

TensorCharts Manual

v 0.0.3

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About

This is a community sourced manual for TensorCharts (TC). You can comment, suggest or edit. Share your experience, notes, links or books which could help others to get better understanding of TC and trading itself. (proof-reading is also welcomed)

Web version of this document will be eventually uploaded here: <http://docs.tensorcharts.com>

Thank you all who will contribute even slightly.

David | TensorCharts.com

Order flow

If you ask an economist what price action indicates, his/her answer would immediately reference the equilibrium point between **Supply** and **Demand** -and that's what the **Order Flow** can tell you..

So there you have it, the whole story, no speculation. Once you are accustomed to what it means when price movements occur (order flow), you will be able to recognize price action and articulate price action from an analytical perspective. Acquiring this fundamental will afford you the wisdom to exploit any trading market's needs, wants or desires.

In short, pun intended, investors and traders alike, find value in interpreting price action and quickly recognize the Order Flow as an indicator and the many vantage points it offers in trading a market. Explore TensorCharts.com and find your vantage point. Learn them all, and enjoy watching your revenue and confidence grow.

WHAT'S ORDER FLOW, AGAIN?

OVERVIEW RESOURCES:

- [Jigsaw order flow tutorial](#)
- [Price action order flow YouTube channel](#)

Chart settings

Timeframes

Since heatmaps are very heavy on the graphs, the time frames included for now are limited to:

- 1 Day
- 4 Hours
- 1 Hour
- 15 Minutes
- 5 Minutes
- Real-time

Heatmaps are not easily calculated as normal candlesticks. Therefore, at this time, options are limited to the above-mentioned, 6, timeframes.

Real-time chart

The Real-time chart is a recreation of the order book in real time. Since the graph will develop with the price action, once you initiate this timeframe, you will need to wait for the data to load. The precision of the heatmap will depend on precision of the order book. You can change the precision with + / - buttons in the top menu of order book or by changing order book heatmap precision, buttons 1 / 2 right next to orderbook heatmap opacity slider.

Real-time chart is being recreated from orderbook in real time thus you need to wait for the data to load. Precision of the heatmap depends on current orderbook precision. You can change precision with + / - buttons in the top menu of orderbook or by changing orderbook heatmap precision, buttons 1 / 2 right next to orderbook heatmap opacity slider.

HOTKEY : B

TIPS:

- Drag the y axis to adjust chart scale
- Turn on candlesticks and set SMA to 10
- Turn on large trades tracker to visualize important trades

Have you ever wondered what's going with price inside candlesticks? Take a deeper look into the market, turn on Real Time chart and explore this new level of price development. The real-time chart automatically updates, live on your screen, so you can dive inside the market structure like never before.

TIPS:

- Watch behavior of the market movers and learn how market reacts in different situations under the loop. Warning: addictive for scalpers!
- Combine the realtime chart with the 5m timeframe to improve your entry timing.

Chart type

TensorCharts has three types of chart - candlesticks, heikin ashi, and renko charts. You can easily toggle between them with the button right next to timeframes options or with key H. The three chart types can be defined as follows:

1. *Candlesticks*: The most widely used tool in all of technical analysis, it simply graphs four data points of any given period: high, low, opening price, and closing price.
2. *Heikin ashi*: Modified candles, best suited for trend riding as they take data from the previous period to portray momentum of the current period. Look for a doji or a shift between bullish and bearish candles to suggest a trend reversal or a point to exit the market and take your profits.

3. *Renko*: It diminishes noise by isolating price from time. Each brick is formed if fixed increments or decrements in price are achieved. Renko in TensorCharts is calculated using the average true range (ATR 14). Renko needs more data, zoom in and out the chart to load more data.

By default, visibility of candles is limited to outlines so it wouldn't cover trades heatmap. To switch visibility, hit key C or click on candlestick icon button near chart type button.

More precise settings of candlesticks' visibility can be controlled by trades heatmap opacity slider. Try to move the slider to its extremes.

HOTKEY :

- H = **chart** type
- C = **candlesticks'** visibility

TIPS:

- Use Heikin Ashi candlesticks for better trend moves interpretation. It is great visual form of price development interpretation for swing traders.

LINKS:

- Renko charts: <https://www.investopedia.com/terms/r/renkochart.asp>
- Heikin ashi : <https://www.investopedia.com/trading/heikin-ashi-better-candlestick/>

Move/zoom

There are multiple ways to zoom and move within the chart:

Move

- Mouse - left click and drag
- Touchpad - two fingers and horizontal slide

Zoom

- Mouse - scroll wheel
- Touchpad - two fingers and vertical slide
- Zoom buttons in the middle of chart

Price range can be also adjusted by dragging Y axis. It's useful to see important supply zones further from visible range. Be aware custom price range turns off autoscaling. To reset it back to default settings, click on the reload button in between zoom buttons.

Orderbook heatmap

Orderbook heatmap is a graphical representation of historical orderbook snapshot. Each price level and its amount of pending orders is visualized as a blue rectangle, the brighter color the more limit orders.

With it, you can graphically observe the interaction between the order book and the price. Watch in real time how limit orders of all sizes appear and vanish and to determine important levels, pay close attention to large limit orders.

Minimum volume filter

To filter out unnecessary noise, try to increase 'min volume' cut-off which hides every volume below this amount. 'Min volume' can be adjusted by either the slider or by value - see the little 'S' button on the left side of 'min volume' slider.

Every market has its own ideal heatmap settings, re-adjust opacity and min. volume to your own settings.

Colormap

The last option of OB heatmap is Colormap. Currently there are 2 colormap available, (1) plain blue gradient and (2) temperature gradient. Temperature gradient enhances the visibility of large volume areas transitioning from blue-violet-red-orange-yellow from large to extremely large limit orders respectively.

HOTKEY :

- B = orderbook heatmap precision

TIPS:

- Pay attention not only to the largest orders levels but also to empty zones on the chart. These zones are often great areas for finding price spikes.
- As well as using strong levels for reversal zones, practice trading breakout zones and combine both approaches.

LINKS:

- TC video tutorial on Orderbook Heatmap - https://youtu.be/mWJL5_wX9is

Trades heatmap

Trades heatmap, also called footprint charts, is a visualization of trading activity inside each candle and show the distribution of buying and selling activity.

TensorCharts aggregates every trade on multiple price levels. It allows you to track volume and order flow in much greater detail. The Heatmap also can reveal hidden orders, visualize buying/selling pressure exhaustion and trend reversals.

Delta and Buy/Sell mode

You can toggle between two modes, (1) delta and (2) buy/sell mode. The delta shows you the difference between buy/sell volume at each price level. Mode buttons can be found in settings panel right next to trades heatmap opacity slider.

HOTKEY :

- T = trades heatmap mode

TIPS:

- Keep adjusting the trades heatmap opacity as trading volume changes over time.
- Look for a visible trading imbalance between buys and sells.

LINKS:

- TC video tutorial on Trades Heatmap - <https://youtu.be/YZCUMtV8rBU>

Volume bars

The advantage of TensorCharts data processing is the ability to study volume in detail and to see both sides of the market. This also applies to volume bars showing traded volume during each interval.

Delta or Sell/Buy bars

Each volume consists of a shaded larger bar, which is the total traded volume, and brighter bars for either:

- delta volume, or
- two bars for each buy and sell volume

The mode of volume bars is dependent on the trades heatmap mode - see the description of trades heatmap.

HOTKEY :

- T = trades heatmap mode

TIPS:

- Look for volume extreme spikes, they often lead to trend reversal moments. On the other side, continuous grow of the volume leads to form stable trend move.

LINKS:

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S/R levels

Support and resistance levels are derived from the trades heatmaps. They show you levels with the largest traded volume in current date range. Unlike volume profile, S/R levels don't aggregate volume and don't sum volume points on the same price level. They can help uncover hidden orders.

The number of S/R levels in the settings panel defines how many levels to show, starting from the largest traded volume

HOTKEY :

- S = decrease number of S/R levels
- R = increase number of S/R levels

TIPS:

- Clusters of several important S/R levels works well as important support/resistance zones.

VWAP - Volume Weighted Average Price

VWAP is calculated as a moving average derived from the price and adjusted by traded volume. This depicts a much more objective average price since it takes into account traded volume distribution.

Standard deviations

VWAP is usually used alongside 1. and 2. standard deviation channels for mean reversion strategies. You can define the interval of averaging as a number of candles in the bottom settings panel, as well as turn on/off the Standard Deviation (Std1, Std2).

For example, if the VWAP is set to a 20-period length, its deviations can produce the same signals as regular Bollinger bands. Thus, look for squeezes in volatility (compressed bands around price) prior to major trending moves in either direction.

HOTKEY :

- W = VWAP on/off

TIPS:

- Set VWAP to 60, click on VWAP, Std1 and Std2 buttons and watch how price reverts back to the center line after crossing Std2 line.

LINKS:

- Investopedia description: <https://www.investopedia.com/terms/v/vwap.asp>

Volume profile

This is one of the best and most objective forms to detect support and resistance, as well as the areas at which price is most likely to either trend or consolidate. It shows in real time the areas where the

most volume has been traded, and thus where speculators have put their stake in the market and their skin in the game.

TC calculates its volume profile from heatmaps which are much more granular and detailed. It can sometimes reveal some hidden/iceberg orders. Red and green color in TC's volume profile show actual buys and sells unlike volume profiles from other charting app where colors represent just a ratio of red and green candles

With the volume profile, price follows three core principles:

1. It bounces off or consolidates around the points of control (PoCs) - the peaks in high value nodes.
2. It avoids or trends rapidly through low volume "wells", the valleys in low value nodes.
3. PoCs attract price; "wells" reject it.

Current range view

Current range view is default and recommended setting to display Volume profile. It plots Volume profile visualisation related to the current situation on the currently displayed price chart scale. When you zoom/unzoom chart or switch timeframes, your Volume profile visualisation will be always recalculated to the currently plotted area.

Fixed Range

Volume Profile for custom range can be generated by clicking on the button next to v_profile settings "fixed", then click and drag to select the range of chart area. Selection tool can be also activated with hotkey X.

Sessions view

Sessions view splits Volume profiles to sessions. Simple type session value and this number will be multiplier of current timeframe value, that means for example if you have 5 min time frame and want to see sessions divided by every hour (60 minutes), just write number 12.

HOTKEY :

- V = toggle **V**olume Profile
- X = **fix**ed range Volume Profile

TIPS:

- Looks for high volume nodes as areas of support and resistance.
- Price will typically spend little time at low volume nodes, they will either function as a strong bounce area or tear through with little support/resistance.

LINKS:

- Joe Zabb's guide on Volume profile:
<https://medium.com/@joezabbs/volume-profile-visible-range-e099f22cd2d7>

SMA, EMA

Multiple lines

Simple and exponential moving averages in TensorCharts can produce crossovers with price, or the famous golden and death crosses. However, when you insert multiple period lengths divided by a comma, you can overlay fishnets on the chart to best gauge for market compression and expansion as related to price.

You can't customize colors of each line, however notice the width of the lines. The higher the period is, the wider the line gets.

Order book

The Order book is a basic part of every standard market structure. When you place a limit order, you are part of the order book even if you do not realize it. When you buy or sell via market order you are taking liquidity directly from order book (you are counterparty to some already pending limit orders in order book). Examination of the order book can bring you another dimension of information that is not visible on a price chart. TensorCharts order book allows you to see the most important information from it and several order book related tools and settings to maximize your output info.

Volume highlighter and charting

Type desired volume level to highlight only order book zones with a larger volume than your number. Use the chart pictogram button to plot these areas to the price chart.

Count

Count function enables to display exact number of limit order on every order book level. You can evaluate importance of price zone not only by the limit orders volume but also intensity. Sometimes you can also spot single large orders that are being send to market to fake short term traders decision making process.

Only available for Bitfinex.

Precision

Precision allows you to see the order book in several ways. You can zoom(+) waiting limit orders to see every single price level detail or unzoom(-) to let TensorCharts count them together on an aggregated scale basis - which is more practical for most traders.

Ask/bid side

Ask limit orders are pending limit order to buy (red colour) and bid limit orders are pending limit orders to sell (green colour). The Order book aggregates them to a vertical row and divides them by the current price level and different colours.

Buy/Sell counter

Measure volume of buyers and sellers for every price level in real time. Have a look at the most attractive zones for both buyers and sellers and quickly spot zones where whales tend to be active.

Book Counter

Measure Order Book pressures by identifying how the volume of limit orders is affecting price change. Focus on the zones where you expect a price reversal to occur and confirm your trade ideas with the Book Counter in real time.

Interval

Select number of rows to display. Number represents the sequence of rows on each side of the market.

Fixed/relative settings

Tweak the Book Counter settings by adjusting the number of rows to consider - fixing them relative to the actual price level, or whichever price you wish to observe.

start/stop

On/off button for the book counter function.

HOTKEY :

- Spacebar = start/stop book counter

TIPS:

- Levels with the largest intensity are important for future market development.
- Zones without large volume are often areas where the price tends to pass by faster than those with larger volume.

Trades feed

Tick Chart

Tick Chart enables you to display the latest order structure in one diagram. Different sizes and colours of stripes represents order buy/sell side and volume.

100 ticks / 10min

See the latest 10 minute order diagram or focus on the last 100 ticks/orders. Tick display is not related to the time parameter but to market behaviour. A fast market means a fast Tick Chart development and vice versa.

Volume filter

Enables filtering of market orders by volume size. Simply type the desired number to display only order above this ratio. Works great in combination with "Sound signal" option.

Currency Converter

Use the calculator pictogram button to display realised orders of any cryptocurrency in its BTC/USD value.

Sound Signal

Is a Sound alert on every trade that you filter. Leave trades filter: volume > 0 to hear sound on every realised trade on the market or set you own desired trades volume level to alert you only on the most important orders. There are different sounds for buy and sell orders and it is very useful for intuitive scalping during a volatile market.

TIPS:

Are you tired of monitoring the market whole day? Set the sound signal to the largest trades to alert you when there is an action on the market. Leave TensorCharts minimised in your browser and open it again when you hear sound signal.

Large Trades Tracker

Track large trades directly in the price chart. This function is very intuitive thanks to the “bubbles” interpretation system. When you turn on the Large Trades Tracker you will see the largest trades directly in the price chart. You can also filter the volume size, buy or sell side and scale of the bubbles. This is one of the most intuitive tools on Tensor with great trading information value.

Settings

Buys/Sells

Select buys and sells or simply one side of the market orders to display via bubbles. Green represents buy (large buys) and red is for large sells.

Minimal volume filter

Leave on default settings as this displays only the most important trades or use filter slider to move minimal volume to display to the desired level. You can also define your filter by value by changing the number in top-right corner.

Bubbles' scale

If you would like to display bigger or smaller bubbles, scale them by increasing the scale number.

TIPS:

Focus not only on the color but also on the bubble clusters. These bubble clusters are often important levels that can be reversal points.

Learn what to anticipate from previous market behaviour on the current day. Are buyers or sellers aggressive today? You will spot them by the large green bubbles and vice versa.

Trades Counter

The Trades Counter is the buyers and sellers' power dominance in one chart. Forget about old fashioned oscillators and divergence price indicators. Monitor buying and selling pressure in real time and see which side of the market gains or loses power.

HOTKEY :

TIPS:

Focus on the overbought and oversold zones and compare these extremes on the price chart; scalpers uses these extremes as short term reversal zones.

See the dominating power on the market and watch how one side of the market loses power as the other gains it - sometimes you can even see this info before the price starts reflecting the reaction.

LINKS:

TC video tutorial on Trades Counters - <https://youtu.be/f7iAl1nf-dQ>

Add/remove

TensorChart user mostly monitors several counters related to different timeframes and volume filters. To add a new Trades Counter click on + NEW button; you can monitor as many counters as you wish all together. To remove an unwanted Trades Counter simply use the X red button on the right side of each counter.

Settings

Set the desired time frame to display in minutes in the first column of each Trades Counter. Set volume limits by typing numbers to ... <V<field. Trades can be filtered out only for counters up to 60 minutes.

You can filter only large orders to compare via the Trades Counter or just monitor trade volume intervals. Several different filters related to the counters with same timeframe settings can be compared together via the group button.

To plot Trades Counter development related to price and time history in separated bubble chart - the Counter Ratio - click on the chart pictogram button.

Counter's ratio chart

This is a visual representation of the action seen in the Trades Counter. Though still an experimental indicator, it functions similarly to an oscillator that gives a sense of when buyers are overtaking sellers, or vice versa.

Look for an increase in the size of the circles, as the larger ones represent overbought or oversold conditions, especially when price action remains in lull. Alternatively, the counter's ratio can provide signals of euphoria (to the upside) or capitulation (to the downside) once a strong trending move is taking place.

Click on the chart pictogram button on the desired Trades Counter. Deselect the previously selected counter by clicking on the chart pictogram button again.

Scripting Module

TC Scripting Module allows you to access all of the data loaded in app. You can easily code and analyze TC data, only basic JavaScript knowledge is required. Scripting Module comes with a few helper functions and libraries to ease your coding.

Basics mechanics of the script: you write a data analysis, define name and interval (milliseconds). So if you set the interval e.g to 2000, it runs every 2 seconds.

CAUTION!

Save copies of your scripts outside TC. Also data structures and API can change in the future.

Data

Description of each data structure is not part of this manual. To study TC data, open browser console (F12) and output desired data to console, e.g. `console.log(trades)`

<code>trades</code>	last 20min of trades feed
<code>largeTrades</code>	last 24h of large trades
<code>orderBook</code>	current orderbook
<code>chartData</code>	trades heatmaps, orderbook heatmaps, candles, volume bars,...
<code>currentRangeChartData</code>	chart data of current range(domain)
<code>counters</code>	your current counters/
<code>market</code>	market name
<code>exchange</code>	exchange name

Each script has its own scope accessible by "self." prefix. You can store there script's state variables for the next script run.

Functions and libraries

TensorCharts provides you few functions and libraries which allow you to enhance capabilities of data analysis scripts and also to interact with TC itself, like charting price lines/annotations or creating your own voice assistant.

Functions

speak(textToSpeech string) - your own voice assistant

beep(type int) - sound alarm (type 1==positive, 2==negative), type can be omitted == default sound

browserNotification(title string, message string) - it creates browser's push notification so you don't have to watch TC all the time

Libraries

simple-statistics library as "**statistics**" object

<https://simplestatistics.org/docs/>

technical analysis library as "**TA**" object

candlesticks and price patterns detection or 25+ indicators

<https://github.com/anandanand84/technicalindicators#user-content-available-indicators>

Drawing functions

There's a basic toolbox for graphing with charts and market analysis. Use pictograms on the left vertical panel of your TensorCharts screen to active the drawing tool and then plot them on your price chart. To remove unwanted drawings from the chart, select the drawing tool on your chart and press the Delete button on your keyboard.

Line

Use the Trend Line drawing tool to plot current trends or price formations. Plot for example Triangle Formations and focus on their edges – keeping an eye out for breakouts - crypto loves Triangle Formation Patterns.

Standard deviation channel

Standard deviation channel can help you to measure price deviations during trend channels.

Parallel channel

Parallel channel drawing to lets you to plot trend channels to support your technical analysis studies.

Fibonacci retracements

Important drawing tool for FIBO traders. Plot Fibonacci extensions on the last swing and trade the pullback on the Fibo levels.

Measure

Measure tool allows you to analyze volume within a defined range/area. Just click and drag your mouse over a chart area and get the data about buy/sell/delta/total volume as well as percentage/nominal price change.

HOTKEY :

- L = **L**ine
- F = **F**ibonacci Retracements
- Y = Ra**Y**line
- D = Standard **D**eviation Channel

- E = **E**quidistant Channel
- M = **M**easure

TIPS:

LINKS:

List of Markets

List of markets covers most of the major exchanges and cryptocurrencies that can be visualised via TensorCharts. Due to continuous expansion of crypto pairs coverage there is a new favorites and search option.

Favorites

Mark you favorites crypto pairs with stars pictograms to create your own custom list of your favorite markets on the top of the whole list.

Search

Use search column to speed up your market selection and to filter only cryptocurrencies that you want to display. You can search by exchange name, currency name or symbol.

Troubleshooting

Can't see the main chart

Try open up TC in incognito mode. If it helps then the problem is in browser's localStorage. You can follow this guide on how to clear your localStorage. Be aware it deletes your TC settings and custom scripts.

<https://superuser.com/a/655198>

Counters ratio chart is empty

You have to turn on counter ratio chart for each of your trades counters. See the chart pictogram next to trades counters settings.

Site is not loading or 502 bad gateway error page.

Check TC twitter account if there's no server maintenance. Otherwise report it please on Discord channel "bug reports".

The site is blank

See the issue above. If it's neither server crash or maintenance and TC is not working in incognito mode, then you have probably old version of browser. TC is built on top of the latest web technology. Upgrade your browser. in order to get the best experience

An alert about timing popped up. What shall I do about it?

Check your clock time (system time). Toggle on and off the automatic system time just to make sure the in-app timing processing is correct.

Bitfinex order book is empty above 10k.

Bitfinex handles orderbook precision differently than other exchanges therefore the orderbook can look empty or buggy during a order transition - 1s->10s->100s->1000s.... Orderbook will readjust its precision once the price is near the limit price.

Site is not loading or 502 bad gateway error page.

Check TC twitter account if there's no server maintenance. Otherwise report it please on Discord channel "bug reports".

Hotkeys are not working.

Hotkey are disabled when your chat box or scripting module is active/open.

Can't delete drawings.

Drawings is still a little bit buggy. You need to select the drawing by dragging the element (line, channel....) and then hit delete. Some mac users reported they need to hit cmd+del button in order to remove a drawing element.

Site layout is different than in your videos. How do I get orderbook next to chart?

Your screen resolution or window size is probably too small. You can also try to decrease site zoom. For chrome users: <https://support.google.com/chrome/answer/96810?hl=en>

I don't see counters ratio chart on mobile phone.

Counters ratio chart is hidden for mobile devices as a part of the performance optimization.

Why I can't filter out some trades counters by volume?

Volume filter of trades counters is limited for intervals less than 60 minutes.

The last candle is few hours old.

Report it in chat box or on Discord. Some pairs/markets data feeds are not stable yet.

Can't scroll more than a few weeks/months back.

TensorCharts is currently showing only data since each market was connected to server. More data will downloaded in the future for exchanges which allow to download tick history

Can I copy settings from one pair to another?

Not at this moment. I should be possible soon with user accounts.

List of key shortcuts

R Increase S/R Levels

S Decrease **S**/R Levels
W **V**WAP
B Order**B**ook heatmap precision
T **T**rades heatmap mode
C **C**andlesticks
V **V**olume Profile
X **F**ixed range Volume Profile
G **L**arge Trades Tracker
SPACE Start/Stop orderbook counter

L **L**ine
F **F**ibonacci Retracements
Y **R**ayline
D Standard **D**eviation Channel
E **E**quidistant Channel
M **M**easure

Others

Color Theme

TensorCharts supports 2 major color themes. You can switch between default black settings to white color theme and vice versa by clicking on the white or black square situated in the right top corner of your TensorCharts screen.

Contact

Twitter: <https://twitter.com/TensorCharts>
Discord: <https://discord.gg/3uE5Rr7>
Reddit: <https://www.reddit.com/r/tensorcharts/>
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Updates and changelogs

17.5. 2018

- numerical description of heatmaps when zoomed in
- trades feed sound signal improved
- measure tool fixed
- 1 day data bug fixed
- first version of <http://docs.tensorcharts.com/> (will be ready at 18:00 UTC)
- few minor bugs fixed

15.5. 2018

- drawings are now persistent across timeframes
- selection of drawings fixed
- volume percentage parameters in measure tool
- measure tool initialization fixed

12.5. 2018

- Measurement tool
- browser CPU load 50% reduction after optimization
- websockets reconnection fixed
- number of rows in trades feed extended
- 3 exchange data feeds libraries updated
- CVD multiple lines glitch fixed
- app styling improved

7.5. 2018

- Fixed range Volume Profile
- draft of manual: <https://goo.gl/pSr25n>
- server status notifications
- filter large trades tracker by defined value (not just slider)
- trades counters limit for volume filter increased from 20mins to 60mins
- side panels hiding
- settings panels design changed
- toggle on/off SMA, EMA, CVD
- volume bars Y axis added
- new scripting module data: currentRangeChartData
- S/R levels detection algorithm changed
- improved chart rendering performance
- chat box moved to the right bottom corner
- browser console message(edited)
- Volume Profile bins settings
- Large Trades Tracker hotkey (G)
- Volume Profile toggle bug fixed

25.4. 2018

- new heatmap colormap

- chart position reload bug fixed
- large timespan will be calculated for 1D and 15min timeframes
- onboarding
- orderbook heatmap increased to 15% price range
- fullscreen price tag fixed
- Bitfinex TRXUSD added
- trades counters minor bug fix
- started documentation <http://docs.tensorcharts.com/> , no content there yet
- lodash support in scripting module
- chrome notification function in Scripting Module
- websocket API change - data bundled into arrays
- backend optimized, should handle larger load

16.4. 2018

- new pairs: Bitfinex NEOUSD and Binance XVGBTC, TRXBTC, ADABTC, EOSBTC, WANBTC, IOTABTC
- new timeframes 1D, 15min and Real-Time
- large trades tracker
- market list menu improved - search and watchlist of favorite markets
- grouping of trades counters by interval + expandable panel
- orderbook range was increased to 80 price levels
- scripting module:
 - new library for technical analysis and pattern recognition
 - possibility to add price level indicator on chart from code
 - beep function has 2 new sounds
- last chart data update timer
- candlesticks switcher, new trades feed sound signal, counters ratio bug fixed, improved styling
- gdax datafeed connection improved
- chart zoom button added

23.3. 2018

- Scripting module (alpha version)
- ability to add annotations/labels on chart from TC scripting module
- new scripts for PRICE_VOL_DELTA_DIVERGENCE and LARGE_LIMIT_ORDER_DETECTION

15.3 2018

- new markets, Binance BNBUSDT, Bitstamp ETHBTC, Bitfinex XRPUSD
- min. volume slider can be switched to value input (see the button "S" in orderbook heatmap settings)
- trades feed sound signal
- volume profile calculated from heatmaps (more precise)
- S/R levels volume labels
- orderbook update rate increased
- two fingers chart panning (moving)

5.3. 2018

- counters ratio dots visibility improved
- chart type toggle button added (candlesticks, heikin ashi, renko)
- book counter relative distance option added
- trades counters render bugs fixed

- binance connection improved
- orderbook heatmaps min volume changed
- ton of minor bugs
- new markets added: Binance VEN/BTC and LTC/USDT