NC Swing Profile

User Manual · Version 1.0

A swing indicator with a volume profile inside every leg. It draws the zig-zag, labels each swing and shows where the volume traded from one swing to the next, with each leg's POC and value area. What can still change is kept apart from the confirmed swings. Full source code; no Tick Replay.



Figure 1. NC Swing Profile V1.0 on an MNQ 12-26 5-minute chart. Each leg of the blue zig-zag has its own volume profile, from the leg's low to its high, with its POC (gold) and value area (blue). Each swing has a data box with its structure label, the leg's size in ticks, its volume and, with Show Bars on, its bar count. At the far right, the dotted orange line is the leg that is still forming.

A profile in every leg
Volume at each price from swing to swing, with the POC and value area.

An honest live leg
Committed on closed bars; the live part is dotted and light orange.

Data boxes per swing
Structure, size in five units, volume, delta, divergence.

Levels until touched
Naked POC and VA lines; breakout levels with BOS and CHoCH.

Swing VWAP and Fibonacci
VWAP from the last swings; fibs on the forming and formed leg.

Built for strategies
22 plots, a code API, alerts, and the full C# source code.

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01 Installing and first look

1. In the Control Center, choose **Tools** → **Import** → **NinjaScript Add-On…** and select the NC Swing Profile zip file.
2. Open a chart. Intraday bars (tick, second, minute, range, volume or Renko) give the profile real tick data. Keep the days to load small to start with, for example 3 to 5. Tick Replay isn't needed; leave it off.
3. Press **Ctrl+I**, add **NC Swing Profile V1.0** from the NinjaCodingIndicators folder and click **OK**.

For the profile, the indicator loads its own 1-tick series for the days on the chart. Your data connection must provide historical tick data for that. Bars older than the first tick are filled with an estimate from the bar's own range, and a note in the chart's top-left corner says from when (section 4).

What you see with the default settings

- **The zig-zag** in DodgerBlue: swings found in Pivot mode, with a deviation of 12 ticks and a Hill Size of 2 (section 2).
- **A data box at every swing**, black text on a white box: the structure label (for example `HH1` or `LL3`), the leg's size in ticks (`361t`) and its volume (`Vol 36.3K`). More rows can be switched on (section 6).
- **A volume profile in every leg**: gray rows, the value area in SteelBlue, the POC in Gold, with thin POC, VAH and VAL lines across the leg (section 4).
- **The live part**: a dotted orange temp leg with light-orange boxes and its own half-transparent profile, and a gray forming line from the last swing (section 3).
- **Fibonacci levels** in orange dashes on the forming leg, because **Fibs On Forming Legs** is on (section 9).
- **Off by default:** Swing VWAP, breakout levels, extended levels, delta, the fib on the formed leg, alerts, and most data box rows.



Figure 2. A closer look at the right side of Figure 1. With **Row Granularity (ticks)** 1, every tick is a row. Each leg's rows start at its first bar and grow to the right, scaled to the leg's busiest row. The gold line is the POC and the blue rows are the value area. The dotted leg from HL2 up to HH1 is still forming.

Calculate. The indicator runs **On price change** by default, so the live leg follows price. With **On bar close** there is no live-bar preview; Pivot mode still shows the pivots that wait for their right-side bars.

02 The swing engine

A swing is a high or a low on one bar where the market turned. The **Mode** decides which bars can become swings. One rule then builds the zig-zag in both modes.

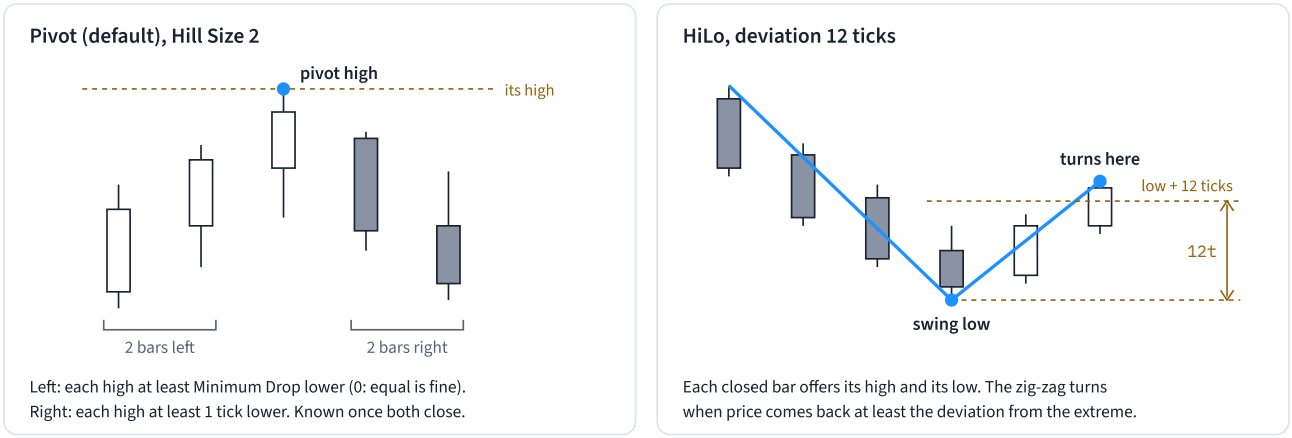


Figure 3. The two modes. Left: a pivot high needs Hill Size bars with lower highs on each side, so it is known Hill Size bars after the turn. Right: in HiLo mode, the swing low is fixed as the zig-zag's turning point once a bar's high reaches 12 ticks above it.

Mode

- **Pivot** (default) builds the zig-zag from pivot bars only. A pivot high is a bar whose high stands above **Hill Size** bars on each side (default 2); a pivot low is the mirror image. Equal highs directly to its left count as one flat top, so the latest bar of a flat top is the pivot. **Minimum Drop** (default 0, in the deviation unit) makes pivots stricter: the side bars must then be at least that much lower. A pivot becomes a swing when it extends the current leg, or when it is at least the deviation away from the last swing.
- **HiLo** uses every closed bar's high and low. The zig-zag turns when price comes back at least the deviation from the last extreme. Hill Size and Minimum Drop are not used.

The swing rule, for both modes

- The last swing of the zig-zag is the **open swing**. If price goes further in its direction (a strictly higher high after a swing high), the open swing moves there.
- A point on the other side that is at least the deviation away becomes a **new swing**, and the swing before it is then fixed for good.
- A bar is never both a swing high and a swing low. On an outside bar, the side that extends the current leg wins.

Deviation

Deviation Unit and **Deviation Value** set how far price must come back before the zig-zag turns. One indicator works on futures, forex and stocks:

- **Ticks** (default): 12 ticks, which is 3 points on ES or MNQ.
- **Points:** a price distance.
- **Percent:** a percentage of the open swing's price.
- **ATR:** a multiple of the ATR (**ATR Period**, default 14) of the bar before the turning bar. That value is already final, so the live preview and the confirmed swing always use the same threshold.

Swing Source

Swing Source HighLow (default) finds swings on bar highs and lows. **Close** makes the engine read each bar's close as its high and its low, so the zig-zag runs from close to close in both modes, and the forming line follows the closes too. Breakout tests, level touches, Swing VWAP, the volume profile and ATR still use the real bars.

03 Confirmed, temp and forming

A swing indicator that redraws its past makes old charts look better than they traded. NC Swing Profile keeps what is final apart from what is still forming.

- **Committed swings** are decided on closed bars only, from each bar's open, high, low and close. A reload of the same data gives the same swings, boxes and profiles you saw live. Every swing except the open one is fixed. The open swing can only move further in its own direction, on a closed bar, until the zig-zag turns away from it.
- **The temp leg** is dotted, in **Temp Leg Color** (Orange, Dash). It shows a swing that is pending: one the live bar would add, or a pivot still waiting for its right-side bars. It follows price, and can turn solid, move or vanish. Its points get light-orange boxes (**Temp Leg Background Color**, PeachPuff) with what the leg would read if it confirmed, and the leg gets its own profile at half opacity. There can be more than one temp segment, and every point gets a box.
- **The forming line** runs from the open swing to the furthest price reached since then, live bar included. It is gray (**Forming Leg Color**) while that move is smaller than the deviation, and turns to the Temp Leg Color once it reaches it. When a temp leg is pending, the temp leg is drawn instead.
- **A moved open swing**: when the live bar goes past the open swing, the whole would-be leg is drawn as one dotted leg from the swing before it. The old solid segment, its box and its profile are hidden meanwhile. If the swing commits at the new point, the solid line and the white box come back there; if not, they come back where they were.

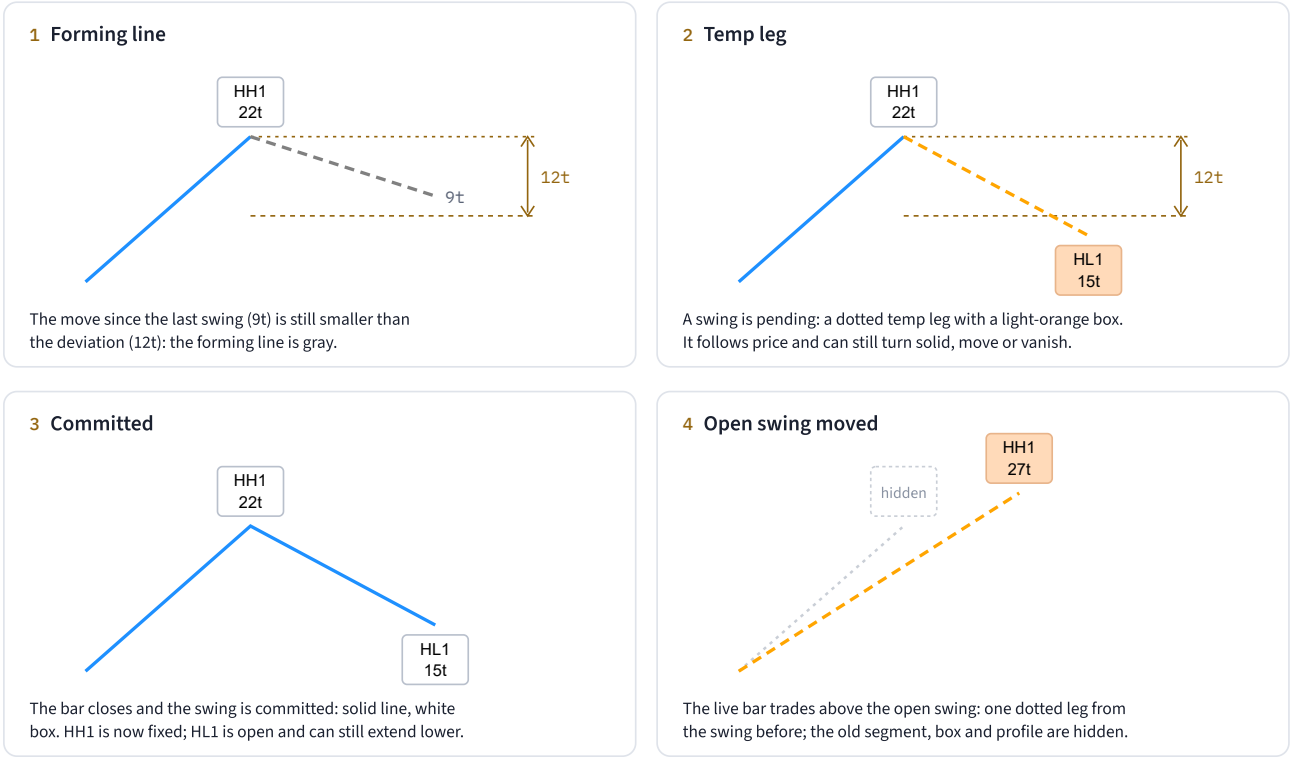


Figure 4. The live leg, step by step, in HiLo mode with a deviation of 12 ticks. Anything dotted, light orange or half transparent can still change. Everything in the normal colors is committed.

The light orange is a warning color: it marks every box that belongs to the live part. You can hide the forming boxes with **Show Temp Leg Data** and the forming profile with **Show Temp Leg Profile**. The temp leg itself is always drawn.

04 A volume profile in every leg

A **volume profile** shows how much volume traded at each price. NC Swing Profile builds one for every leg: from the leg's first bar to its last, and from its low to its high. Both swing bars belong to the leg, so two neighboring legs share the bar where they meet. The rows start at the leg's first bar and grow to the right.

Where the volume comes from

- **Profile Source and Source Granularity** pick the data. **Ticks** with granularity **1** (default) puts every trade at its own price, which is exact. **Seconds** or **Minutes** (for example Seconds 5) use small bars instead and spread each one's volume evenly over its own high–low range. That loads faster but is less exact per price.
- Each source bar is added once it has closed. With a 1-tick source every trade counts at once. With Seconds or Minutes, the live leg's profile catches up each time a source bar closes.
- Pick a source finer than your chart's bars. On a Day, Week, Month or Year chart, or when the source is coarser than the chart's bars, the profile uses the chart's own bars, each bar's volume spread over its range, and a note says so.
- When **Show Profile**, **Show POC** and **Show Value Area** are off, **Extend Levels** is None and no delta feature is on, no extra data is loaded at all.

Rows

- **Row Granularity (ticks)** is the row height, 1 tick by default. Rows sit on a fixed price grid. Raise it on legs with a wide range, as in Figure 5.
- **Max Row Width (%)**: the busiest row spans 70% of the leg's width, and the other rows are scaled to it. Each leg is scaled to its own busiest row, so a quiet leg reads as clearly as a busy one.
- A leg that is only one bar wide still gets one bar's width, so it stays visible.



Figure 5. The same legs as Figure 2 with a larger **Row Granularity (ticks)**. Fewer, taller rows show the shape of each leg at a glance, and the POC row becomes a thick gold band. Each row then covers more prices.

POC and value area

- The **POC** (point of control) is the row with the most volume: the price where the leg did most of its business. Its price is the middle of that row. When two rows tie, the one nearer the leg's middle wins, then the lower one.
- The **value area** is the band of rows around the POC that holds **Value Area (%)** of the leg's volume, 70% by default. It starts at the POC, compares the next two rows above with the next two below, adds the busier side, and repeats. **VAH** (value area high) is the top of its highest row; **VAL** (value area low) the bottom of its lowest row.

- Colors: the POC row in **POC Color** (Gold), value area rows in **Value Area Color** (SteelBlue), the rest in **Profile Color** (Gray), all at **Profile Opacity (%)** 40.
- **POC/VA Lines** (default All) draws thin 1-pixel lines across the leg: None, POC, VAH, VAL, VA (both VAH and VAL) or All. The POC line is in POC Color, the others in **VAH Color** and **VAL Color** (both SteelBlue).

Buying and selling per row

- **Delta** is buy volume minus sell volume. A trade at or above the ask counts as a buy, one at or below the bid as a sell. A trade between the two counts in the volume but on neither side.
- **Delta Rows** (off) tints every row except the POC row in **Buy Color** (MediumSeaGreen) or **Sell Color** (IndianRed), in place of the profile and value area colors. A balanced row gets 30% of the profile opacity, a one-sided row the full opacity. The POC row and the lines stay as they are.
- **Delta Method BidAsk** (default) compares each trade with the bid and ask stored with it in NinjaTrader's tick history, and with the live quote in real time. A trade without a usable quote is sorted by uptick/downtick instead, and a note says so. **Tick** uses uptick/downtick for every trade and never shows the note.
- **Calculate Delta** (off) loads delta even when no delta row is shown, for strategies and the code API. On a chart you rarely need it: Show Delta, Delta Rows and Show Divergence load delta on their own.
- Delta needs **Profile Source** Ticks with **Source Granularity** 1, because only single trades can be sorted. Bars filled by the estimate carry no delta.

The live leg's profile

- Each committed leg's profile is worked out once, when all its bars are final, and kept. Reloading the same data gives the same profile.
- The last committed leg, the one into the open swing, grows while the open swing extends.
- With **Show Temp Leg Profile** on, every temp leg gets its own live profile at half opacity. For a moved open swing it is one profile for the whole would-be leg, and the committed one is hidden until the preview ends, so the two never overlap.

Chart notes

When the indicator has to fall back on something, it says so once, in the chart's top-left corner and as a warning in NinjaTrader's log.

Note	What it means
The profile source needs an intraday chart; using the chart's own bars.	A Day, Week, Month or Year chart, including Heiken Ashi, Kagi, Line Break and Point & Figure built on them. Intraday source bars can't be matched to daily bars.
The profile source is coarser than the chart's bars; using the chart's own bars.	For example Minutes 5 on a 1-minute chart. Pick a finer source. On tick, range or Renko charts the indicator can't compare, so choose a source finer than your bars yourself.
No source data before <date and time>: older bars use the bar estimate.	Your connection has less source history than the chart has bars. Older bars get the estimate; real data replaces the estimate where it arrives later. Without any source data the note reads “No source data: all bars use the bar estimate.”
Delta needs Profile Source Ticks with Source Granularity 1.	Calculate Delta, Show Delta, Delta Rows or Show Divergence is on with another source. Delta is not shown.

Note	What it means
Some ticks have no stored bid/ask: those trades are sorted into buys and sells by uptick/downtick.	Delta Method BidAsk found trades with a missing or crossed quote. Only those trades use uptick/downtick. Delta Method stays as you set it.

05 Levels that run until touched

Many traders watch a leg's POC after the market has left it: a POC that price hasn't traded back to yet is often called a **naked POC**. **Extend Levels** keeps those lines on the chart.

- **Options:** None (default), POC, VAH, VAL, VA (both VAH and VAL) or All, the same list as POC/VA Lines.
- **Which legs:** finished legs only. A leg is finished once a newer swing exists after it and its last bar is final. The live leg and the last leg are still changing.
- **How far:** each line continues its in-leg line from the leg's last bar to the right, until a later bar's high–low range reaches the level (within half a tick, so a wick counts). It stays drawn up to that touch. A line nobody touched runs to the latest bar. The leg's own last bar never counts as a touch.
- **No touch is missed:** a leg only becomes finished when its next swing appears, which can be bars later. Its levels are then checked against the bars already passed.
- **Look:** 1 pixel at full opacity, in POC Color, VAH Color and VAL Color. They are drawn even when Show Profile is off.
- **For strategies:** the nearest untouched POC above and below price are plots 14 and 15, and every untouched level is in `UntouchedLevels` (section 11).



Figure 6. Extend Levels POC. Each finished leg's POC runs right until price touches it. The lowest one has not been touched yet and spans the rest of the chart.



Figure 7. Extend Levels All, with VAH Color set to green and VAL Color to red. The gold bands are the POC rows. At the top right, the forming leg's box (HH2) is light orange because that swing is not confirmed yet.

06 Data boxes

Every swing gets a box about the leg that ends there. The rows appear in this order, each with its own checkbox in the **Data Display** group; rows that are off are skipped. Forming points get the same rows on a light-orange box.

Setting (default)	Example	What it means
Show Structure Label (on)	`HH2` `LH1 DT`	**HH** higher high, **LH** lower high, **HL** higher low, **LL** lower low, each against the previous swing on the same side. An equal high counts as LH, an equal low as HL. The count runs while the label repeats: HH2 is the second higher high in a row. The first swing high and the first swing low have no label.
Double Top/Bottom Tolerance (ticks) (2)	`LH1 DT` `HL2 DB`	Adds **DT** (double top) or **DB** (double bottom) when a swing is within this many ticks of the previous swing on the same side. It shows even with the structure label off. 0 switches it off.

Show Leg Size (on)	`361t · 90.25`
	`0.62% · 2.2 ATR`
	`$359`
		The distance from the previous swing, in the **Leg Size Unit** (below).

Show Retracement (off)	`Ret 67%`	This leg's size against the leg just before it, in %. 67% means the move gave back two thirds of the previous one.
Show Speed (off)	`Spd 4t/bar`	The leg's size divided by its bars, in the size unit.
Show Leg Volume (on)	`Vol 67.8K`	The bar volume of all the leg's bars, both swing bars included. K for thousands, M for millions.
Show Avg Volume per Bar (off)	`Avg 13.6K/bar`	Leg volume divided by the leg's bars.
Show Volume Change (off)	`Vol chg +40%`	This leg's volume against the previous leg in the same direction: an up leg against the previous up leg. No row when there is no earlier leg to compare.
Show Volume per Tick (off)	`V/t 125`	Leg volume divided by the leg's length in ticks: how much volume it took to move price one tick.
Show Delta (off)	`Δ +773 (+2%)`	The leg's delta, and the delta as a share of the profile's volume. Needs Profile Source Ticks with granularity 1.
Show Divergence (off)	`Div ▼` `Div ▲`	▼ bearish: a higher high on weaker delta than the previous up leg. ▲ bullish: a lower low with less selling than the previous down leg. Only at HH and LL. Needs delta, which it loads like Show Delta.
Show Bars (off)	`6 bars`	The leg's bars, both swing bars counted: a low and a high seven bars later make 8 bars.
Show Duration (off)	`30m`	From the open of the first bar to the close of the last, for example 45s, 12m, 1h 25m or 3d 4h. Six 5-minute bars are 30m.
Show POC (off)	`POC 27449.00`	The leg's POC price.
Show Value Area (off)	`VA 27412.00–27460.00`	The leg's VAL and VAH.

The volume row uses the chart's bar volume. The profile is built from its own source data, so its total can differ slightly from the Vol row when the tick and bar histories don't match exactly.

Leg Size Unit

- **Same As Deviation** (default) uses the Deviation Unit.
- **Ticks:** `361t`. **Points:** in the instrument's price format, `90.25`. **Percent:** the distance divided by the leg's start price, `0.62%`. **ATR:** the distance divided by the ATR at the leg's start bar, `2.2 ATR`, so the size only changes when price does.
- **Dollars:** the distance × the instrument's point value × **Contracts** (default `1`), as if the whole move had been traded. Amounts below $100 show cents (`$80.50`), larger ones don't (`$1,250`). It uses the instrument's own currency but always shows a "$".
- The unit applies to the Size and Speed rows only. The LegSize plot and the code API stay in the deviation unit.



Figure 8. Leg Size Unit Dollars with only the size row on. Each box shows the whole move in dollars for one contract, from $122 to $359.

Volume change and retracement

The two rows compare a leg with different legs. Retracement looks at the leg just before; volume change skips back to the last leg in the same direction.

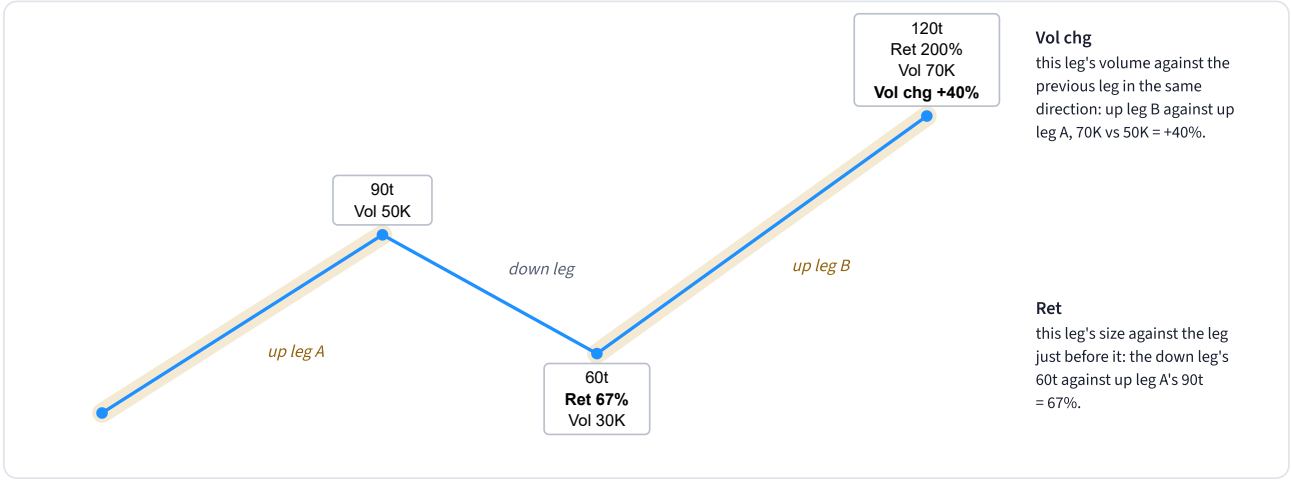


Figure 9. Three legs with Show Retracement and Show Volume Change on. The highlighted up legs are the pair that Vol chg compares. The down leg has no Vol chg row here because its own previous down leg is off the picture.

Delta and divergence

A **divergence** is a new extreme that the order flow doesn't back. At a higher high, the leg's delta is compared with the previous up leg's: weaker buying gets **Div ▼**. At a lower low, it is compared with the previous down leg's: less selling gets **Div ▲**. Lower highs and higher lows get no divergence mark.

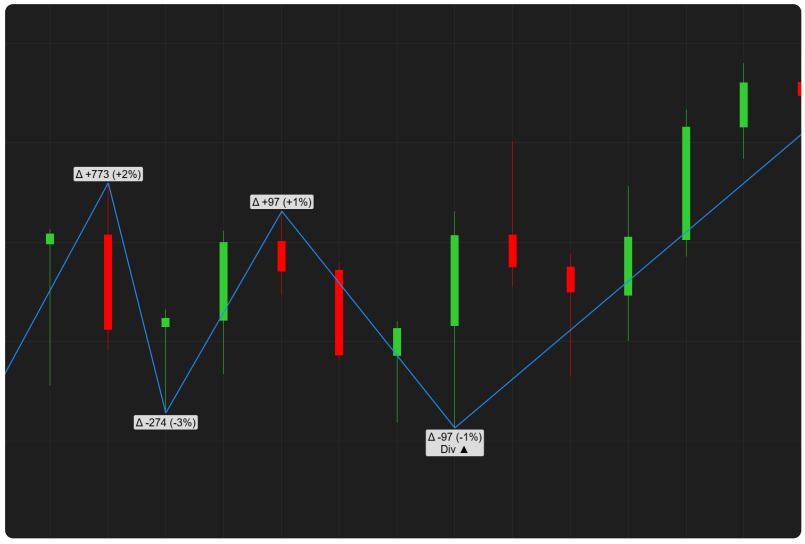


Figure 10. Show Delta and Show Divergence, with the other rows off. The lower low on a delta of -97, after a down leg with -274, gets Div ▲: price went lower on less selling. The lower high (+97 after +773) gets no mark, because divergence is only checked at higher highs and lower lows.

The look of the boxes

- **Font Size** 10, **Text Color** Black on **Background Color** White, **Background Opacity (%)** 85, so the boxes read on dark and light charts alike. Forming boxes use **Temp Leg Background Color** (PeachPuff).
- Boxes sit above swing highs and below swing lows, **Label Offset (ticks)** 2 away from the swing.
- The boxes are part of Auto Scale, so they always fit on screen. If the tallest boxes above and below would take more than 80% of the panel, only the swing points are kept in range, so the bars are never squeezed flat. Turn this off with the indicator's own **Auto scale** checkbox.

07 Swing VWAP

VWAP (volume-weighted average price) is the average price paid, where each price counts as much as the volume traded there. An **anchored** VWAP starts counting at a chosen bar. Here the anchors are the swings: the curve shows the average price of everyone who traded since the last swing high, or since the last swing low.

- **Show Swing VWAP** (off) draws two curves: from the last swing high in **From Swing High Color** (Orchid), and from the last swing low in **From Swing Low Color** (Turquoise).
- Each counts from the swing bar (included) with the typical price, (high + low + close) / 3, and the volume of the chart's own bars. It needs no tick data. A stretch with no volume shows the typical price.
- A curve starts again whenever its swing moves or a newer swing appears. It is drawn bar by bar to the live bar, then runs flat to the right edge of the chart, into the future.
- **Lookback (legs)** 1 (1–10): with 3, the high curve starts at the third most recent swing high and the low curve at the third most recent swing low, so each covers the last three legs in its direction and everything between. With fewer swings it starts at the oldest one.
- **Collapse Into One** (off) draws a single curve instead, from the older of the two anchors, in **Collapsed Color** (MediumPurple).

- **Width** 2, **Style** Solid. The values are calculated whether the curves are shown or not, and are plots 20 and 21 for strategies.



Figure 11. Swing VWAP with Lookback (legs) 1, drawn dotted here. The upper curve starts at the last swing high, the lower one at the last swing low. From the live bar both run flat into the future, as levels to watch.



Figure 12. Swing VWAP with a long Lookback (legs). The two curves now share almost all their data, so they run almost together over many legs. This is expected; Collapse Into One draws them as one.

08 Breakout levels

A swing high is a price the market refused to go above, and a swing low one it refused to go below. When price breaks through one of them, the structure of the market has changed. **Show Breakout Levels** (off) draws these levels and labels each break.

- **The levels:** the latest finished swing high, in **Bullish Color** (LimeGreen), and the latest finished swing low, in **Bearish Color** (Crimson). A swing is finished once the zig-zag has turned away from it. Each level runs from its swing bar to the live bar.
- **A break:** with **Break On** Close (default), a bar closes beyond the level by more than **Break Threshold**. With Wick, its high or low does. The threshold is in the deviation unit; 0 means any amount beyond the level. The line stops at the breaking bar.
- **BOS** (break of structure): a break in the direction of the trend, so the trend carries on. **CHoCH** (change of character): a break against the trend, often the first sign that it is turning. The trend is simply the direction of the last break, and the first break on the chart is a BOS. With **Show Labels** on, the label sits in the middle of the broken line.
- **Replaced levels:** when a newer swing on the same side finishes before the level breaks, it takes over. The old line stops at the new swing's bar, without a label. A broken swing never comes back as a level.

- **Timing:** in HiLo mode each closed bar is checked at once. In Pivot mode a bar is checked once it is Hill Size bars old, when every swing it could break is known. The break is then drawn on its true bar, with the same short delay as the pivots themselves.
- **Width** 1, **Style** Solid. Breaks are worked out whether the levels are shown or not, for plots 16 to 19, the code API and **Alert On Break**.



Figure 13. Breakout levels with labels. Green lines start at swing highs, red lines at swing lows. Each labeled line ends on the candle that broke it: two BOS up, a CHoCH down against the up trend, then two BOS down, and a CHoCH up. Lines without a label were replaced by a newer swing.

09 Fibonacci

Fibonacci levels split a leg at fixed percentages. Traders use them for two questions, and each has its own checkbox:

- **Fibs On Forming Legs** (on): “where could a pullback from here stop?” A fib on every dotted temp leg, since there can be more than one. When there is none, it goes on the last solid leg, whose end is the open swing and can still move. A moved open swing counts as one forming leg from the swing before it. **Forming Color** Orange, **Forming Style** Dash.
- **Fibs On Formed Leg** (off): “how deep is the current move into the leg before it, and where does it go if it breaks through?” A fib on the newest leg with both ends fixed. While the last solid swing is still open, that is the leg before it. **Formed Color** DodgerBlue, **Formed Style** Solid.

Which way the levels count

- **0% is the leg's end**, its newest extreme, and **100% its start**. So 61.8% is a 61.8% pullback of the leg: price = end + (start − end) × percent / 100.
- Levels above 100% lie past the start, as targets for a move that retraces the whole leg and breaks through. Negative levels lie past the end.
- **Levels** (%) holds the list, by default `0, 23.6, 38.2, 50, 61.8, 78.6, 100, 127.2, 161.8, 261.8`. Separate the values with commas, semicolons or spaces. Invalid entries are skipped, duplicates dropped, and the list is sorted.
- Each level runs from the leg's start bar to the right edge of the chart, **Width** 1. With **Show Level Labels** on, the label, for example `61.8%  28563.00`, sits at the right edge just above the line, in the fib's color.
- Fib lines are not part of Auto Scale, so levels far from price can be off screen until you drag the price scale.

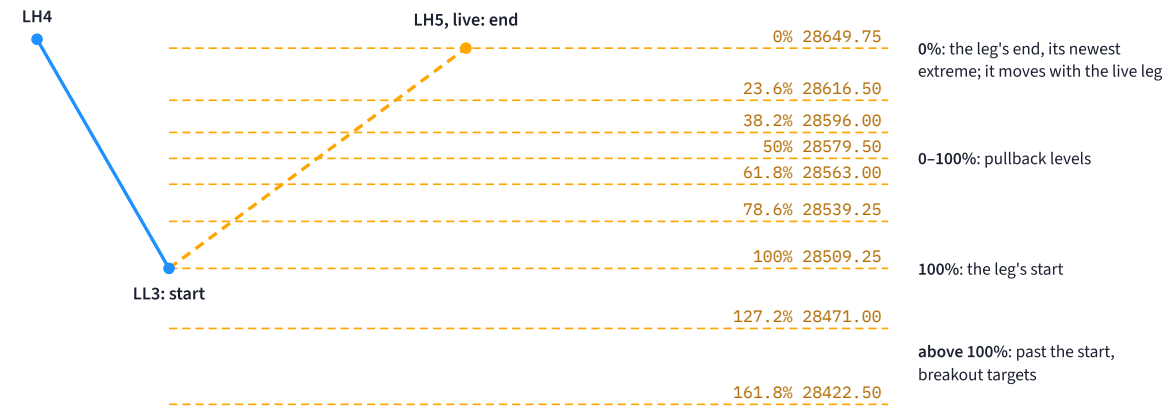


Figure 14. The levels of the forming leg in Figure 15, LL3 up to the live LH5, with the same prices (261.8% is below the picture). A down leg is the mirror image, as in Figure 16.



Figure 15. Fibs On Forming Legs: orange dashed levels on the forming leg from LL3 to the live LH5, with its light-orange box. 0% sits at the live high (28649.75) and moves with it; 100% is at LL3 (28509.25).



Figure 16. Fibs On Formed Leg: blue levels on the newest leg with both ends fixed, LH4 down to LL3. 0% is at LL3 (28509.25), 100% at LH4 (28655.50), and 127.2% and 161.8% lie above it. The boxes here show the size in ATR, Vol, Avg and Vol chg.

10 Alerts

Two alerts, both off by default. They fire in real time only, at most once per bar each, show in NinjaTrader's Alerts log and play the Alert2 sound.

- **Alert On Swing**: a swing high or low is confirmed, meaning the zig-zag has turned away from it and it is final. The message reads “NC Swing Profile: swing high confirmed” or “… swing low confirmed”.
- **Alert On Break**: a breakout level breaks. The message ends in “BOS up”, “CHoCH up”, “CHoCH down” or “BOS down”. It works even when Show Breakout Levels is off.

11 Using it in a strategy

NC Swing Profile gives a NinjaScript strategy 22 plots and a set of code members. Every plot holds what was known when its bar closed, and is never rewritten backwards. 0 means “nothing yet”. The plots are transparent and shown in the Data Box, and they don't affect Auto Scale.

#	Plot	Value
0	`Direction`	+1 open swing is a high (leg up), -1 a low
1	`SwingConfirmed`	+1 a swing high became final, -1 a low
2	`LastSwingHigh`	price of the last final swing high
3	`LastSwingLow`	price of the last final swing low
4	`StructureHigh`	+N = HH N, -N = LH N (last final high)
5	`StructureLow`	+N = HL N, -N = LL N (last final low)
6	`BarsSinceSwing`	bars since the last final swing
7	`LegSize`	last finished leg, in the deviation unit
8	`LegVolume`	last finished leg's volume
9	`LegBars`	last finished leg's bars
10	`LegDelta`	last finished leg's delta (needs delta)
11	`LegPoc`	last finished leg's POC
12	`LegVah`	last finished leg's VAH
13	`LegVal`	last finished leg's VAL
14	`UntouchedPocAbove`	nearest untouched POC above the last close
15	`UntouchedPocBelow`	the same, below
16	`BreakEvent`	+2 BOS up, +1 CHoCH up, -1 CHoCH down, -2 BOS down
17	`Trend`	+1 / -1, the direction of the last break
18	`BreakLevelHigh`	the live breakout level above
19	`BreakLevelLow`	the live breakout level below
20	`VwapFromHigh`	VWAP from the swing high, or the single curve
21	`VwapFromLow`	VWAP from the swing low (0 when collapsed)

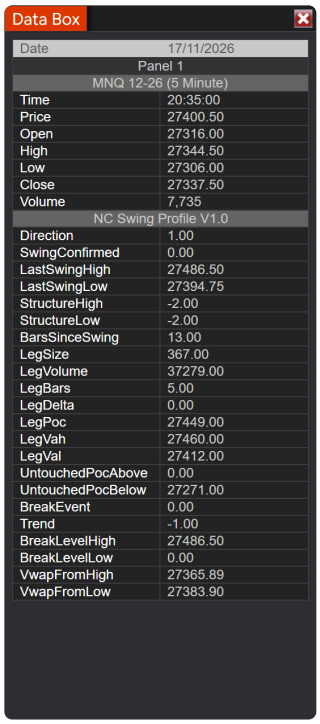


Figure 17. The 22 plots in the Data Box. Here the leg is up, the last final high is an LH2 and the last final low an LL2, the trend is down, and there is no untouched POC above price.

- A swing is **final** once the zig-zag has turned away from it. The **last finished leg** is the leg that ends at the last final swing. The open swing's leg can still grow, so it isn't in the plots. SwingConfirmed and BreakEvent are pulses: they hold their value for the bar the event becomes known, then go back to 0.
- Plots 10 to 15 need the profile data and are 0 without it. LegDelta, and the API's `LegDelta` and `Divergence`, also need delta (section 4). From a strategy, pass **Calculate Delta** = true (parameter 10). On a chart, Show Delta,

Delta Rows or Show Divergence load it too.

- Swing VWAP, breakouts and the untouched levels are calculated whatever the Show checkboxes say; those only control the drawing.

Code API

For more than the latest values, the indicator has these members. Each brings the indicator up to date and returns a fresh copy, so read it once per bar and keep the result.

Member	What you get
`FinishedSwings`	A list of `SwingInfo`, oldest first: every swing except the open one.
`OpenSwing`	The last swing as a `SwingInfo`, which can still extend; null before the first swing.
`GetLegProfile(index)`	The profile of the leg that ends at swing `index`, numbered as in FinishedSwings (from 1; `FinishedSwings.Count` is the leg into the open swing). `Rows` with Low, High, Volume and Delta, plus Poc, Vah, Val, Total and Delta. Null when there is no profile.
`UntouchedLevels`	Finished legs' POC, VAH and VAL lines that price hasn't touched yet: Kind (Poc, Vah or Val), Price and StartBar.
`BreakLevels`	Every breakout level so far: Price, IsHigh, StartBar, EndBar (-1 while live) and Label (BOS, CHoCH, or empty for a replaced or live level).
`FibLevels`	The forming fib or fibs and the formed fib, worked out whatever the Fibonacci checkboxes say: IsForming, StartBar, StartPrice, EndBar, EndPrice and Levels, each with Percent and Price. There are no fib plots.

`SwingInfo` holds `Bar`, `Time`, `Price`, `IsHigh`, `Structure` ("HH", "HL", "LH", "LL", or empty for the first high and low), `StructureCount`, `LegSize` (deviation unit), `LegVolume`, `LegBars`, `LegDuration`, `LegDelta`, `Poc`, `Vah`, `Val`, `Retracement` (%), `VolumeChange` (%, NaN when there is no earlier leg in the same direction), `IsDouble` and `Divergence` (-1, 0 or +1).

Parameters and data series

The indicator takes 10 parameters from code, in this order. The enums are nested in the indicator, for example `NCSwingProfile.SwingModeType.Pivot`.

#	Parameter	Values	Default
1	**Mode**	`SwingModeType`: Pivot, HiLo	Pivot
2	**Swing Source**	`SwingSourceType`: HighLow, Close	HighLow
3	**Deviation Unit**	`DeviationUnitType`: Ticks, Points, Percent, ATR	Ticks
4	**Deviation Value**	double	12
5	**ATR Period**	int	14
6	**Hill Size**	int	2
7	**Minimum Drop**	double	0
8	**Profile Source**	`ProfileSourceType`: Ticks, Seconds, Minutes	Ticks
9	**Source Granularity**	int	1
10	**Calculate Delta**	bool: load delta even when no delta row is shown	false

The indicator adds a data series for its profile from Profile Source and Source Granularity. NinjaTrader needs the hosting strategy to add the same series: `BarsPeriodType.Tick`, `Second` or `Minute` with the granularity as its

value. With the defaults that is a 1-tick series.

```
// at the top of the strategy file, with the other using lines
using SwingProfile = NinjaTrader.NinjaScript.Indicators.NinjaCodingIndicators.NCSwingProfile;

private SwingProfile _swing;

// in State.Configure: the series the indicator adds with its defaults
AddDataSeries(BarsPeriodType.Tick, 1);

// in State.DataLoaded: Mode, Swing Source, Deviation Unit, Deviation Value,
// ATR Period, Hill Size, Minimum Drop, Profile Source, Source Granularity, Calculate Delta
_swing = NCSwingProfile(SwingProfile.SwingModeType.Pivot,
    SwingProfile.SwingSourceType.HighLow, SwingProfile.DeviationUnitType.Ticks,
    12, 14, 2, 0, SwingProfile.ProfileSourceType.Ticks, 1, true);

// in OnBarUpdate
if (BarsInProgress != 0)
    return;

if (_swing.BreakEvent[0] == 2)
    Print(Time[0] + "  BOS up, trend " + _swing.Trend[0]);

if (_swing.SwingConfirmed[0] == -1)
{
    var swings = _swing.FinishedSwings;
    var low = swings[swings.Count - 1];

    Print(low.Structure + low.StructureCount + " at " + low.Price
        + ", leg POC " + low.Poc + ", leg delta " + low.LegDelta);
}

foreach (var fib in _swing.FibLevels)
{
    if (fib.IsForming)
        continue;

    foreach (var level in fib.Levels)
    {
        if (level.Percent == 61.8)
            Print("61.8% of the formed leg: " + level.Price);
    }
}
```

- The `using` alias keeps the enum names short. Inside a strategy, the name `NCSwingProfile` on its own is the method that creates the indicator.
- Keep the strategy's own logic under `BarsInProgress == 0`, since the added series calls `OnBarUpdate` too.
- In the Strategy Analyzer the profile needs historical data of the source series for the test period. Tick Replay isn't needed.

12 Making it yours

You get the full C# source code, and it's yours to keep. Read it, change it, extend it yourself or with an AI assistant like Claude. Everything is in one file, `NCSwingProfile.cs`, split into regions that each do one job:

Region and main parts	What it does
Swing Engine: `SwingBuilder`, `PivotTester`, `PointSource`, `FormingLine`	The swing rule, the pivot test, the commit on closed bars and the live preview (sections 2 and 3).
Leg Data: `StructureLabeler`, `LegStats`, `LabelText`	Structure labels, leg sizes and units, the box rows and their text (section 6).
Volume At Price: `BarVolumeStore`, `TradeBarFinder`, `SourceNote`	The source series, matching trades to bars, buying and selling, the bar estimate and the chart notes (section 4).
Leg Profile: `LegProfile`, `LegProfileCache`, `LevelTracker`	Rows, POC, value area, and the levels that run until touched (sections 4 and 5).
Swing VWAP, **Breakout Levels**, **Fibonacci**	`AnchoredVwap`, `BreakoutTracker`, `FibLegs` and `FibMath` (sections 7 to 9).
Values, **Strategy API**, **Strategy Values**	The 22 plots and the code members (section 11).
Rendering	All drawing, in `OnRender`: profiles, zig-zag, boxes, levels, VWAP and fibs.

Ideas you could add

Your own signal plot
Turn a divergence or a double top into a plot your strategy can read.

Delta filters
Only take a BOS when the breaking leg's delta agrees with its direction.

Your own alerts
A message on Discord or by email, or an alert when price touches a naked POC.

More levels
Keep all unbroken swing levels on the chart, not only the latest pair.

Working with an AI assistant? Open `NCSwingProfile.cs` with it and describe the change in plain words, for example: “Add a plot that is +1 on the bar of a Div ▲ and -1 on a Div ▼.” Compile with **F5** in the NinjaScript Editor and test it in Market Replay before you trade with it. If you add plots, add the indicator again on saved charts and templates and save them: a chart saved with the old plot list can fail to draw.

13 Settings reference

Every setting with its default, group by group. Within each group the settings are in the order NinjaTrader shows them. The ten settings marked ◆ are the strategy parameters of section 11.

Setting	Default	What it does
SWING		
Mode ◆	Pivot	Pivot builds swings from pivot bars; HiLo turns when price comes back the deviation. Section 2.
Swing Source ◆	HighLow	HighLow uses bar highs and lows; Close runs the zig-zag from close to close.
Deviation Unit ◆	Ticks	Ticks, Points, Percent or ATR. Also the unit of Minimum Drop and Break Threshold.
Deviation Value ◆	12	How far price must come back from a swing before the zig-zag turns. With ATR, a multiple of the ATR.
ATR Period ◆	14	The ATR length, used when a unit is ATR.
Hill Size ◆	2	Pivot mode: the bars needed on each side of a pivot.
Minimum Drop ◆	0	Pivot mode: how much lower the side bars must be, in the deviation unit.
ZIG ZAG		
Line Color / Line Width / Line Style	DodgerBlue / 2 / Solid	The committed legs.
Temp Leg Color / Temp Leg Width / Temp Leg Style	Orange / 2 / Dash	The temp leg, and the forming line once it reaches the deviation. Section 3.
Forming Leg Color	Gray	The forming line while the move is smaller than the deviation.
VOLUME PROFILE		
Show Profile	On	A volume profile in every leg. Section 4.
Show Temp Leg Profile	On	A live profile, at half opacity, in each temp leg.
Profile Source ◆	Ticks	Ticks, Seconds or Minutes: the data the profile is built from.
Source Granularity ◆	1	The period of that data, for example 1 tick or 5 seconds.
Row Granularity (ticks)	1	The row height, at least 1 tick.
Max Row Width (%)	70	The busiest row's length as a share of the leg's width, 10 to 100.
Value Area (%)	70	The share of the leg's volume inside the value area.
Profile Color	Gray	Rows outside the value area.
Value Area Color	SteelBlue	Rows inside the value area.
VAH Color / VAL Color	SteelBlue / SteelBlue	The VAH and VAL lines, in the leg and extended.
POC Color	Gold	The POC row and the POC lines.

Setting	Default	What it does
Profile Opacity (%)	40	How solid the rows are; temp legs use half.
POC/VA Lines	All	The lines across each leg: None, POC, VAH, VAL, VA or All.
Extend Levels	None	Which finished-leg lines run right until touched, from the same list. Section 5.
Calculate Delta ◆	Off	Loads delta for strategies and the code API even when no delta row is shown.
Delta Rows	Off	Tints the rows by buying and selling.
Delta Method	BidAsk	BidAsk uses the stored quotes; Tick uses uptick/downtick.
Buy Color / Sell Color	MediumSeaGreen / IndianRed	The Delta Rows tints.
DATA DISPLAY		
Show Structure Label	On	HH, HL, LH or LL with a count. Section 6.
Double Top/Bottom Tolerance (ticks)	2	Adds DT or DB within this many ticks of the previous same-side swing; 0 = off.
Show Leg Size	On	The size row.
Leg Size Unit	Same As Deviation	Ticks, Points, Percent, ATR or Dollars, for the size and speed rows.
Contracts	1	Dollars only: the number of contracts the dollar size is for.
Show Retracement	Off	“Ret 67%”: against the leg just before.
Show Speed	Off	“Spd 4t/bar”: size per bar.
Show Leg Volume	On	“Vol 67.8K”.
Show Avg Volume per Bar	Off	“Avg 13.6K/bar”.
Show Volume Change	Off	“Vol chg +40%”: against the previous leg in the same direction.
Show Volume per Tick	Off	“V/t 125”.
Show Delta	Off	“Δ +773 (+2%)”. Needs Ticks, granularity 1.
Show Divergence	Off	“Div ▼” at a higher high, “Div ▲” at a lower low.
Show Bars	Off	“6 bars”, both swing bars counted.
Show Duration	Off	“30m”.
Show POC	Off	“POC 27449.00”.
Show Value Area	Off	“VA 27412.00–27460.00”.
Show Temp Leg Data	On	Boxes on the forming points.
Font Size	10	The box text size, 6 to 40.
Text Color	Black	The box text.
Background Color	White	Committed boxes.
Temp Leg Background Color	PeachPuff	Forming boxes.

Setting	Default	What it does
Background Opacity (%)	85	How solid the boxes are.
Label Offset (ticks)	2	The gap between a swing and its box.
SWING VWAP		
Show Swing VWAP	Off	The two anchored VWAP curves. Section 7.
Lookback (legs)	1	Anchor at the Nth most recent swing high and low, 1 to 10.
Collapse Into One	Off	One curve from the older anchor.
From Swing High Color / From Swing Low Color	Orchid / Turquoise	The two curves.
Collapsed Color	MediumPurple	The single curve.
Width / Style	2 / Solid	The curves' line.
BREAKOUT LEVELS		
Show Breakout Levels	Off	The latest finished swing high and low as levels until broken. Section 8.
Break On	Close	Close or Wick.
Break Threshold	0	How far beyond the level, in the deviation unit; 0 = any amount.
Show Labels	On	BOS and CHoCH on broken lines.
Bullish Color / Bearish Color	LimeGreen / Crimson	High levels and upward breaks / low levels and downward breaks.
Width / Style	1 / Solid	The level lines.
FIBONACCI		
Fibs On Forming Legs	On	A fib on every forming leg, or on the last solid leg. Section 9.
Fibs On Formed Leg	Off	A fib on the newest leg with both ends fixed.
Levels (%)	0, 23.6, 38.2, 50, 61.8, 78.6, 100, 127.2, 161.8, 261.8	The levels; 0% = leg end, 100% = leg start.
Forming Color / Forming Style	Orange / Dash	Fibs on forming legs.
Formed Color / Formed Style	DodgerBlue / Solid	The fib on the formed leg.
Width	1	The fib lines.
Show Level Labels	On	“61.8% 28563.00” at the right edge.
ALERTS		
Alert On Swing	Off	A swing high or low is confirmed. Section 10.
Alert On Break	Off	A BOS or CHoCH, up or down.
NINJATRADER'S OWN SETTINGS		
Calculate	On price change	On bar close drops the live-bar preview.
Auto scale	On	Keeps the swing boxes on screen.

14 Good to know

Does it repaint?
Committed swings don't. They are decided on closed bars only, and a reload of the same data gives the same swings, boxes and profiles you saw live. What is dotted, light orange or half transparent is the live preview, and changes until it confirms. The open swing can still move further in its own direction until the zig-zag turns away from it.

The swings appear a few bars late
In Pivot mode a pivot is only confirmed once Hill Size bars to its right have closed. Until then it shows as a temp leg. Lower Hill Size, or use HiLo mode, for earlier swings.

The dotted leg disappeared
The pending swing didn't confirm. In Pivot mode the pivot test failed, or the live bar changed the picture before it closed, for example by extending the open swing instead. That is what the dotted style warns about.

Leg volume and the profile don't add up exactly
The Vol row uses the chart's bar volume. The profile is built from its own source data, and the tick and bar histories can differ slightly.

“No source data before...” in the corner
Your connection has less tick (or source) history than the chart has bars. Older legs use the bar estimate, which spreads each bar's volume over its range. Load fewer days, or accept the estimate for the older part.

There is no delta row
Delta needs Profile Source Ticks with Source Granularity 1, and historical tick data. With another source the corner note says so. Legs that rest on the bar estimate carry no delta.

The chart takes long to load
With the default source the indicator loads every trade of the days on the chart. Load fewer days, or use a Seconds or Minutes source. With Show Profile, Show POC and Show Value Area off, Extend Levels None and no delta feature on, no extra data loads at all.

Do I need Tick Replay?
No. The indicator loads its own data series. Leave Tick Replay off.

The fib levels are off screen
Fib lines aren't part of Auto Scale. Drag the price scale, or remove the far levels from Levels (%).

The boxes squeeze the bars
The boxes are part of Auto Scale. Switch off rows you don't need, lower the Font Size, or turn off the indicator's Auto scale.

Rows on crypto look coarser than one tick
On instruments with a very fine tick, such as 0.01 on BTC, the profile stores volume in steps of several ticks, so memory stays bounded; Row Granularity then rounds up to whole steps. On ES, NQ, CL and 6E the step is one tick.

No alert sounded
Alerts are off by default and fire in real time only. Turn them on under Alerts.

Using it from a strategy
Add the same series the indicator adds: Profile Source and Source Granularity, a 1-tick series with the defaults. Pass Calculate Delta = true if the strategy reads leg delta or divergence (section 11).

Limits, honestly

- The temp leg, the forming line, the light-orange boxes and the half-transparent profile are provisional by design. Only committed swings are final.
- Leg size in Dollars uses the instrument's own currency but always shows “$”.
- Delta needs tick data: Profile Source Ticks with granularity 1. Historical bid and ask come from the quotes NinjaTrader stored with each tick. Where they are missing, those trades are sorted by uptick/downtick, with a chart note.
- Seconds and Minutes sources, and the bar estimate, spread volume evenly over each bar's range. They give the leg's shape, not the exact volume per price.
- On tick, range and Renko charts the indicator can't tell whether a time-based source is coarser than your bars. Pick a finer one.
- The 22 plots are fixed in this version. A strategy that hosts the indicator must add the same data series.
