

Volume Weighted Median Reversion

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Mean Reversion

TIMEFRAME

M5 – H1

WEBSITE

www.algobot.live

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Overview

Volume Weighted Median Reversion is a mean-reversion Expert Advisor that fades over-extensions away from a *robust* fair-value anchor: the volume-weighted **median** of price over the last several closed bars. Instead of chasing trends, it waits for price to stretch too far from its volume-balance equilibrium and then trades the snap-back toward that level.

The central idea is the choice of anchor. A conventional VWAP is a volume-weighted *mean*, so a single climactic spike bar — huge range, huge volume — drags "fair value" toward the extreme at exactly the moment a stable reference is most needed. The **median** is immune to that distortion: it is the price level at which half of the traded volume sits above and half below — a genuine volume balance point that barely moves when one outlier bar prints. Weighting that median by tick-volume makes it a *liquidity-anchored* equilibrium rather than a purely geometric one.

In a balanced (ranging) market, price oscillates around this volume median and over-extensions revert to it. The EA takes that trade only when three conditions align on a freshly closed bar — a statistically meaningful over-stretch, a flat regime, and a visible first tick of reversion — and it manages every exit with an ATR-based stop and the volume median itself as the take-profit magnet.

Why a volume-weighted median? The median answers a different question than VWAP. VWAP asks "what is the average price paid?" — one whale trade skews the answer. The volume median asks "at what price does half the volume sit on each side?" — a robust equilibrium that a lone spike bar cannot yank around. That stability is precisely what makes it a reliable reversion target.

How It Works

1. The Fair-Value Anchor (VWM)

Over the last `MedianPeriod` closed bars the EA computes the **volume-weighted median** (VWM):

- For each bar, the **typical price** $tp = (High + Low + Close) / 3$.
- Each bar's **weight** `w` is its tick-volume (a floor of 1 is used if volume is missing).
- The typical prices are sorted ascending, carrying their weights alongside. The **VWM** is the `tp` at which the cumulative sorted weight first reaches half of the window's total weight — the level where half the traded volume lies above and half below.

This anchor serves two roles at once: it is the *reference* the EA measures over-extension against, and it is the *target* price reverts back toward.

2. Entry Conditions — three gates that must all agree

On each newly-closed bar, the EA evaluates a potential fade. A trade is taken only if all three of the following line up:

- **Stretch** — the bar must close at least `StretchAtrMult × ATR` away from the VWM. This is a statistically meaningful over-extension that self-scales to current volatility (measured with an ATR over `AtrPeriod` bars).
- **Flat regime** — the VWM itself must have drifted less than `FlatRegimeMult × ATR` over the last `RegimeLookback` bars. A flat anchor signals a balanced, reverting market; a steeply sloped anchor signals a trend, where fading is punished. This gate is what keeps the system out of trend runs.
- **Snap-back** — the over-stretched bar must already have begun to reverse: a *bullish* body when price is below the VWM (for longs), or a *bearish* body when price is above it (for shorts). This confirms the first tick of reversion rather than catching a falling knife.

LONG SETUP

```
close < VWM - StretchAtrMult × ATR    (over-stretched below fair value)
AND regime flat                       (anchor drift < FlatRegimeMult × ATR)
AND bar is bullish                    (close > open — snapping back up)
→ BUY    TP = VWM    SL = entry - AtrStopMult × ATR
```

SHORT SETUP

```
close > VWM + StretchAtrMult × ATR    (over-stretched above fair value)
AND regime flat                        (anchor drift < FlatRegimeMult × ATR)
AND bar is bearish                     (close < open – rolling over)
→ SELL TP = VWM    SL = entry + AtrStopMult × ATR
```

3. Exit Logic — Stop, Target & Risk Filter

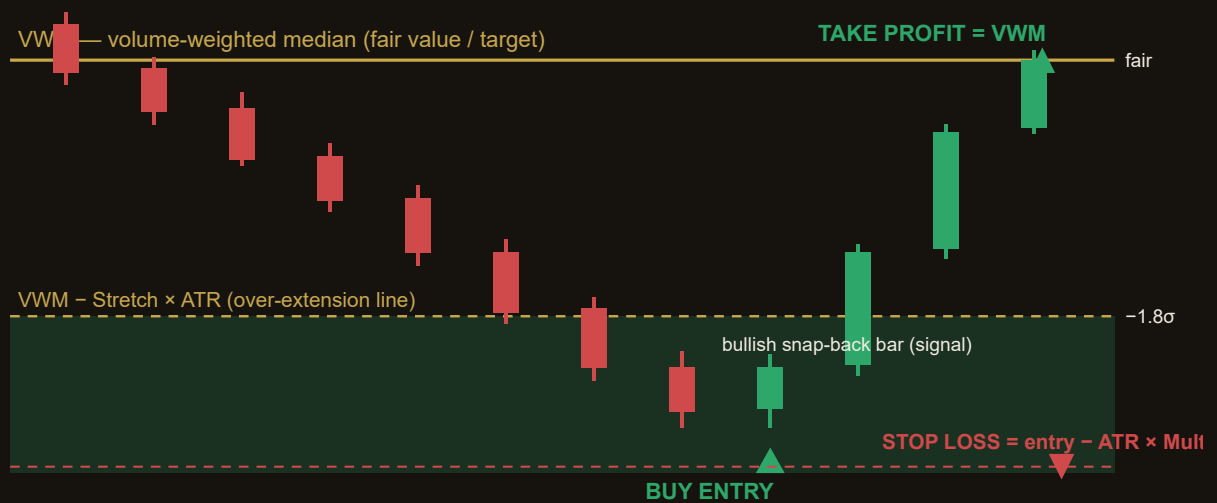
Every position is fully bracketed at entry; there is no discretionary management afterward:

- **Take-profit** is the structural magnet — the VWM itself. Price reverting to its volume-balance point closes the trade in profit.
- **Stop-loss** is placed $\text{AtrStopMult} \times \text{ATR}$ beyond the entry, so risk scales with volatility.
- **Minimum reward:risk filter** — a setup is rejected if the VWM target is closer than $\text{MinRewardRisk} \times$ the ATR stop distance. When price has already reverted most of the way to fair value, the remaining reward no longer justifies the stop, so the EA stands aside.
- **One position per magic** — only a single position is held at a time; the ATR stop and VWM target manage the entire exit.
- **Spread filter** — new entries are skipped when the current spread exceeds MaxSpreadPoints , avoiding thin, costly conditions.

Bar-close driven. The EA acts once per newly-closed primary-timeframe bar — never intrabar — so signals are stable and repeatable in the Strategy Tester. Every `Bar()/Bars()` reference uses the chart's own timeframe, so the EA runs on whatever timeframe you attach it to.

Strategy in Action

The illustration below shows an example of how the strategy identifies a setup and triggers its entry and exit. This is a simplified, illustrative example for educational purposes — not real market data.



Illustrative example only. Actual market behaviour varies.

Reading the chart

Price slides well below the flat VWM line and closes beyond the $VWM - Stretch \times ATR$ threshold (into the shaded zone) — a meaningful over-extension. Because the VWM has stayed flat (balanced market) and the over-stretched bar prints a *bullish* body, all three gates agree and a

BUY

is triggered. The stop sits one ATR-multiple below entry; the take-profit is the VWM itself, which price reverts to as balance is restored.

Parameters

Parameter	Default	Description
MedianPeriod	40	Rolling window (bars) for the volume-weighted median fair value. Range 10–150, step 5.
StretchAtrMult	1.8	Over-extension required: the bar must close at least this × ATR from the VWM. Range 0.5–5.0, step 0.1.
RegimeLookback	20	Bars back over which the VWM's own drift is measured for the regime gate. Range 5–80, step 5.
FlatRegimeMult	1.5	Fade only when the VWM has drifted less than this × ATR over RegimeLookback bars (flat anchor = ranging market). Larger = more permissive. Range 0.2–5.0, step 0.1.
AtrPeriod	14	ATR lookback used for stretch, regime and stop scaling. Range 5–40, step 1.
AtrStopMult	1.6	Stop distance = this × ATR beyond the entry. Range 0.5–5.0, step 0.1.
MinRewardRisk	0.7	Reject setups whose VWM target is closer than this × the ATR stop distance. Range 0.2–3.0, step 0.1.
MaxSpreadPoints	80	Skip new entries when the current spread (points) is wider than this. Range 5–400, step 5.
Lots	0.10	Order volume in lots. Range 0.01–1.0, step 0.05.
Magic	8123	Magic number identifying this EA's positions. Range 0–9,999,999, step 1.

Recommended Settings

The strategy is designed for markets where volume-balance reversion is strongest — liquid FX majors or a major index — on intraday timeframes. The defaults are a balanced starting point; tune to the instrument's character before going live.

- **Instruments:** liquid FX majors (e.g. EURUSD, GBPUSD, USDJPY) or a major index CFD.
- **Timeframe:** M5 to H1 — the natural home for volume-balance reversion. Attach the EA to the timeframe you intend to trade; it runs on the chart's own timeframe.
- **Regime tuning:** raise `FlatRegimeMult` to fade in slightly livelier conditions, or lower it to demand a stricter flat anchor and take fewer, higher-quality trades.

- **Over-extension:** a higher `StretchAtrMult` waits for deeper stretches (fewer but stronger reversions); a lower value trades more frequently.
- **Spread:** set `MaxSpreadPoints` to match your broker and instrument so entries are skipped during costly, illiquid periods.

Tip — validate before deploying. Always run a Strategy Tester optimization over recent history for your chosen symbol and timeframe. Pay attention to `MedianPeriod`, `StretchAtrMult` and `FlatRegimeMult` together — they jointly define how often and how deep the EA fades. Confirm results on out-of-sample data and forward-test on a demo account first.

Mean-reversion caveat. Fading works in balanced markets and fails in trends. The flat-regime gate is the primary defence against trend runs, but no filter is perfect. A strong, sustained breakout can stretch price far beyond fair value before (or without) reverting. Respect the ATR stop, keep position size modest, and never disable the regime filter.

How to Install on MetaTrader 5

- 1 Copy `VolumeWeightedMedianReversion.ex5` to your MT5 `MQL5\Experts\` folder
- 2 Restart MetaTrader 5 and refresh the Navigator panel
- 3 Drag the EA onto a chart matching the recommended symbol and timeframe
- 4 Configure the input parameters and click **OK**
- 5 Enable **Algo Trading** in the MT5 toolbar

Risk Warning

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