### Drawing Tools and Cursors

Numerous drawing tools exist for decoration and analysis of OHLC category chart trends.

- Trends (Lines, Wedges, Channels, Pennants and Flags).
- Fibonacci Retracements, Zones & Fans.
- Shapes (Blocks, Ellipses and Circles).
- Support-Resistance bars, Period bars.
- Harmonics, both bearish and bullish.
- Cursors for Inspection, Market Replay and EA's.
- Tags, Notes and Free form text.\*
- Regression curves (Linear, Polynomial, Exponential, Sornette's LPPL bubble).

Serialised and persistent across chart instances, customisable URL's, copy-paste functionality.

# Point & Figure Chart Stacks

Point and Figure chart stacks can be constructed from any ordered combination of the following components.

- Legend.
- P & F (Traditional, Percentage, Dynamic).
- Overlays (Price by Volume & Shorts).
- Stacked Charts for Volume and Shorts.
- Mark-ups, Drawing Tools and Cursors.\*

Serialised chart instances, customisable URL's, copy-paste functionality, community sharing. Market Replay fully supported. EA script integration.

## **Chartboard Community**

Chartboard integrates at the user's discretion and customised configuration as summarised below.

- Files
   Manual Workspace, Dataspace, Chart and data sets.
- Email.
   Image, chart and data set attachment exchange.
- Web Integration.
   Activation of customised 3<sup>rd</sup> Party web references (Wiki), video training (youTube), blogs (HotCopper), trading, stock home pages, statistics (Yahoo).

### Data Sources & Exchange

Chartboard's data dependency is satisfied by data sources ranging from fully manual through to on demand remote data services.

• Mark-up data sets (Events, Timelines & Shades, etc).

- End of day OHLCv prices
   Ezychart, Insight Trader, Metastock, Stockezy and CSV.
- Manual file-based exchange of Workspaces, Datastores, Charts and Datasets (Chartboard proprietary formats).
- Short Selling, ASIC data for ASX and Chi-X.
- Trading positions, CSV or manual entry.
- Configurable parsing formats (Yahoo, MarketWatch, etc).

Service based data sources can be locally buffered.

### Python Advisor & Scanning Scripts

Technical analysis via custom embedded python scripts.

- Python 3.8 based with Chartboard Extension Functions (CBEF) and Classes (CBFC). Script edits, debug console.
- Advisor replay support with stepping, data cursors.
- Trade modelling, drawing and mark-up support.
- Extensive stock scans from custom python scripts.
- Python integration with subsequent 3<sup>rd</sup> Party products, Neural Nets, Machine Learning and SQL.

#### Utilities

Chartboard supports the following utilities.

- Modelling and back testing stock trading strategies, Market Replay, stepping, rewind with Expert Advisor integration.
- Portfolio downloads and display.
- Raw data inspection.
- Embedded web page trading, blogs and news feeds.
- Auto monitoring of data download directories.

### Deployment

Chartboard 3.0.\* runs on standard Windows 10+ installations in standalone mode without prerequisites. Subject to the terms and conditions outlined in the license agreement.

- Configured URLs are sample only and should not be considered as an endorsement or content as valid.
- Ivyware is not a licensed investment advice provider. As such the charts, calculations, signals and representations in this product should not be taken to be investment advice.
- Product subject to change and re-release without notice.

Implementation Pending flagged by asterisk (\*).

### Chartboard

Technical Analysis Workspace for, Modelling, Portfolio, Python Advisor & Scanning scripting.



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# Chartboard

# Technical Analysis Workspace

Chartboard deploys as a traditional Windows win64 application based on the concept of a Workspace with the following functionality.

- UNICODE and Ribbon UI centric workspace with docking keyboard and mouse navigation. Session restoration.
- Multiple tabbed views, explorer bars for chart, scripting, data collections, context sensitive properties grid and menus.
- Customised and context sensitive reference URL's.
- Import & export files, Copy & Paste content, drag and drop.
- Regression fitting, linear, polynomial, exponential, LPPL, etc.
- · Chart overlays, Mark-ups, Drawing Tools and Cursors.
- Portfolio integration, Trade modelling, Robo Signals, Market Replay with period stepping, rewind etc.
- Python Advisor & Scanning scripts with debug console.
- OHLC, Point and Figure Category charts and templates.

Chartboard supports both standalone and community modes. Suitable for both investors and SMSF operators.

### Period Units

Workspace supports the following switchable data period units

- Yearly,
- Quarterly,
- Monthly,
- Weekly,
- Daily (both 5 and 7 day weeks)

Ribbon UI switchable for all chart categories with auto context swapping, market replay, stepping and serialisation.

### Chart Stack Categories

Workspace supports the following serialised chart categories.

- Classic OHLC stack (Bar, Candle Stick and Line) with Overlays, stacked Oscillators and Indicators, Mark-ups etc.
- Point and Figure variants (Traditional, Percent and Manual).

Grid properties exist for all the above. Charts are fully serialised and as such may be copied, pasted, exchanged and contents accessible from python Advisor scripts.

### **OHLC Chart Stacks**

Classic OHLC stack constructed from any ordered combination of the following components sharing a common period axis.

- Legend.
- OHLC (Bar, Candles, Heikin-Ashi & Line), (Linear & Log10).
- Overlays.
- Stacked Oscillators and Indicators.
- Mark-ups etc.
- Drawing Tools and Cursors.

Serialised chart instances, customisable URL's, copy-paste functionality, community sharing. Market Replay fully supported. Python script integration.

### Overlays

OHLC chart stacks may be decorated with the following overlays.

- Bollinger Bands (BB).
- Chandelier Exit (Short, Long).
- Ehlers MESA Adaptive Moving Average (MAMA)
- Ichimoku Cloud.
- Harmonics (auto fitted Crab, Gartley, Bat, Butterfly, Shark, etc).
- Kaufman's Adaptive Moving Average (KAMA).
- Keltner channels.
- Simple (SMA) & Exponential (EMA) Moving Averages.
- Multiple Moving Averages (MMA) and 3D Rainbow.
- Parabolic Set and Retrace (SAR).
- PIVOT Points (Standard, Fibonacci, Demark).
- Price Channels (Donchain).
- Price by Volume (PBV) and Shorts (PBS).
- Reversals, Key, Hook, Open-Close, Hammer, Hanging Man.
- Signaline across selective indicators and oscillators
- Tom Demark Indicators (Sequential\*, Countdown, Combo), Moving Averages (TD I, II\*).
- Volume and Shorts.
- Zig-Zag.

Support scanning, serialised, customisable URL's, copy-paste functionality.

### Oscillators & Indicators

Multiple items from the following list can be selected to form the classic OHLC chart stack.

- Aroon.
- Average Directional Index (ADX).
- Average True Range (ATR).
- Chaikin and Chaikin Money Flow (CMF).

- Coppock.
- Commodity Channel Index (CCI).
- Detrended Price Oscillator (DPO).
- Elder Ray (EFI).
- Pring's Know Sure Thing (KST).
- Momentum Structural Analysis (MSA).
- Moving Average Cumulative Distribution (MACD).
- Money Flow Index (MFI).
- On Balance Volume (OBV).
- Place markers (Shades and Mark-ups).
- Price variation bars, Absolute & Percent (PBars).
- Price Momentum Oscillator (PMO).
- Percentage Price Oscillator (PPO).
- Percentage Volume Oscillator (PVO).
- Rate of Change (ROC).
- Ratio comparison (Ratio)
- Relative Strength Index (RSI), stochastics (StochRSI).
- Stochastics Fast, Slow & Full (STO).
- Triple smoothed exponential moving average (TRIX).
- True Strength Index (TSI).
- Volatility or Standard Deviation (STDEV).
- Volume and Shorts (Line, Bars & Opposing Bars).
- Vortex indicator (VTX).
- William's %R (Wm%R).

Selections support Mark-ups, Drawing and Inspection Tools. Stack items may be shuffled, enabled, disabled, added and removed. Serialised and persistent across chart instances with custom URL's and copy-paste functionality.

### Mark-ups

OHLC category charts facilitate the following Mark-ups.

- Announcements.\*
- Event Series (G20, FOMC meetings etc.) (Events).
- Time bars & lines (Timelines). \*
- Portfolio positions. (Trades) and payments (Dividends).
- Modelling positions (Modelling).
- Robo buy sell signals.

Serialised and persistent across chart instances, customisable URL's, copy-paste functionality.