



ANATOMY OF A FOOTPRINT®

PREREQUISITES

Before proceeding, we highly recommend watching the two prerequisite videos entitled [MarketDelta® Simplified Video](#) and [MarketDelta® Overview Video](#). These provide fundamental information to making the most of this document. We have structured our learning material in a stepping stone pathway. Let the Footprints® lead the way. You can always refer back to www.marketdelta.com/education to see where in the learning cycle you are and what other materials or opportunities may be available.

HISTORY

Prior to electronic trading it was impossible to construct a Footprint® chart because all the pieces of data needed to create one were not disseminated by exchanges and data providers. Electronic trading provided a whole new stream of data just waiting to be utilized by traders. MarketDelta® recognized this opportunity and sought to innovate by creating the Footprint® chart to leverage the new data. The Footprint® chart is a natural progression in how trade data can be presented and is only now possible with markets trading electronically.

Another comparable innovation brought about by electronic markets is the price ladder that many traders now use to trade. This revolutionized the way traders submit and manage trades. The Footprint® should provide the same level of insight, but in the form of a charting interface.

MarketDelta®
335 North River Street
Suite 200
Batavia, IL 60510

P 312 922 7800
F 630 482 2000

www.marketdelta.com
sales@marketdelta.com

INTRODUCTION

The Footprint® chart is all about providing you with better market transparency. Transparency has become a bit cliché recently, but with the Footprint® chart it is clearly true, just look at it for a moment. Before the Footprint® existed, chart displays lacked the additional data now taken for granted. **The purpose of the Footprint® chart is to take the most basic pieces of trading data, organize them in a logical manner, and create a better way to follow the markets.** The basic construction of a Footprint® is very structured and grid like, lending itself well to classifying data.

In a very natural manner, the Footprint® chart creates a structured view of the data received from the Exchange by providing:

1. **Discrete volume at price data.**
2. **Where the volume occurred across a set of prices.**
3. **How that volume was transacted (order flow).**

Additionally, the Footprint® chart offers a better context from which to gauge market fluctuations and a clearer view of what is taking place. The ultimate goal is to provide a simple, easy to read interface where traders can more quickly interpret what is happening in the market and pro-actively make trading decisions. This can lead to three conclusions:

1. **Either getting out of a bad trade quicker.**
2. **Getting into a new trade sooner.**
3. **Or possibly not doing anything and letting the trade pass.**

By the way, the last one can be the most valuable of all and is in fact one of the most commonly quoted benefits heard from Footprint® users.

FOOTPRINT® DIFFERENCES

In addition to plotting price, we like to say the Footprint® shows the “HOW and WHERE” of a trade. When it comes right down to it, there are only a couple of ways to classify a trader who wants to execute a trade. An aggressor or non-aggressor. The aggressor is the one initiating the trade and the non-aggressor is the one not initiating the trade. Each trade basically consists of the aggressor going to the non-aggressor and creating a trade. This would be represented in the form of a market order. **Another way of thinking about it is the Footprint® quantifies and shows the energy that buyers and sellers are exerting.** This energy is reflected through how much volume is trading and which direction the volume is flowing into the market. The Footprint® chart tracks this and creates the most visual view of order flow that can exist.

Before the Footprint® chart existed, volume was only displayed on a bar by bar basis in a horizontal histogram at the bottom of the chart. This is where the Footprint® began to revolutionize how the markets are viewed. Instead of just using volume over time, the Footprint® leverages the data to display volume at price. You now have the ability to view volume on a vertical scale (price scale) and horizontal (time scale). This adds a new dimension and will help you see where volume is accumulating and not accumulating.

ANATOMY

The anatomy of a Footprint® is best understood as a simple dissection of a bar and all the trades that created the bar. Footprints® are built price by price with the volume of each trade a required component to create each Footprint®. With each trade, an individual Footprint® gets updated with the new volume data. The Footprint® updates as new trades arrive and until it is time to start a new bar. Part of the advantage the Footprint® offers is this real time updating. This keeps traders more informed of shifts in volume and order flow and very naturally compliments the way prices are already reflected on a chart. **It gives “feeling” to the chart because of the dynamic interaction between the Footprint®.**

Traditionally, charts have been viewed with just Open, High, Low & Close. The Footprint® takes the bar and recreates it into a more detailed and relevant way of organizing electronically traded data. The result is a price & volume display better suited for today’s trader.

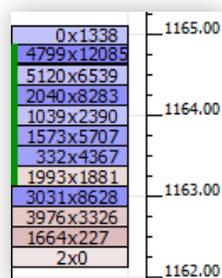
Another way of describing it is to take a bar and slice it up price by price so that all prices can be seen within the bar. The Footprint® bar still has the four basic points (OHLC) but breaks the bar up price by price and attributes other data (volume, delta, number of trades) to each price contained within the bar. Throughout this document there are examples of each Footprint® type.

Technically a Footprint® is like a container which has specific information for each price within the bar, hence the name Footprint®. A series of Footprints® make up a bar in whatever time frame specified.

Depending upon which type is being viewed, each Footprint® is also shaded a particular color based upon either delta or volume. **The shading of a Footprint® provides a very valuable benefit because it alerts the trader of shifts in momentum intra-bar, allowing for quicker recognition of market changes and better trade location.**

COLOR SHADING

Each Footprint® is colored one of two colors that you specify. The Footprint® preference by default the Footprints® are red or blue. Red signifies more aggressive selling at that price (more trading occurred while that price was the bid versus when it was the ask). Blue signifies more aggressive buying at that price (more trading occurred while that price was the ask versus when it was the bid). Each Footprint® is shaded according to how strong the aggressive buying or selling was and is based upon the delta. This strength is simply based on volume; how much volume traded on the bid versus ask. Traders will gain experience in the use of the Footprint® chart and be more in tune to the underlying market dynamics and changes in market activity.



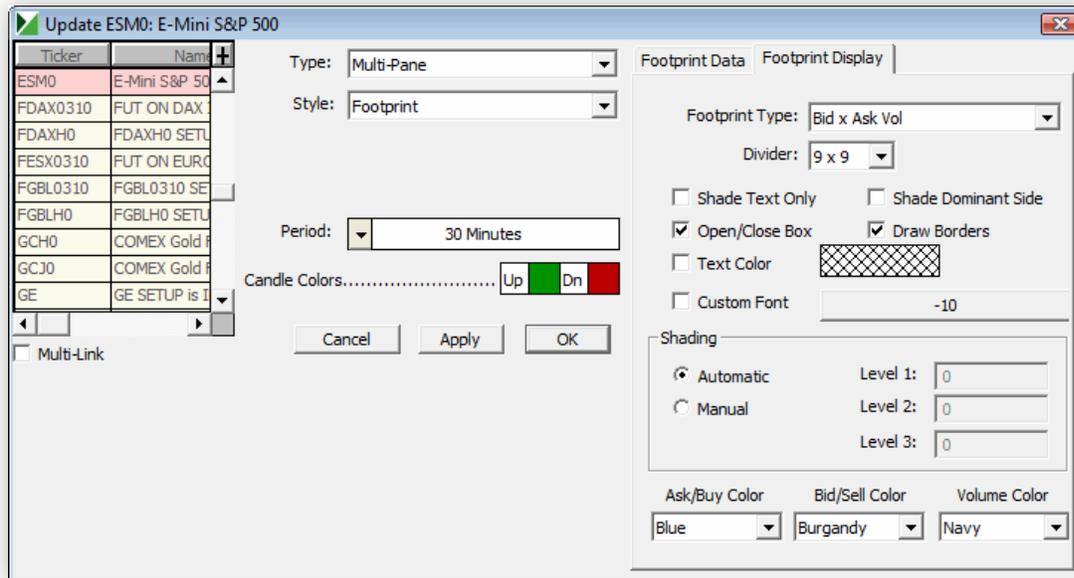
- Each price (cell) in the bar represents an individual Footprint®.
- Color represents more buying or selling at that particular price.
- Green or red bar to left of Footprint® represents the body of the bar, just like a candle chart.
- Black outline signifies the high volume price within each bar.
- Footprints® show where price traded but also how much volume traded at a price. See other Footprint® types for other ways to view the data.

FOOTPRINT® TYPES

The Footprint® is viewable in many different types. They are Bid / Ask, Delta, Total Volume, percent of Volume, Color Only, Volume (Delta Color), percent of Volume (Delta Color), Delta Profile, Footprint® Profile, Delta percent, Invisible, Average Size, Average Size (Delta Color), Delta x Total Volume, and Bid Ask Volume (Volume Shading). Each is unique in the information it provides and explained in detail individually throughout this guide. The three most popular Footprint® types are Bid / Ask, Delta, and Footprint® Profile.

To change the Footprint® type:

1. Double click a Footprint® on the chart.
2. Choose the Footprint® Display tab.
3. Choose the Footprint® Type from the drop down list.
4. Click OK.



📺 Watch this [video](#) for a complete overview of all the preferences.

BID / ASK FOOTPRINT®

The Bid / Ask Footprint® displays the number of shares or contracts that traded while a particular price was the bid price and the number of shares / contracts that traded while a particular price was the ask price. As the bid and ask change with price, the Bid / Ask Footprint® adjusts accordingly. It displays as (bid traded volume x ask traded volume). (Example: 1000 x 400) The 'x' is just used as a spacer and not a mathematical operator. The Bid / Ask Footprint® keeps track of how volume trades at each price and classifies it as to whether it was buyer motivated or seller motivated volume. As a price goes from ask to bid and back, the Footprint® will keep track of the volume at each price.

📺 To watch a video that gives an overview of the Bid / Ask Footprint®, [click here](#) or visit [Video Library](#).

Benefits of Bid / Ask Footprint®:

1. Provides added price transparency by seeing the breakdown of volume at each price or series of prices.
2. Plots Bid traded volume on the left side; another way to think of this is market sell orders.
3. Plots Ask traded volume on the right side; another way to think of this is market buy orders.
4. Know when the market goes from lifting offers to hitting bids, complete with the ability to look back and see shifts in momentum and order flow.
5. This Footprint® will help you keep track of the market action as it happens.
6. The color and shading of each Footprint® makes volume and momentum changes much more visible.
7. See which prices throughout the bar attracted the most volume.
8. See which prices or cluster of prices had a lopsided bid or ask volume.
9. Clearly observe at tops and bottoms if resting supply or demand is entering.
10. See how many orders (trades) were involved at key levels. Was it just a few large institutional orders or lots of small quantities?



- Displays the breakdown of volume and how it is traded.
- Number to the left of "x" is bid traded volume; number right of "x" is ask traded volume.
- Color is blue if more aggressive buying; red if more aggressive selling.
- Shade of color shows the level of aggression. Darker shade is more aggressive.

DELTA FOOTPRINT®

The Delta Footprint® displays a positive or negative number. A negative delta value represents how many more shares / contracts were sold on the bid as a result of the seller being more aggressive and hitting the bid. A positive delta value represents how many more shares / contracts were bought at the ask (offer) as a result of the buyer being more aggressive and taking the ask (offer). Delta is the term we use to describe the net difference between the quantity traded at the ask versus the quantity traded on the bid. Delta Footprint® is used to give a measurement of buying and selling pressure at each traded price in real time. It also helps to quantify who is more aggressive, buyer or seller, as price fluctuates. The calculation would be the ask traded volume - bid traded volume = Delta Footprint®. Using the Bid / Ask Footprint® example (1000 x 400), the Delta Footprint® would be -600, indicating more selling pressure at this price. Another way of saying this would be 600 more contracts traded when this price was the bid price versus when it was the ask price.

🎥 To watch a video that gives an overview of the [Delta Footprint®](#), click here or visit [Video Library](#).

Benefits of the Delta Footprint®:

1. Clearly shows intra-bar the breakdown of order flow. This provides for more immediate interpretation of market conditions and quicker reaction to risks and opportunities.
2. Provides more transparency as to who is attempting to influence the market more, buyer or seller.
3. Instead of guessing at the underlying momentum, let the delta Footprint® track and quantify it. See selling and see buying.
4. Gives a true sense of buy and sell activity at each price and also on a bar by bar basis.
5. Watch as the current price move is running out of fuel and setting up for consolidation or reversal.
6. Gauge the strength of a bar by the Footprint® colors and shading. This helps to indicate the intensity of the move.
7. Know when the buyers are accumulating and when the sellers are distributing.
8. See which prices or cluster of prices had a lopsided bid or ask volume.
9. Apply the Volume Breakdown indicator to provide a total delta per bar. This helps to confirm price direction and strength bar by bar.
10. Very advantageous to see price runs sequentially and monitor the delta for shifts in order flow and momentum.



- Red = More aggressive selling; Blue = more aggressive buying.
- Positive number represents more buying; Negative number represents more selling.
- Darker colors represent more aggressive buying or selling (depending on color). The colors are all configurable.

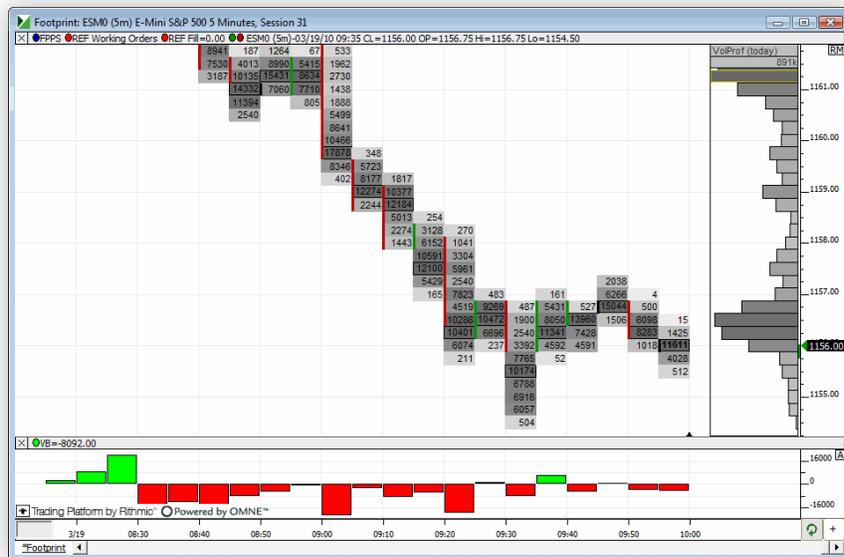
TOTAL VOLUME FOOTPRINT®

The Total Volume Footprint® displays the total volume traded at each price, regardless of whether it was Bid / Ask. This is helpful in showing where large volume occurs during trading. The calculation would be the bid traded volume + the ask traded volume = Total Volume Footprint®. Using the Bid / Ask Footprint® example (1000 x 400), the Total Volume Footprint® would be 1400. This will never be a negative number because it is the sum of traded volume at each price over whatever time frame or periodicity you specify.

📺 To watch a video that gives an overview of the **Volume Footprint®**, click here or visit **Video Library**.

Benefits of the Total Volume Footprint®:

1. See volume build vertically instead of just horizontally. This creates another dimension to track markets price by price instead of bar by bar.
2. Know where the high volume levels are within any bar in any time frame you want.
3. Know the moment volume is increasing or decreasing.
5. Used in conjunction with technical indicators, you can see volume increase (or not) at the exact time your indicator signals or price breaks out.
6. See what price levels are being defended or attracting the most participation.
7. Most popular with traders who trade products that don't have as much momentum as other products.
8. Popular with fixed income, spreaders, and equity (stock or ETF) traders.
9. You won't be fooled by orders that look like they traded but really did not trade.
10. Develop a feel for your market by recognizing when volume is picking up and when it is not. Similar to noise on the trading floor, as applied to electronic screen, this tool will let you know how and where the volume trades.
11. Know how much traded at extreme prices. This is very helpful when prices are testing areas of key support and resistance.



■ Indicates the total volume traded at each price for each bar.

■ Darker shade represents greater volume.

PERCENT OF VOLUME FOOTPRINT®

This Footprint® shows the percentage of volume traded at each price. It indicates the percentage of volume traded at each price within the bar. The percentage is relative to the bar only and not the entire day. This provides for that view and creates a “normalized” view of the market. This Footprint® type will be better suited for longer time frames such as the 15 or 30 minute.

Benefits of the Percent of Volume Footprint®:

1. Normalized view of volume intra-bar.
2. Observe if a specific price or cluster of prices is attracting all the volume.
3. Clearly see large pockets of volume in percentage terms.



- Indicates the percent of volume traded at each price within each bar. The percent is relative to the bar only and not the entire day.

COLOR ONLY FOOTPRINT®

This Footprint® type does not display the volume or delta numbers but only shows the color associated with each Footprint®. Color is determined by the delta of each Footprint®. The shading is determined by the magnitude of delta. Larger absolute deltas receive a darker shading.

Benefits of the Color Only Footprint®:

1. Works well when zooming out to see more of the day and making the Footprints® more narrow. A quick way to do this is to use the scroll wheel on the mouse.
2. Be able to view all the delta shading without all the numbers.
3. Read the order flow and momentum in a more holistic way.



- Only shows Footprint® color.
- Color is determined by the delta of each Footprint®.
- Shading is determined by the magnitude of delta. Larger absolute delta's receive a darker shading.

VOLUME (DELTA COLOR) FOOTPRINT®

Color is based upon the delta for each Footprint® and the shade (darkness or lightness) is also based upon the delta. The values within each Footprint® are the total volume for that price.

Benefits of the Volume (Delta Color) Footprint®:

1. Preferred by those who are more concerned with viewing the actual amount of volume but still want to have an idea of whether the delta was positive or negative for each bar.
2. Clearly shows levels of high volume.
3. Lighter shaded Footprints® signify mostly neutral trading.
4. Darker shaded Footprints® signify more aggressive trading. This can lead to more follow through if a move is just getting started, or the end of move if coming in after a significant price run.



- The color and shading is determined by the delta of the Footprint®. The value within is the total volume at price.
- Lighter Footprints® signify mostly neutral trade; Darker Footprints® signify more aggressive trade.

PERCENT VOLUME (DELTA COLOR) FOOTPRINT®

This shows the percentage of the volume traded at each particular price for each particular bar. This will be most useful when applied to longer time frames such as 15 or 30 minutes. The color is determined by whether or not the Footprint® has a negative or positive delta.

Benefits of the Percent Volume (Delta Color) Footprint®:

1. Normalized view of volume intra-bar.
2. Observe if a specific price or cluster of prices is attracting all the volume.
3. Clearly see large pockets of volume in percentage terms.
4. The delta coloring shows who (buyer or seller) is creating more of the volume.



- Displays the percent of volume that occurred at each price for a particular bar.
- Color is determined by whether the Footprint® had a positive or negative delta.
- Shading is determined by the magnitude of delta.

FOOTPRINT® PROFILE

This is one of the top Footprint® types used by traders. It displays a profile or histogram of volume in whatever time frame chosen. The color of each Footprint® within each profile is based on the delta. Delta is the net buy / sell pressure. Blue represents a positive delta (buying pressure) and red represents a negative delta (selling pressure).

📺 To watch a video that gives an overview of the **Footprint® Profile**, click here or visit **Video Library** and see a complete listing.

Benefits of the Footprint® Profile:

1. This Footprint® Profile will help track areas of high volume in an intuitive, graphical manner but still include the valuable delta shading information.
2. Quickly track the high volume prices bar by bar to see if the market is attracting more participants at higher / lower levels.
3. This is much more than a simple volume distribution because the DELTA shading is included. This adds another dimension to how the volume was produced. Think of it as adding reason behind why the volume traded at that level.
4. See the shape of each bar in any time frame to reveal clues to the underlying market structure.
5. Popular view for those who are familiar with Market Profile® and allows a trader to drill down and see inside the chart.



- Red = more selling.
Blue = more buying.
- Shape of each bar is determined by the amount of volume traded at each price.
- Color of each Footprint® is determined by the delta.

DELTA PROFILE FOOTPRINT®

The Delta Profile is similar to the Footprint® Profile except that instead of showing the volume distribution it shows a DELTA distribution. This shows the levels of absolute delta for each price. All values, both negative deltas and positive deltas, are shown with absolute values. The way to read the graphic below would be if the Footprint® is blue it had a positive delta and if it was a red bar then it was a negative delta. The length of the bar represents how large the delta was for each price.

Benefits of the Delta Profile Footprint®:

1. Useful in seeing clusters of negative delta or positive delta.
2. Clearly shows which prices are experiencing relatively large positive or negative deltas.
3. Provides a view to monitor if delta is increasing or decreasing on a price by price basis. This can be helpful when monitoring a trend and looking for strengthening or weakening.



- Each Footprint® width is determined by the delta, NOT volume. The greater the absolute delta, the wider the Footprint®.
- Color is determined by whether the Footprint® had a positive or negative delta. Here blue was positive and red was negative.

DELTA PERCENT FOOTPRINT®

The Delta Percent Footprint® shows the percentage of volume that occurred on the dominant side of trading. It is essentially showing a ratio of bid traded volume and ask traded volume but only showing the percent of volume that occurred on the most dominant side of the market. For instance, if the Footprint® is blue (in the graphic below) then it had a positive delta and the number shown represents the percent of volume that occurred at the ask price for that particular Footprint®. If the Footprint® is red (in the graphic below) then it had a negative delta and the number shown represents the percent of volume that occurred at the bid price for that particular Footprint®.

Benefits of the Delta Percent Footprint®:

1. Provides a normalized way of looking at delta.



- Shows the percent of delta at each price. Blue represents the percent of volume traded at the Ask and red represents the percent of volume traded on the Bid.
- Shading is determined by the absolute size of delta and how it compares to others on the chart, not just a single bar.

AVERAGE SIZE (DELTA COLOR) FOOTPRINT®

This Footprint® type displays the average size trade that occurred at each price within the bar. The shading of the Footprint® is associated with the level of delta for the Footprint® and it is colored according to whether the delta was positive (blue) or negative (red).

Benefits of the Average Size (Delta Color) Footprint®:

1. See if the large size trades caused a positive or negative delta (seen in color).
2. Blue Footprints® with large average size typically indicate a level of *bullishness* in the near term.
3. Red Footprints® with large average size typically indicate a level of *bearishness* in the near term.
4. Look for larger size trades at support or resistance. This is a sign of institutional interest at these prices.



- Displays average size trade with delta shading for each price within the bar.

DELTA X TOTAL VOLUME FOOTPRINT®

This Footprint® type displays two columns of data for EACH bar. In the screenshot below the gray is shaded for how much volume traded at each price. The darker the gray, the more volume traded. The columns with blue and red represent the delta for each price. Positive delta is blue and negative delta is red.

Benefits of the Delta X Total Volume Footprint®:

1. This Footprint® helps to show at a glance where high volume traded AND what the delta was for that level.



- Gold shading represents volume
Darker gray shades represent greater volume.
- Blue and red represent delta.

BID X ASK VOL (VOL SHADING) FOOTPRINT®

This Footprint® displays the bid ask volume and is shaded according to how much total volume traded at each price. Darker Footprints® represent more volume traded at that particular price. The calculation would be the Bid Traded Volume + the Ask Traded Volume = Volume Footprint®. This Footprint® type is very similar to the Total Volume type except that it shows that bid and ask volume breakdown.

Benefits of the Bid X Ask Vol (Vol Shading) Footprint®:

1. This is helpful in showing where large volume occurs during trading and still allowing to see the bid and ask volume separately.
2. Useful for those looking for absolute levels of bid traded volume or ask traded volume.



- Displays the Bid and Ask Volume and also shades each Footprint® based upon how much combined volume traded at each price.
- Darker shaded Footprints® represent greater volume traded.

CONCLUSION

At this point you should have a decent understanding of what the Footprint® is and the different types available for analysis. Remember, this document is just the beginning and hopefully has you wanting more. The Footprint® is not just a novel idea. It fundamentally takes all the facets of a trade and constructs a better way to view the markets. The result is better transparency and a more informed trader.

The next step in the educational process would be to download our free [Learning to Read the MarketDelta® Footprint®](#) document. It provides an introductory guide to Footprint® patterns and their meanings.