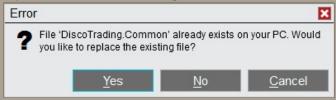


I. Add-on Installation/Update

- 1. Remove previous assembly if you have one installed:
 - Run your NinjaTrader, go to the 'Tools' menu and click 'Remove NinjaScript Assembly...' menu item.
 - In the list of installed assemblies appeared select the indicator you wish to update and press *'Remove'* button.
- 2. Restart NinjaTrader.
- 3. Download the latest assembly (.zip file) from this description page, from the <u>homepage</u> or request a direct link by email.
- 4. Install downloaded assembly:
 - ∘ Go to "Tools" → "Import" → "NinjaScript Add-On...", select downloaded .zip file and press "Open". Then if the installation was correct you will see the success message.
 - Restart NinjaTrader!

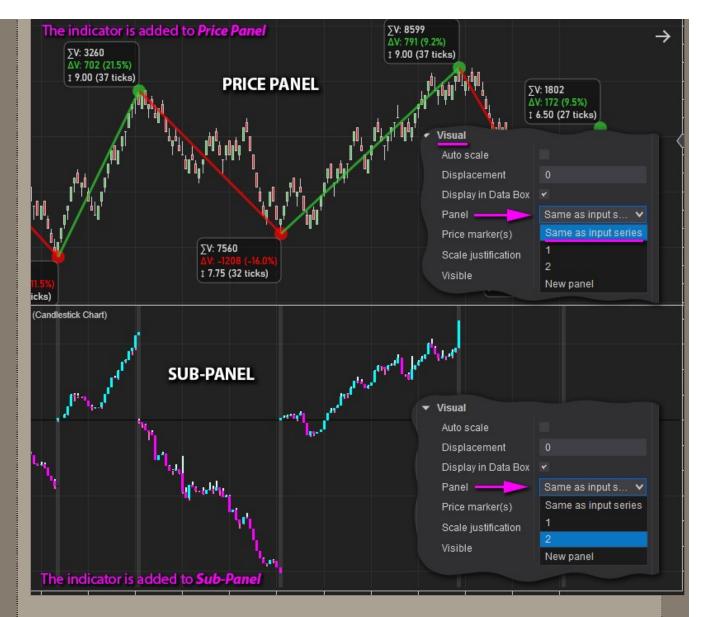
Note: Various Dt add-ons are relying on the same "DiscoTrading.Common.dll" library. NinjaScript Assembly contains the most recent version of the library, so you have to click 'Yes' when asked for replacement of the file during installation.



Remember, it is required to **restart NinjaTrader after add-on installation** before you can add a just installed indicator to a chart.

II. Initial Chart Configuration

The Swings Analyzer NT8 indicator can be applied to a Price Panel or to a SubPanel of a Chart window.



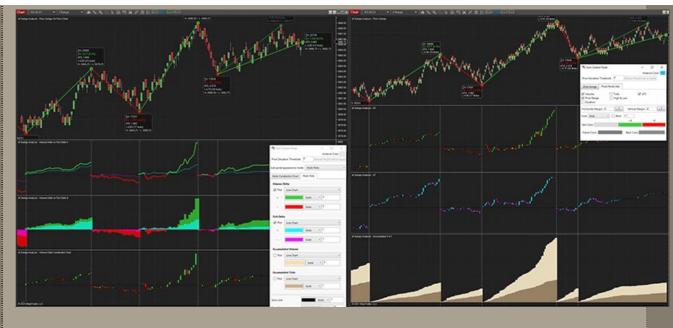
The indicator enables different ways of visualization depending on the sort of panel which it is applied to:

- By default the indicator is applied to the **Price Panel** (*'Panel'* property = *"Same as input series"*). In this case the indicator renders Pivot Points with Price Swings (ZigZag drawing) and prints detailed information related to each Price Swings:
 - o Accumulated Volume and Volume-Delta
 - Accumulated Ticks and Tick-Delta
 - Price Range (in price points and price ticks)
 - High and Low Prices
 - Duration (as time span and number of bars)

Volume — number of contracts or shares traded. Ticks — number of trades (= fills, transactions).

- Alternatively, the indicator can be applied to a **Sub-Panel** ('Panel' property = "New panel" or ≥2). In this case the indicator renders graphs of accumulated metrics in a chosen way: of Price Swings of the chosen metric (Volume-Delta or Tick-Delta).
 - o Delta Candlestick Chart (Volume-Delta or Tick-Delta)
 - Multi Plots (linear graphs of Accumulated Volume, Volume-Delta, Accumulated Ticks, Tick-Delta, combined or separately)

Example:

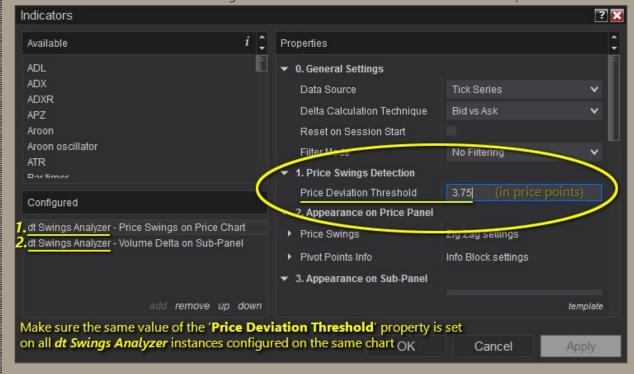


The Workspace is an example which can be used for initial chart setting up.

- 1. <u>Download the archive</u> and unzip the *Dt-SwA-Example-4K.xml* file into "<*Your PC*>*Documents\NinjaTrader 8\workspaces*" folder.
- 2. Then restart NinjaTrader. The new workspace will be available to load in *Workspaces* menu of *NinjaTrader Control Center*. (We chose Workspaces instead of Chart Templates because Chart Templates may not carry all chart appearance settings that are needed. Afterwards you may load the attached workspace and save chart settings as Chart Templates on your own, if necessary.)

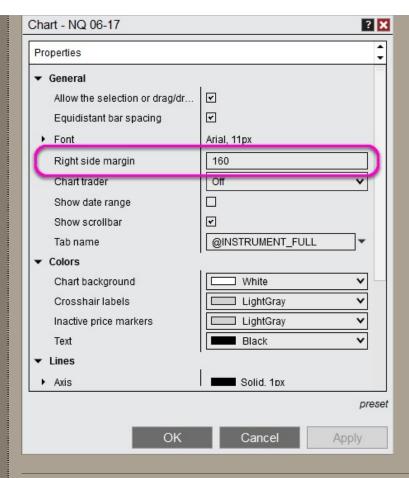
Adding several indicator instances to Chart

Remember! When configuring multiple instances of the *dt Swings Analyzer* indicator on the same chart make sure all the instances are configured with the same *'Price Deviation Threshold'* parameter value!



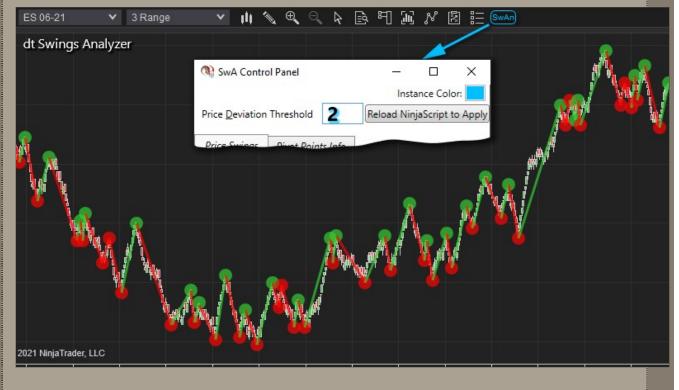
Right side margin

You may also need to increase the 'Right side margin' parameter in Chart's properties window to add more space for the current (developing) "leg" Information mark.



III. Pivots Detection

A very simple and solid technique of pivot points detection and price swings laying out based on Price Deviation is utilized in the indicator. Thus, the 'Price Deviation Threshold' is the core parameter that controls the sensitivity of pivot points detection and therefore affects resulting frequency of price swings.



The 'Price Deviation Threshold' parameter value is measured in Price Points (not Price Ticks!)

Swings Analyzer identifies price pivot points on sub-bar basis, tick-by-tick, transaction-by-transaction as distinct from a common ZigZag indicator. That is, for its computations the Swings Analyzer identifies and internally stores exact ticks inside bars where Pivot Points took place. Although this makes it more precise and less depending on a chosen timeframe, some important considerations should be taken into account: It is recommended to choose timeframe that produces commonly bars of smaller price range than the set value of 'Price Deviation Threshold'.

For instance, the common Ninja's volatility-based *Range* bars type appears to be highly applicable as it visually exposes price swings fairly well.

Remember! When configuring multiple instances of the *dt Swings Analyzer* indicator on the same chart make sure all the instances are configured with the same '*Price Deviation Threshold*' parameter value!

IV. General Settings

• **Delta Calculation Technique**. Both Buying and Selling sides do always participate in every trade. The phrase "Trade Side" is just a term to define which side (Buyer or Seller) is the *initiator* of the trade. The Trade Side defines the sign (+/-) of Delta value of that particular trade therefore:

Delta = "Buying" Volume or Ticks minus "Selling" Volume or Ticks.

The *Delta*, in turn, is a way to estimate the level of aggressiveness of each side on the most basic level. However it is not a direct way as it might be supposed, because you should always compare the Delta against related Price Action to define actual aggressor conqueror (sometimes a passive side who uses solely limit orders behave more aggressive and drive the Market in contrary to the diffused opinion). Moreover, the Delta analysis is only viable in a short-term period.

There are two different ways to determine the initiative side and the Delta therefore:

- **Bid vs Ask** technique. Who (Buyer or Seller) is the initiator of a trade is determined by comparing trade price with established Bid and Ask (Offer) prices at the trade moment. That is, *Delta = Volume traded at Ask price minus Volume traded at Bid price*.
- **Up Tick vs Down Tick** technique. "Buying" volume is the volume traded at Up Tick or after Up Tick and the "Selling" volume is the volume traded at Down Tick or after Down Tick and the *Delta* is the difference between them.

Since the volume- or tick- delta calculations are based on actually happened trades (fills) the both techniques will show true picture of what is transacting. *The only what matters is which technique you are accustomed to.* Many traders still use only old good technique "*Up Tick vs Down Tick*" just because one is working for them. Do not use both at the same time when making trading decisions. Choose *your* 'Delta Calculation Technique' and stick with.

Data Source. Sets the way of gathering historical 1-tick data (data of tick-level granularity).

The indicator needs some time to read and prepare tick data on start up. Set feasible amount of 'Days to load' for your chart to reduce the loading time on start up.

- Tick Series (default) this mode internally utilizes the most generic and native way of obtaining tick data in NinjaTrader.
- Tick Replay is a new way of obtaining historical 1-tick data introduced in NinjaTrader 8. In
 the Tick Replay mode NinjaTrader playbacks historical ticks (tick by tick) to build bars as if
 they had been build live. In order to use this feature it must be manually enabled on the
 primary Data Series in the Data Series settings window.

Bars Types Compatibility

There are Bars Types (Period Types) that have a specific impact on the data flow in NinjaTrader (most of the *Renko, Point and Figure, Line Break*, for example) that makes them be technically inapplicable to use

with order-flow tools. These "bars types" are actually <u>self-sufficient studies!</u>

Such kind of bars types (some of them internally use Ninja's RemoveLastBar() function) tend to produce bars with fake data (at least partially): fake bar open, fake bar high, fake close, fake volume... For example, a price bar built based on some kind of Point and Figure or Renko technique may vary considerably from actual price action occurred on the market during the time of evolving of the bar. Moreover, developing (current) bar may have even bigger volume than after it becomes a historical bar (when new bar is coming). As a new bar is built it can take ticks away from a previous bar. This may be called as 'inconsistent' way to build bars, and this is a main problem of using of such period types with order-flow tools, especially when it comes to processing of live data. Thus these types are incompatible with NinjaTrader's Tick Replay feature either.

Swings Analyzer NT8 constantly performs a basic check of incoming real-time data for consistency and stop working when data inconsistency is detected to prevent showing of unfair data.

The building of the common bars types like Range, Tick, Volume or Time bars are based on consistent, simple and clear logic. Those bars types are compatible with Ninja's Tick Replay feature as well as with the majority of 3-rd party indicators as opposed to the most of Renko bars types, for example. The most of the Renko-bar types, Point and Figure Charting and LineBreak Charting may be excellent tools on on their own — all these bars types are actually *self-sufficient trading tools, studies*, and they should not be used in conjunction with order-flow tools on the same chart just because of the nature of how they are built.

Nevertheless, if you're accustomed to *Renko* bars please take notice of the <u>Consistent Renko Bars Type NT8</u> which is specially designed for better compatibility with order-flow tools. <u>dt Reversal Bars Type NT8</u> is another volatility-based period type which is also compatible with order-flow indicators.



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