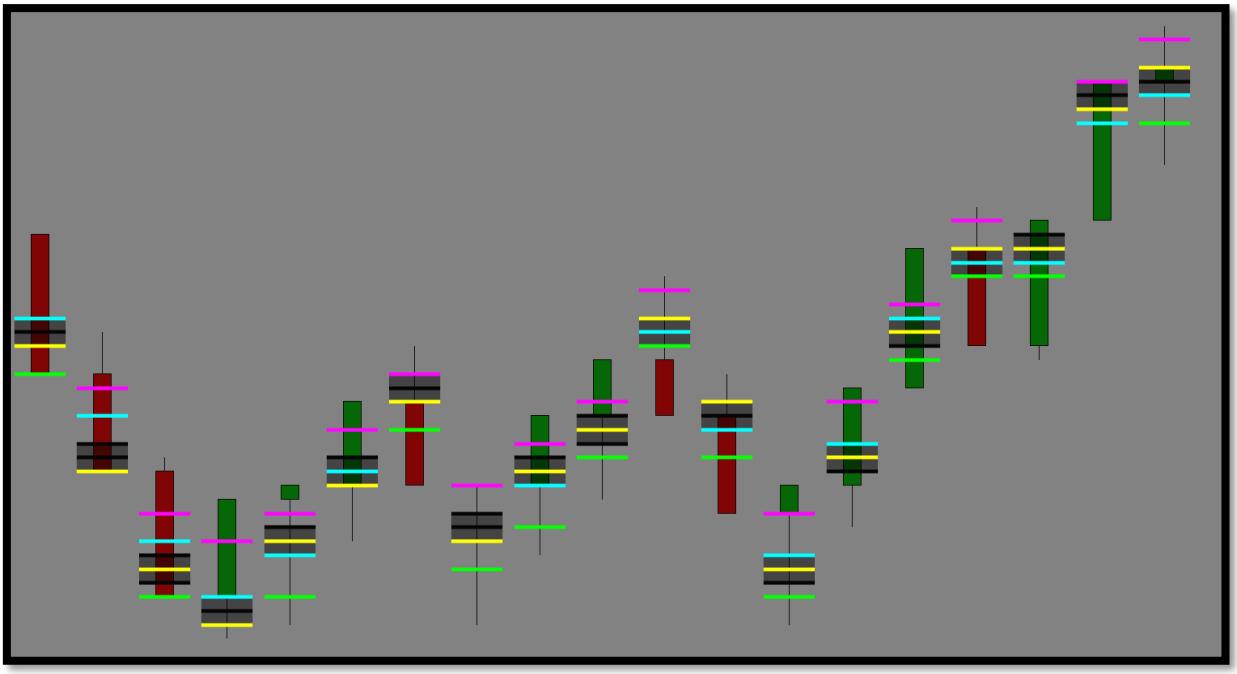
Volume Profile Suite:

The Print Profiler has an extensive Volume Profile suite comprised of several micro and macro profiling capabilities. Below we will be explaining each individually. One constant that holds true across all profiling studies are the components of volume data displayed. This data consists of:

- **POC (Point of Control) –** The price point within the profile that contains the most volume
- **VWAP (Volume Weighted Average Price) –** The price that separates value and retail trading locations by identifying the average accepted price based on volume**.**
- **VA (Value Area) –** The area in which 70% of the volume is executed within the profile**.**
- **VAH (Value Area High) –** The highest point of the Value Area
- **VAL (Value Area Low) –** The lowest point of the Value Area
- **VC (Volume Cluster) –** The 3 adjacent price points that contains the most volume within the profile. (This often includes the POC but not 100% of the time.)

Bar Profile:

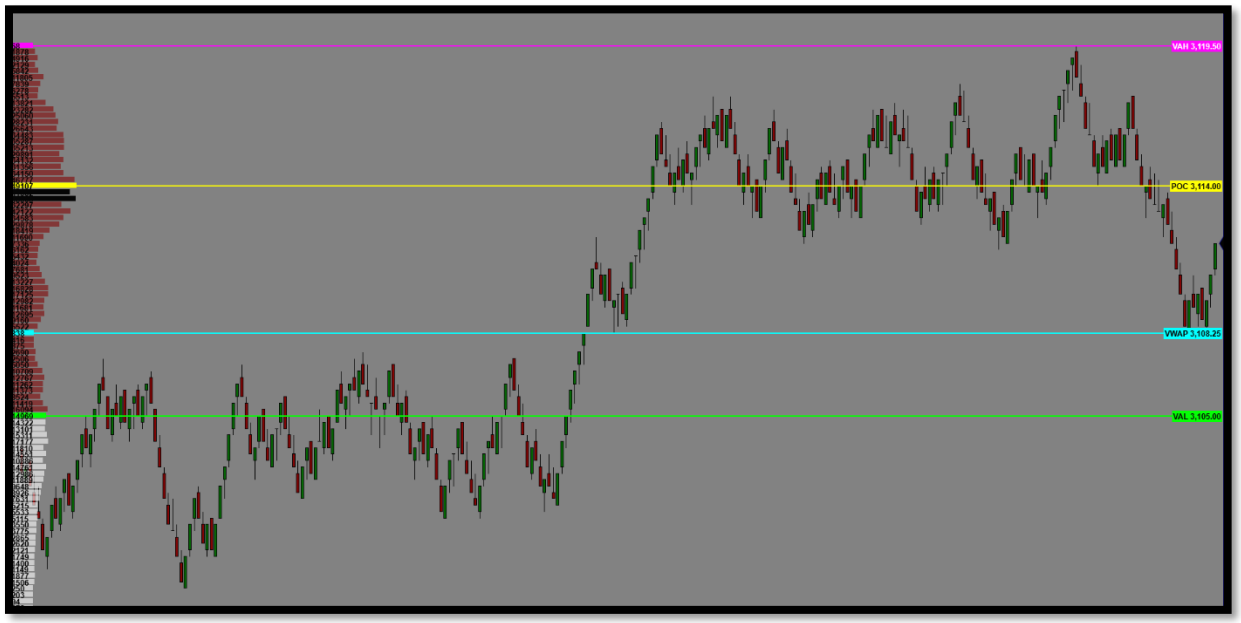
The Print Profiler allows for a micro study of volume profile by allocating volume profile inside each price bar while the orderflow print is either enabled or not.



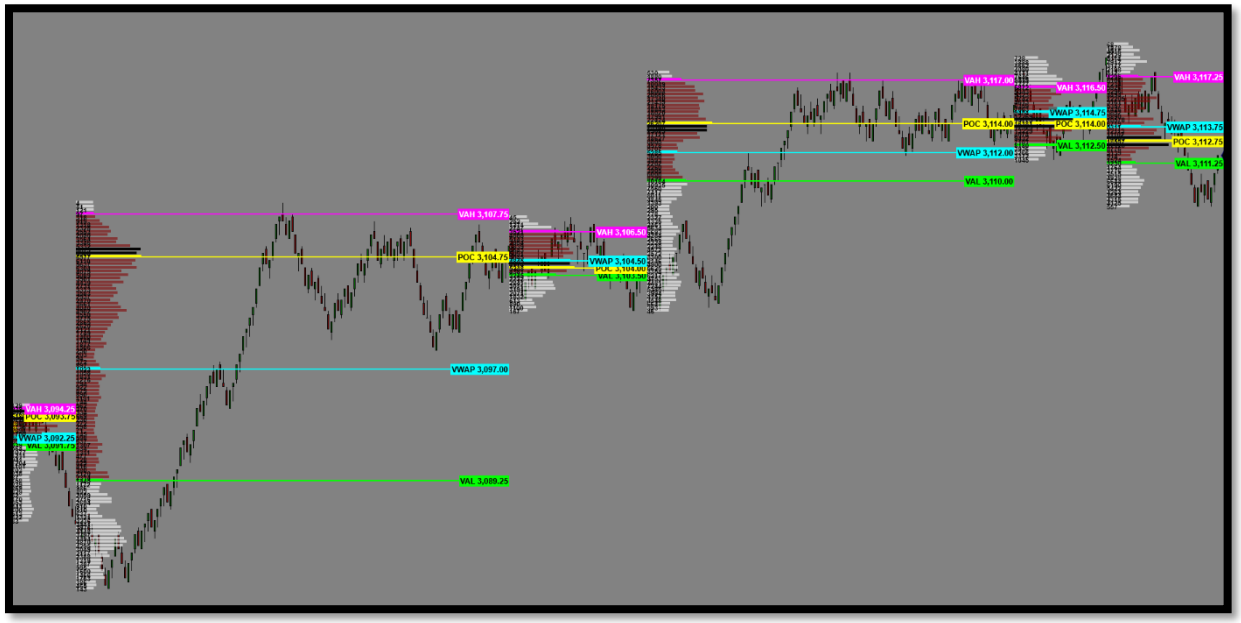
Composite Profile:

The Print Profiler provides 2 ways to display macro volume profile studies. We can select either (Day) or (Time) to display volume profile across the chart. When using (Day) this will provide a daily volume profile for each trading session. When using (Time) this allows us to select a starting point in time while defining a time interval to stagger the profiles. When (Day) is chosen, (Time) is disengaged. When (Time) is chosen, we can select the starting point (Hours/Minutes) & (Interval in Minutes).

Day Profile Composite



Time Profile Composite

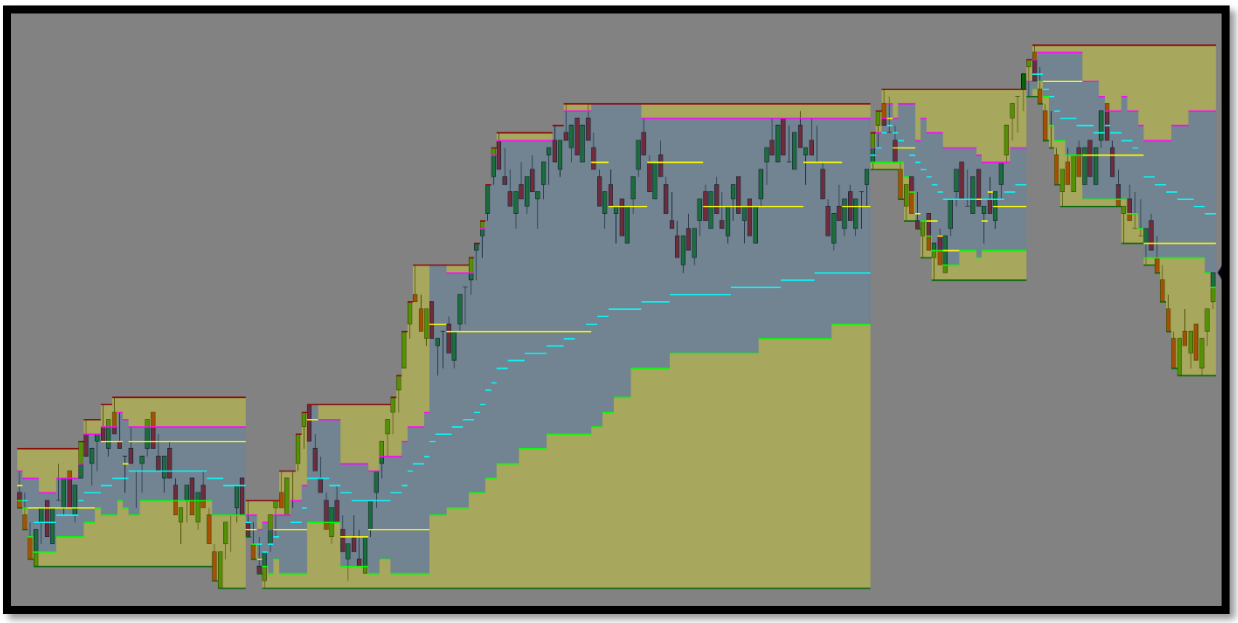


Developing Profile:

Within the boundaries of the composite profile (Day/Time) we have the option to display (Developing Profiles) which is a way to display historical volume data based on the volume profile. This is important for testing previous information (back testing) because we need to determine where volume was historically and not always in current trading times. (This feature is not intended for trading but is provided for reference).

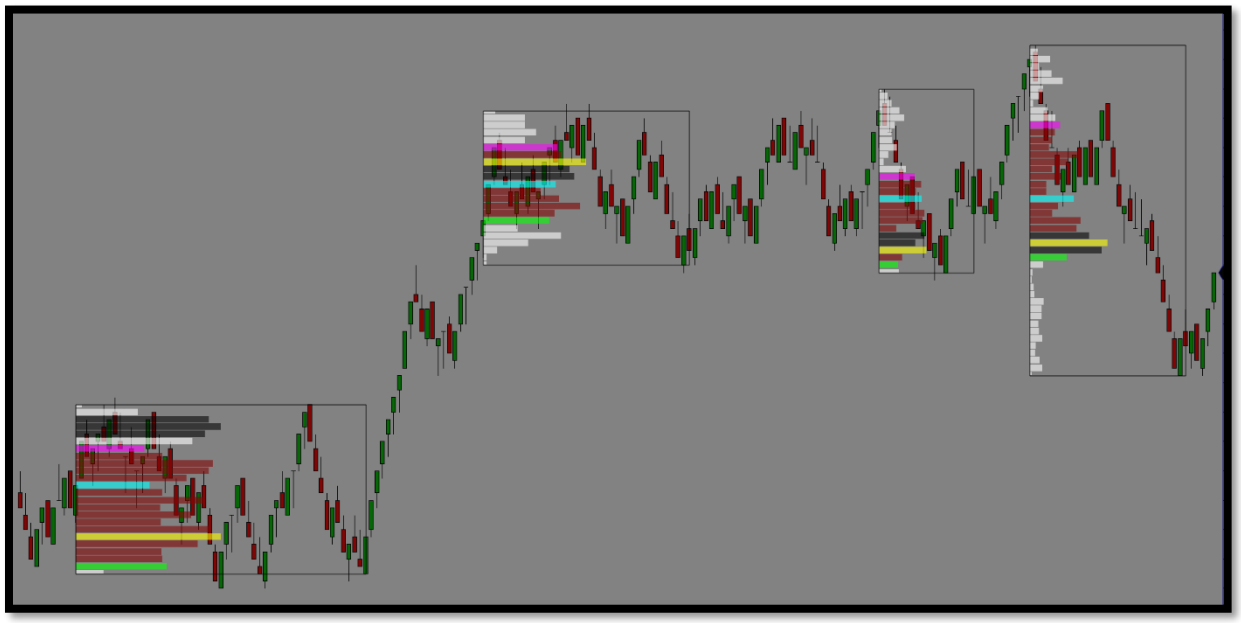
When this feature is enabled, the following developing components can be displayed:

- Extreme Area – Shaded area above VAH and below VAL
- Value Area – Shaded area with 70% of volume in profile
- VAH/VAL
- VWAP
- POC
- Extreme High – High of day/profile displayed



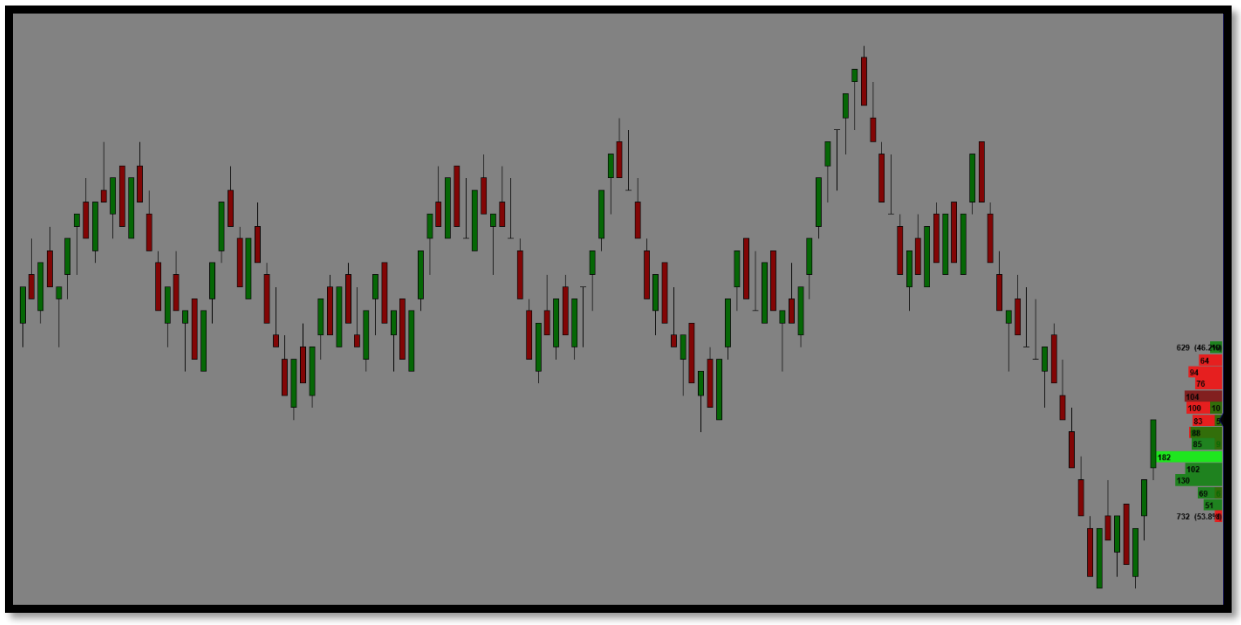
Manual Profile:

The Print Profiler can create manual/custom volume profiles with both micro and macro capabilities. We can create individually drawn profiles or multiple profiles depending on the data needed to analyze. These profiles have options to display extended levels/labels and even attach to the current trading bar so that the manual profile can update on-the-fly during real-time trading.



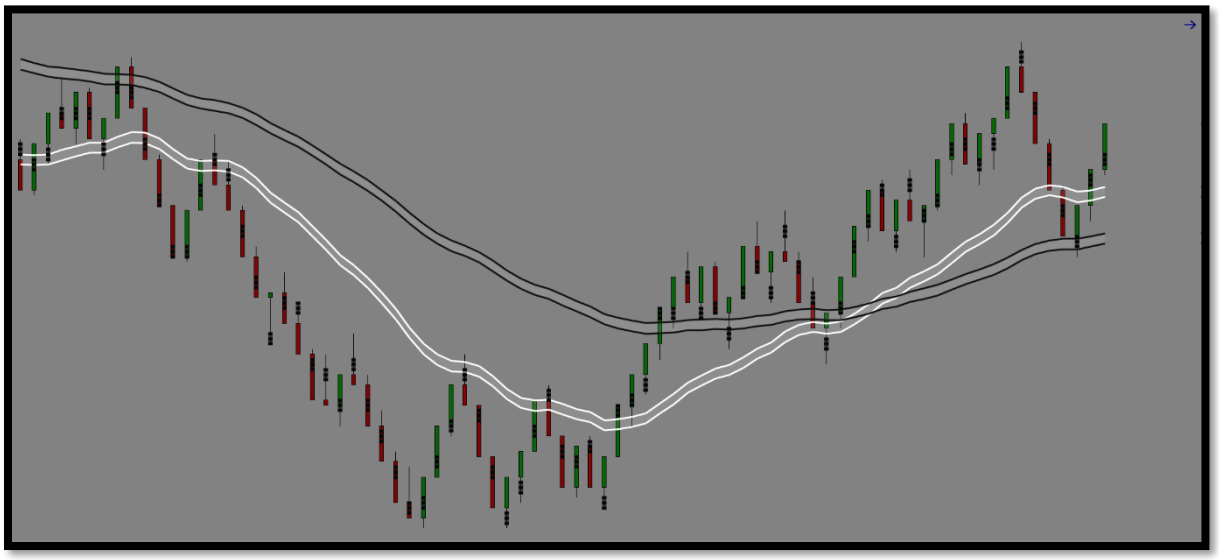
Inventory:

The inventory section is a visual way to display the (DOM – Depth of Market) orderflow in a histogram on the trading chart. The Print Profiler displays orders above price (ASK) and orders below price (BID) while displaying the (Net Totals) for the orderflow sentiment in the Que. The Inventory also displays the largest (ASK) and the largest (BID) prices above and below current price. As discussed earlier in the manual, the DOM is subject to "Spoofing or Order Lifting" so relying on orders in the DOM is not true sentiment, however displaying the DOM in a histogram on the chart is a more visual way to free up screen real-estate on the chart without needing to load the DOM separately.



Volume Averages:

The Print Profiler has 2 sets of (Volume Averages). These are computed by selecting the average **(Type) EMA – Exponential Moving Average or SMA – Simple Moving Average** and by selecting the **(Period)** which defines the number of bars look back to calculate the average. These averages are driven by volume data of each price bar and can be manipulated to display the (POC/VC/VWAP). The use of these averages can be a good guide for directional trends, momentum and overall sentiment of volume.



Average Stop Loss Calculator

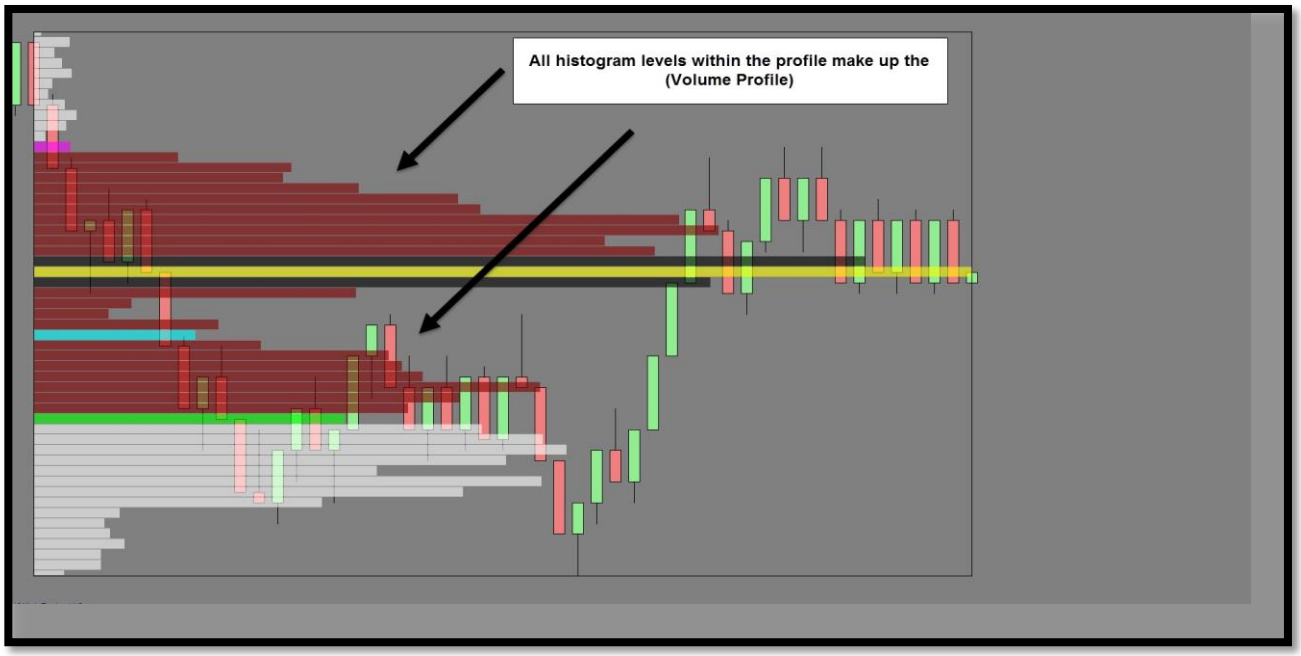
The average stop loss calculator determines the average stop loss sizes (in ticks) using every zone (Fresh/Tested/Broken) on the chart. It uses the lookback period loaded on the chart to take the average stops sizes from all zones.

The average stop loss calculator uses a (Tick Buffer) which can be set via the indicator parameters. By default, this is set to 3, which means the stop loss will go 3 ticks below demand and 3 ticks above supply. This data is useful for planning position sizing and risk/reward scenarios when trading the zones.

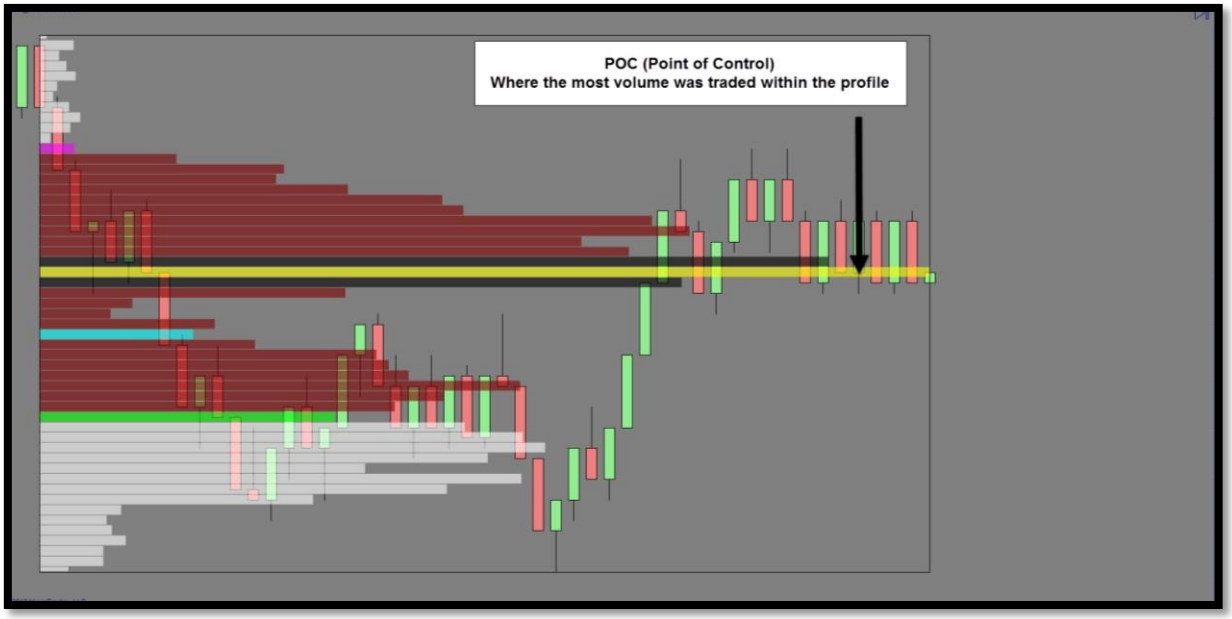
Volume Profile Overview

We will discuss several examples below to help explain the different volume components within a profile. This is intended to be an overview. Volume profiles are a histogram of the volume transacted at each price over a specific span of time such as a day, month, year or even a single bar.

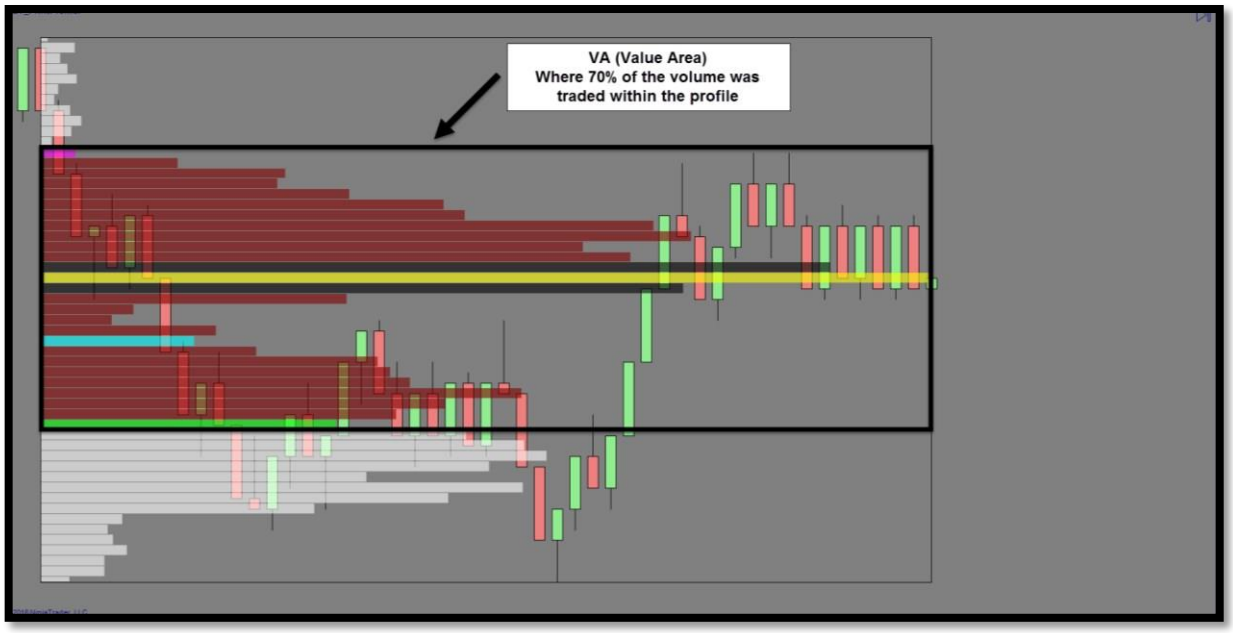
Volume Profile – the entire volume profile that displays the distribution of volume using standard deviations, a basic statistical measurement device, to identify the range of the most-accepted prices.



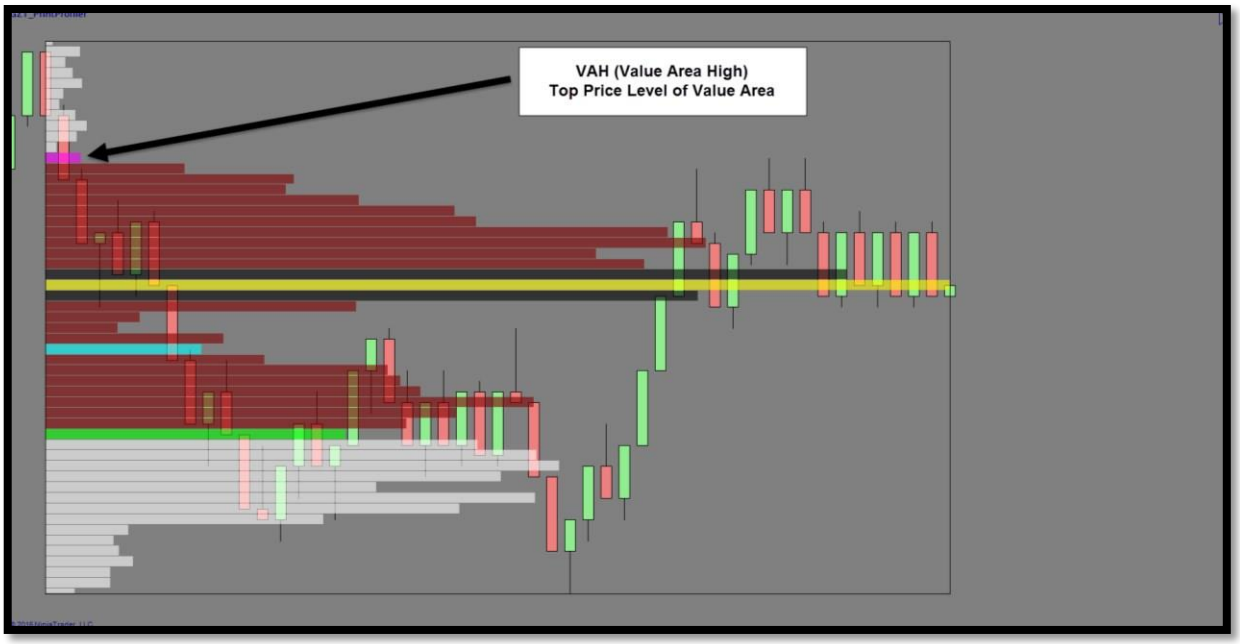
- **POC (point of control) –** The price level within the profile where the most volume was traded.



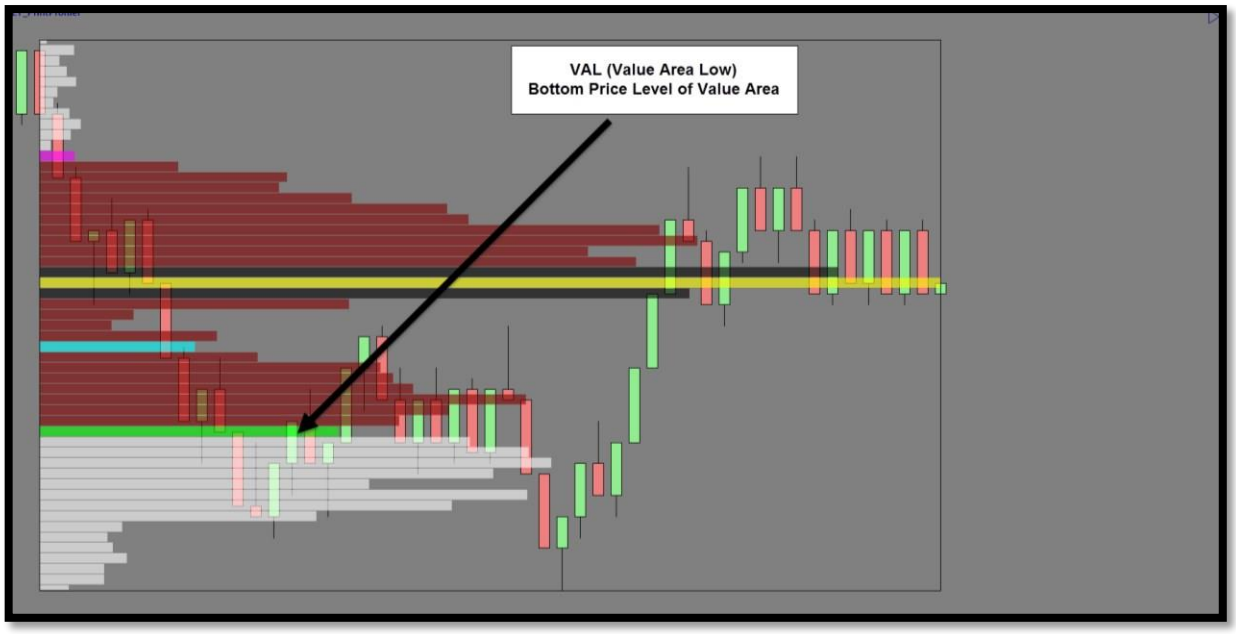
- **VA (value area) –** The area within the profile in which 70% of the volume is traded.



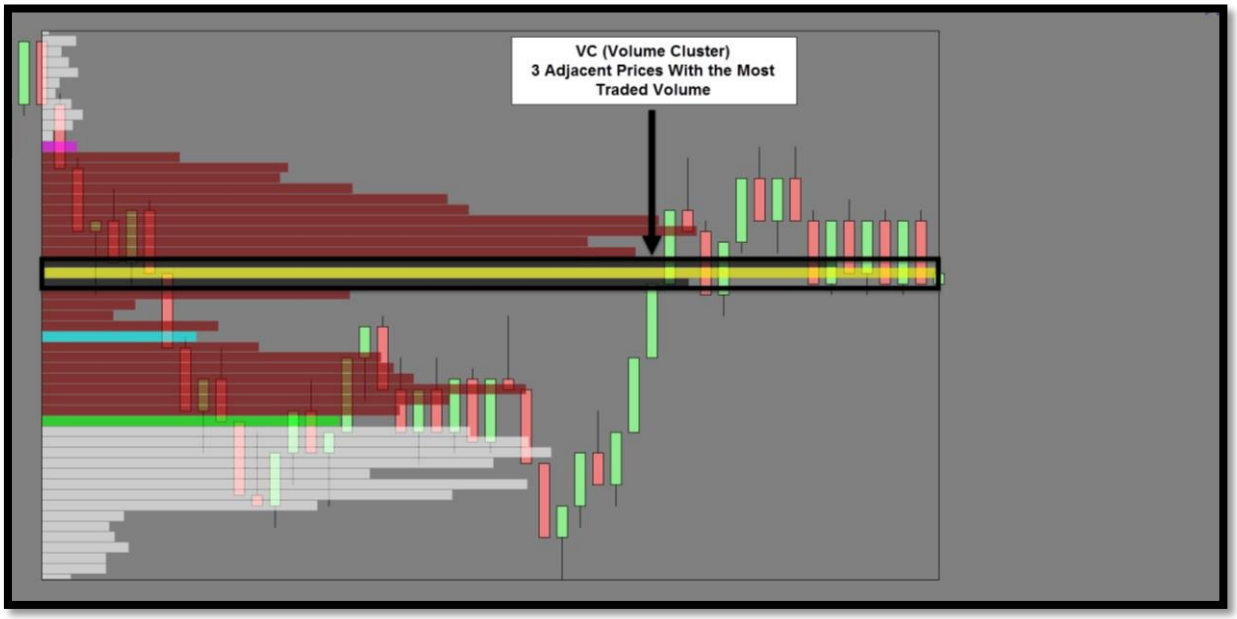
- **VAH (value area high) -** The highest price within the value area.



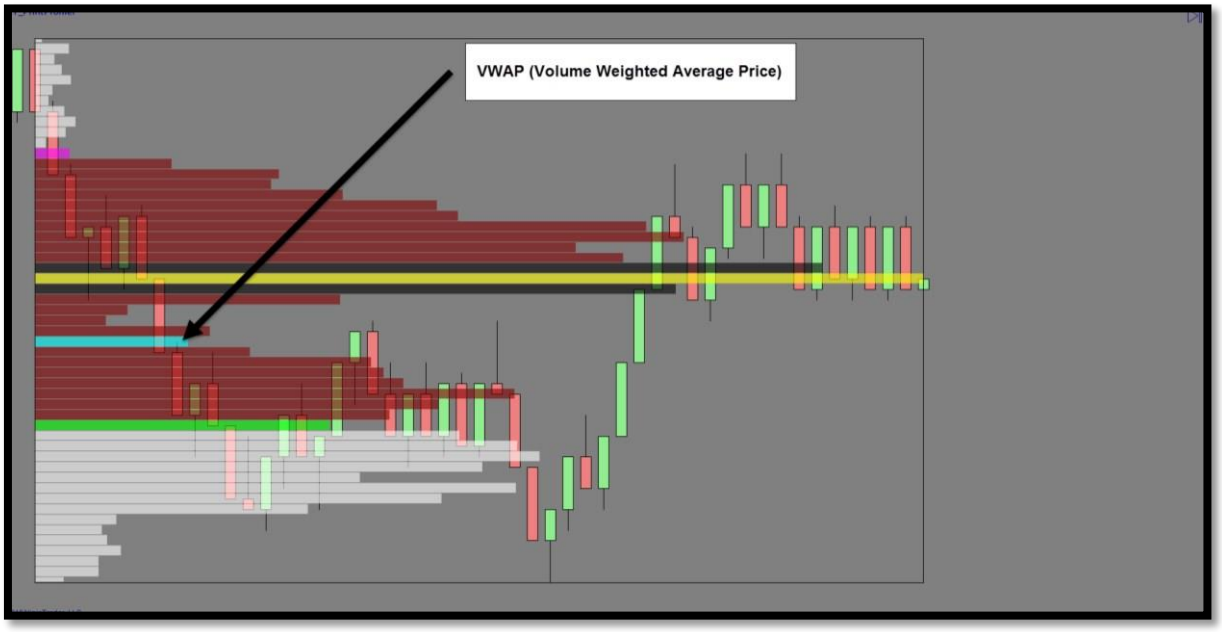
- **VAL (value area low) –** The lowest price within the value area.



- **VC (volume cluster) –** The 3 adjacent prices with the highest concentration of volume. This often includes the POC however, some instances will produce 3 adjacent price levels within the profile that does not include the POC.

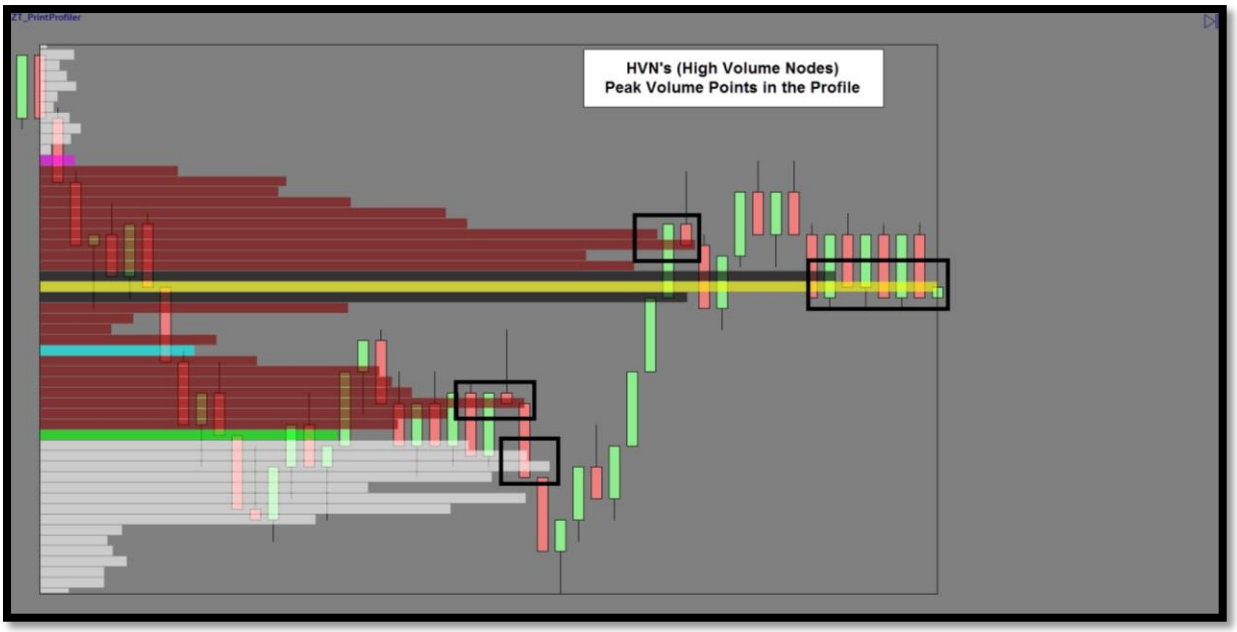


- **VWAP (Volume Weighted Average Price) –** The volume benchmark for the profile. Price often trades back to this price point as it is deemed to be the average accepted price point within the profile. Trades often view the VWAP as a separator of value and retail above/below within the profile.

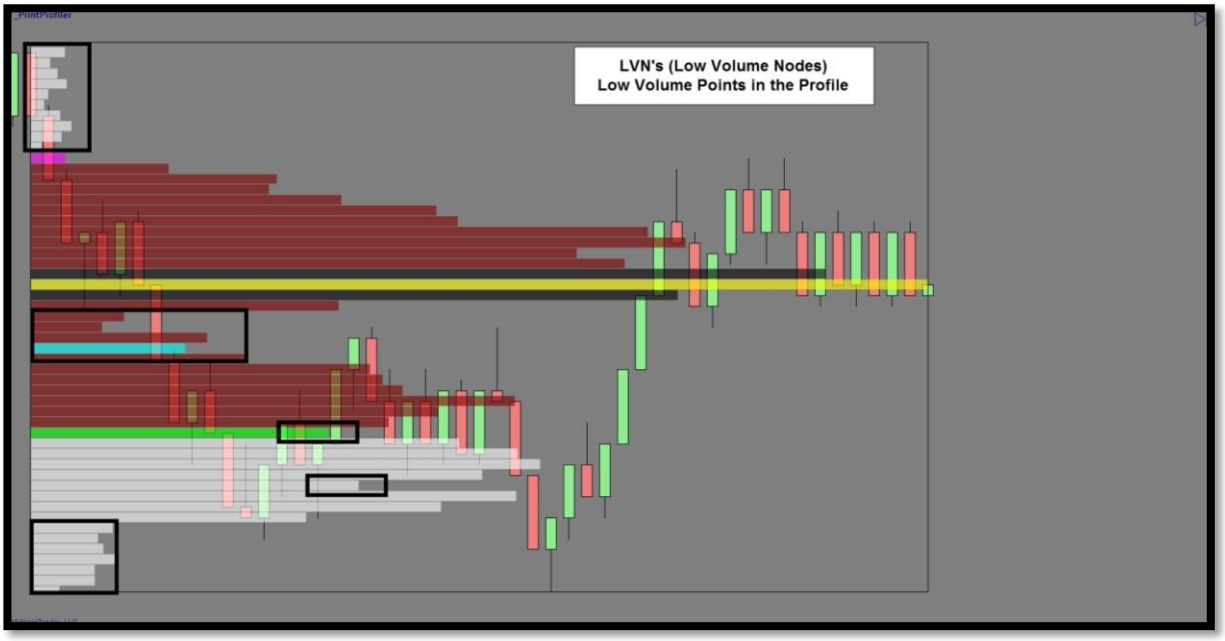


Additional Volume Profile Terms (Not part of indicator but useful information for trading):

- **HVN (high volume node) –** This is a peak in volume within the profile. HVN's are ranges of accepted prices – prices that were deemed "fair" by the market. These are areas where price can be expected to move slowly, and can often create choppy price action, because of the lack of force for action by market participants.

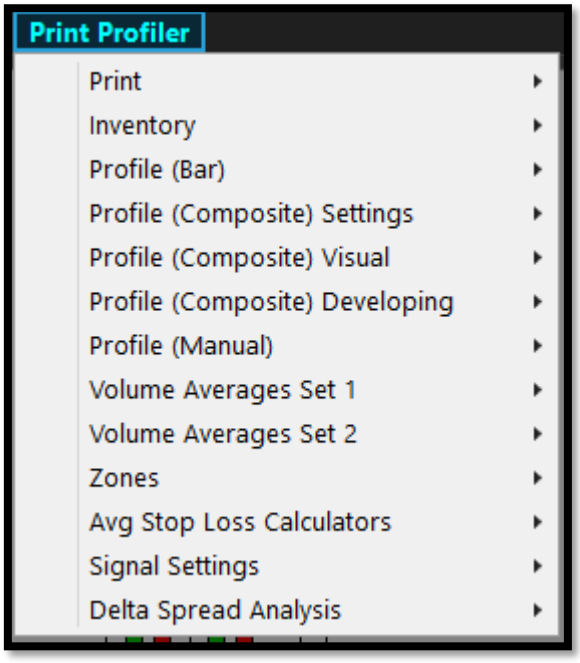


- **LVN (low volume node) –** This is a valley in volume within the profile. LVN's are considered "unfair" prices by the market. These are prices where market participants act quickly. LVN's are formed because they are prices that have not been or traded into previously. They are prices that have not seen much time or volume because participant took quick action previously at these price levels.



Drop Down Visual Controls:

The Print Profiler was designed using custom graphics and drop-down visuals for easy use and user-friendly manipulation of the software. Below are image examples of some of visual controls for each section. As you familiarize yourself with the tool, you can manually control the software features, colors and modes for each of the sections described in this manual.

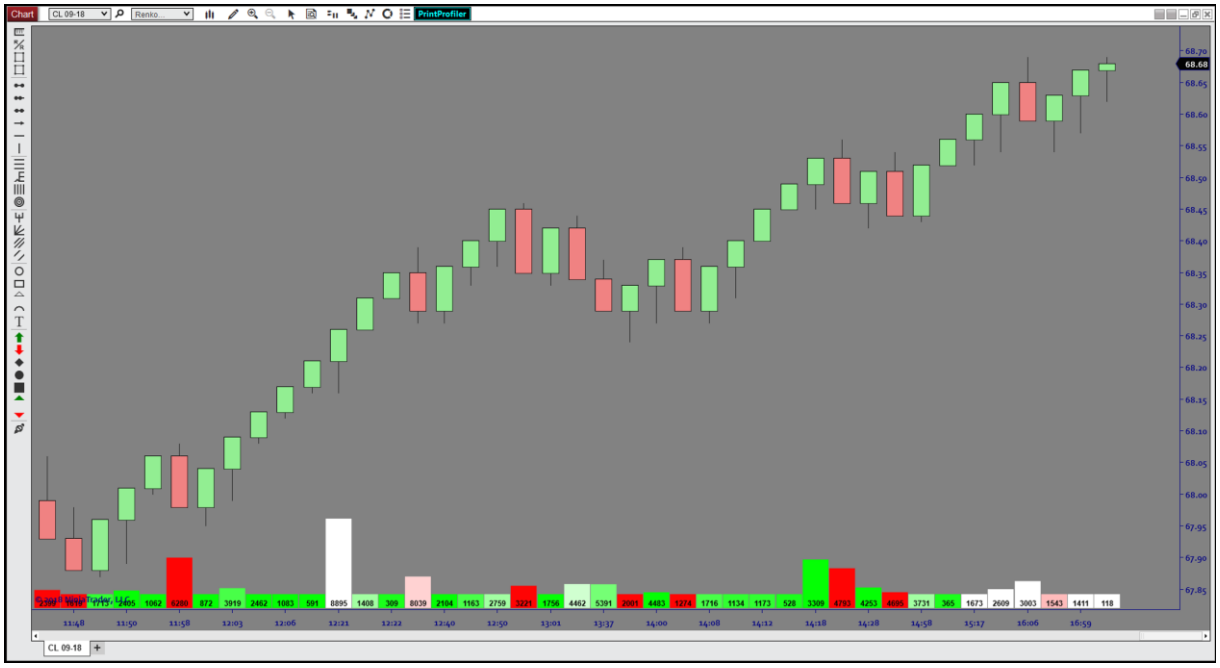


Volume Heatmap & Delta Spread Analysis

Volume Heat map:

The heat map displays a custom graphic histogram that lists (total volume) as well as the relationship of the delta comparison to the average of the last (n) bars. Darker colors mean the Delta exceeds the average delta of the last (n) bars. Fainter colors mean the net Delta is less than the average delta of the last (n) bars. The height of the histogram is the volume of that bar in relation to the average of the last "heat map height period" (n) number of bars.

Ex: if the volume is 4X greater than the average volume, then the histogram bar height will be 4X higher than the other bars.



Important Heat map Considerations:

The heat map uses a color gradient scheme to identify changes in the histogram and its impact relative to the average net delta. Here's how the color of the bar is determined

1. Two color gradients are calculated. 10-shades for the positive net delta, and 10-shades for the negative net delta. Positive net delta goes between full color, and white. Negative net delta goes between full color and white.

2. Calculate the average of the most recent "Heat Map Color Period" positive net deltas. So if "Heat Map Color Period" is 4, then we calculate the average of the most recent 4 positive net deltas. Call this the AVG_POS_ND

3. Calculate the average of the most recent 4 negative net deltas. Call this the AVG_NEG_ND

4. If the current bar net delta is positive, then determine the percentile of its numerical value, in the range of 0 to the AVG_POS_ND. So example, if the current bar net delta is 75% of the AVG_POS_ND, then we use that to find the appropriate gradient color determined in Step 1. In this case, it would be 75% of the way to a full green color. If the current bar net delta is 10% of the range between 0 and AVG_POS_ND, then the appropriate gradient color is the one that is 10% of the way to the full green color.

5. If the current bar net delta is negative, then we determine the percentile of it numerical value, in the range of the 0 to AVG_NEG_ND....and we use that percentile to choose the appropriate red-based gradient color.

HEATMAP APPLICATION:

Aside from the technical explanations above, it's important to simplify the usage of these features into critical take-away's that can be used in real time application. Below is a simple breakdown of a turnkey solution you can use immediately.

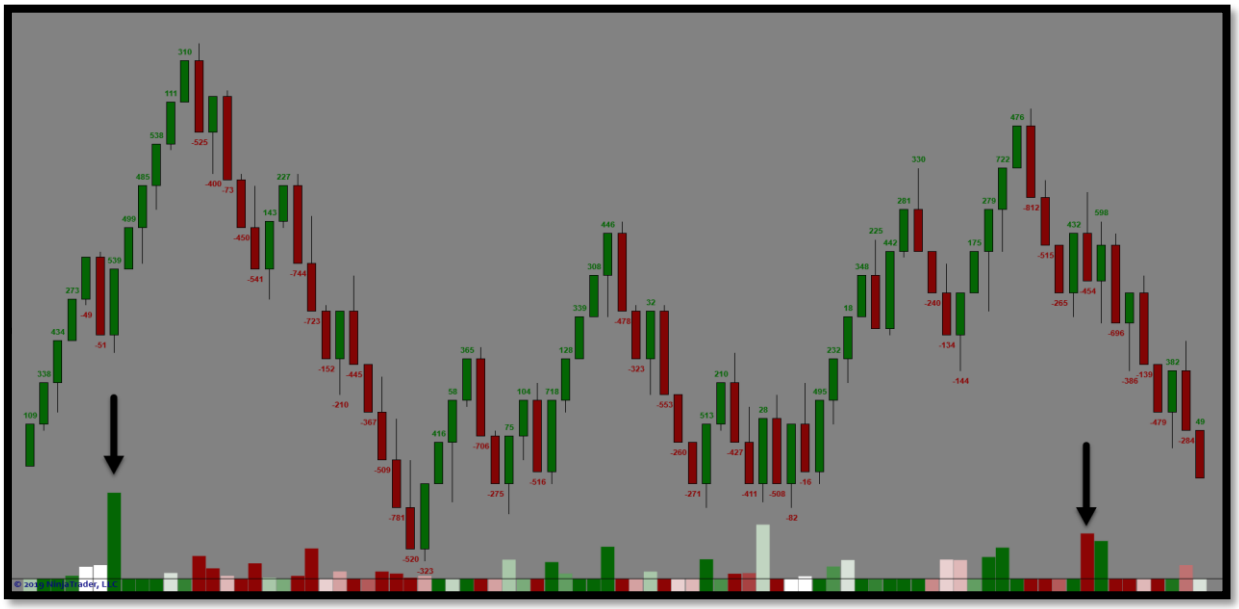
Heatmap Color – There are 3 Primary colors:

RED – Negative Delta Impact

GREEN – Positive Delta Impact

WHITE – Neutral Delta Impact

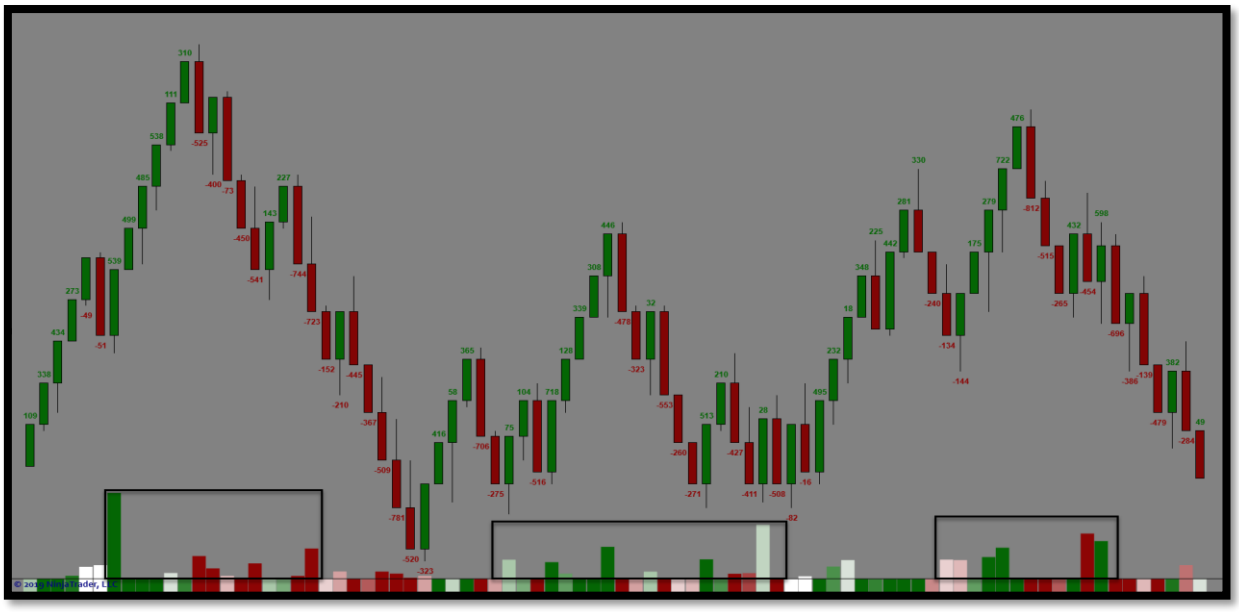
The color of the Heatmap is best described as the impact of the delta



Heatmap Size/Height:

The height of the histogram bars on the Heatmap are also important for application. The height is summed up by identifying that the height is the (total volume over the avg "n" bars) this is also expressed as a multiple (explained above in the technical section)

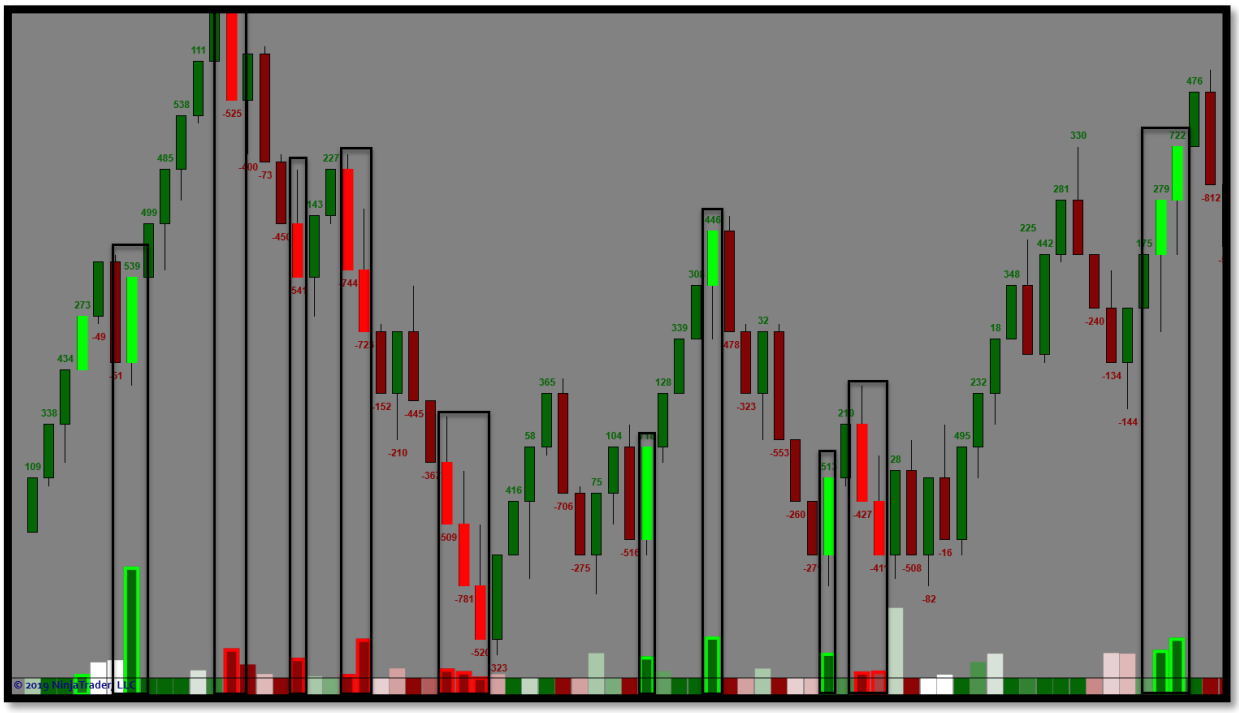
Ex: if the height of the histogram is large – this means is greater by an "n" multiple of the average volume.



Final Heatmap Application:

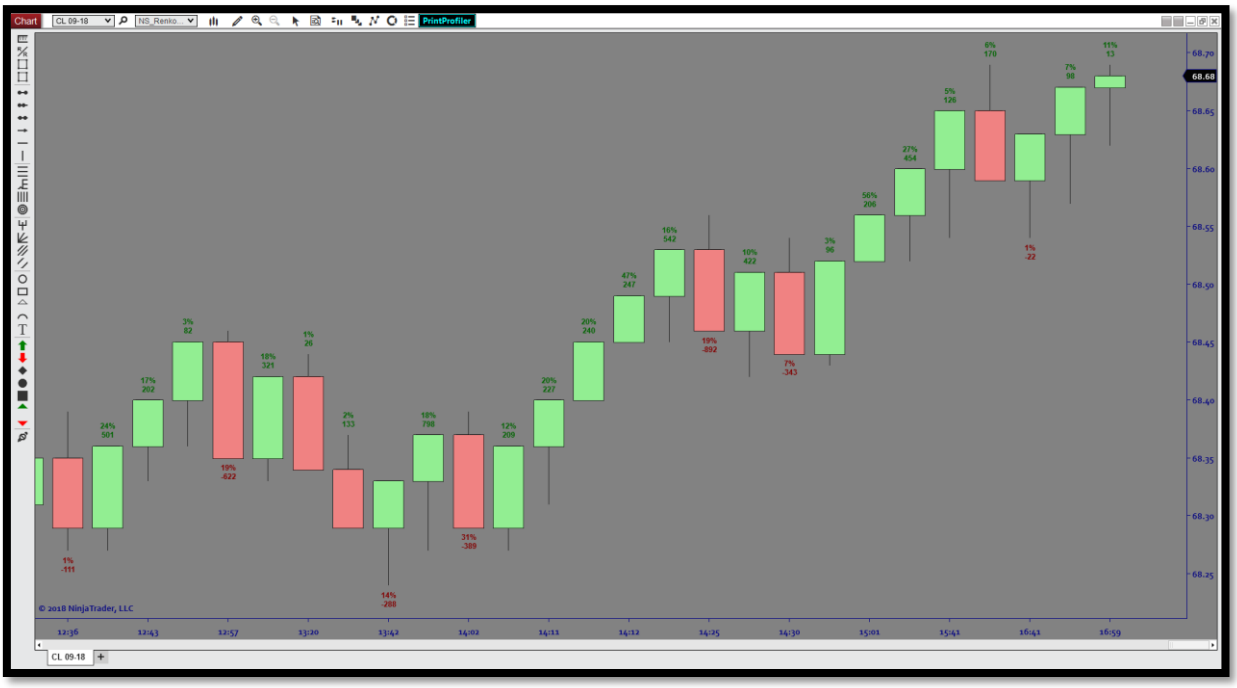
To sum all this up into one main area of importance, it is best suited to identify ***DARK COLOR GRADIENT DELTA IMPACT WITH LARGE VOLUME SPIKES IN THE HISTROGRAM***.

THIS IDENTIFIES ABOVE AVG VOLUME WITH A BIAS ON THE DELTA IMPACT. COMBINES WITH KEY AREAS OF IMPORTANCE SUCH AS (SUPPORT/RESITANCE, SUPPLY/DEMAND, and VAH/VAL ETC) THESE COULD PRODUCE EXELLENT OPPORTUNITIES TO ASSESS.



Volume %

The volume % is the ratio of the net delta volume relative to actual volume



NEW FEATURES & UPDATES (As of 7.1.19)

Delta Heatmap Bars:

These bars are an extension of the Delta Heatmap Feature. This is to color code the signal bars relative to the Heatmap. We have added control settings and will describe them below.

1) **Enable DSA Alert** (true/false parameter)
(both Ctrl-I dialog and pulldown menu
True enabled (shows visually) where the DSA signals are, and "False" turns-off those visual signals

2) **DSA Sensitivity** (numerical value from 1 to 10)
(Both Ctrl-I dialog and pulldown menu)
This controls how "dark" of a histo bar color is necessary for a DSA signal to be generated. "1" is most permissive (nearly all Heatmap histo bars will qualify as far as darkness of color goes). "10" is most restrictive (only the darkest histo colors will qualify as signal bars).

3 & 4)" BUY **color**" and "**SELL color**"
(only in Ctrl-I dialog window)
This is the color of a buy or sell signal. The price bar will have its candle body painted this color (when a signal occurs) ...and a rectangle of this color will surround the Heatmap histo bar as well.

5) **Opacity HM outline** (numerical value from 0 to 100)
(Both Ctrl-I dialog and pulldown menu)
This controls the opacity (translucence) of the rectangle that outlines the Heatmap histogram bar during a signal condition.

6) **Width of HM outline** (numerical value from 1 to 10)
(Both Ctrl-I dialog and pulldown menu)
This controls the width of the rectangle line that surrounds the Heatmap histogram bar during a signal condition.

7) **Opacity Price Bar outline** (numerical value from 0 to 100)
(Both Ctrl-I dialog and pulldown menu)
This controls the opacity (translucence) of the filled rectangle that overprints the price bar during a signal condition.

Conclusion:

Architects A.I. thanks you for your trusted business. We strive to provide cutting edge trading software that stands out among professional traders. Should you need assistance or have any questions, please feel free to email support@architectsai.com so we can help make your experience with us a memorable one.