

Session Vwap Engulfing Hedge

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Mean Reversion (Price-Action / VWAP)

TIMEFRAME

M5 – M30 (Intraday)

WEBSITE

www.algotbot.live

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Overview

Session Vwap Engulfing Hedge is a pure price-action, mean-reversion Expert Advisor. It uses *no* library indicators — there is no moving average, RSI, ATR, or Bollinger Band anywhere in the code. Instead, every signal is hand-built directly from raw bars: a session-anchored VWAP with its own standard-deviation bands, a candlestick engulfing reversal trigger, a liquidity sweep of recent support/resistance, an imbalance (Fair-Value-Gap) displacement filter, and a reactive protective hedge leg.

The edge thesis is simple. Intraday price spends most of its life oscillating around the volume-weighted average price (VWAP) — the level institutions benchmark their fills against. When price is stretched a long way from VWAP, beyond a standard-deviation band, it is by construction “expensive” or “cheap” relative to the day’s traded value. The final push to that extreme very often **sweeps** a recent swing high or low (running stops and grabbing liquidity) and then snaps back. The cleanest evidence that the snap-back has begun is a candlestick **engulfing** bar that **displaces** the other way. The EA fades the extreme back toward VWAP, which is the mean-reversion target.

Because a genuine trend day will keep running and never come back, a reactive **hedge** leg is armed as a safety valve: if the trade drifts adversely past a fraction of its own risk, an opposite market position is opened so that the further the move runs, the more the hedge offsets the base — turning a runaway loss into a capped, managed outcome.

At a glance — Fade price back to the day's value. The EA only enters when it is completely flat, requires a confluence of *five* conditions to align (stretch + sweep + engulfing + imbalance + momentum), targets the session VWAP, and protects the position with a reactive opposite-side hedge rather than a fixed money stop.

How It Works

1. Session VWAP & Standard-Deviation Bands

On every closed bar, the EA folds the bar into a set of cumulative sums anchored to the calendar day. When the bar's date changes, the sums reset — this is what makes the VWAP "session" anchored. The typical price of each bar is $(\text{High} + \text{Low} + \text{Close}) / 3$, volume-weighted (a weight of 1 is used if the feed reports no volume).

```
VWAP      = SUM(tp × vol) / SUM(vol)
Variance  = SUM(tp2 × vol) / SUM(vol) - VWAP2
Band(±)   = VWAP ± DeviationMult × sqrt(Variance)
```

Because the bands are derived from the symbol's own price and variance, all distances scale to any instrument or timeframe — there is no hard-coded pip value anywhere. The bands are only trusted once at least `MinSessionBars` closed bars have formed since the anchor.

2. Entry Logic

The EA hunts for a setup **only when completely flat** (no base leg and no hedge leg). Entries are distinct, mirror-image long and short conditions. A long setup requires *all* of the following to align on the just-closed trigger bar:

- **Stretched below value** — the recent low has reached or pierced the lower band.
- **Swept support** — the trigger bar makes a genuine new local low versus the prior `SweepLookback` bars (a liquidity grab).
- **Bullish engulfing** — a green bar that engulfs the prior red bar's body (raw two-bar geometry).
- **Imbalance / displacement** — the bar closes above the prior bar's high, or leaves a true 3-bar bullish Fair-Value-Gap.
- **Momentum** — the trigger body is at least `MomentumMult` × the recent average body.
- **Room to revert** — the close is still below VWAP, so there is space to travel back up to the target.

The **short** setup is the exact mirror above the upper band: stretched up, swept resistance, bearish engulfing, downward displacement, momentum, and a close still above VWAP.

3. Stops & Targets

Stops and targets are structural and computed per leg — there are no indicator stops and no basket-money management.

- **Base Stop-Loss** — placed beyond the swept extreme by `StopPadFrac` of the recent average range.
- **Base Take-Profit** — the session VWAP itself (the mean-reversion magnet). If VWAP is too close to give a real reward, the TP is floored to `TpFloorMult` × the average range.
- **Reward filter** — a setup is rejected if its reward (entry → VWAP) is below `MinRewardRisk` × its risk.

4. The Reactive Hedge (signature mechanic)

While a base leg is live, the hedge logic runs on *every tick* so it can respond to live excursions:

- **Arm** — if the base's adverse excursion reaches `HedgeTriggerFrac` of its own risk, an opposite market leg (`HedgeMult` × base size) is opened. Its TP sits beyond the base SL (it profits as the runaway extends); its SL sits on the reclaim side.
- **Release** — if price recovers and the adverse excursion falls back under `HedgeReleaseFrac` of risk, the hedge is closed so it stops bleeding and the base is left to reach VWAP.
- **Settle** — when the base finally resolves on its own SL/TP, any surviving hedge is closed — the EA never leaves a naked reversed leg.

Hedging account required. The hedge opens an opposite-side market leg while the base is still live. This only works on a **HEDGING** account. On a netting account the opposite leg would simply net the base out, defeating the entire mechanic. The MQL5 build prints a warning at init if it detects a netting account.

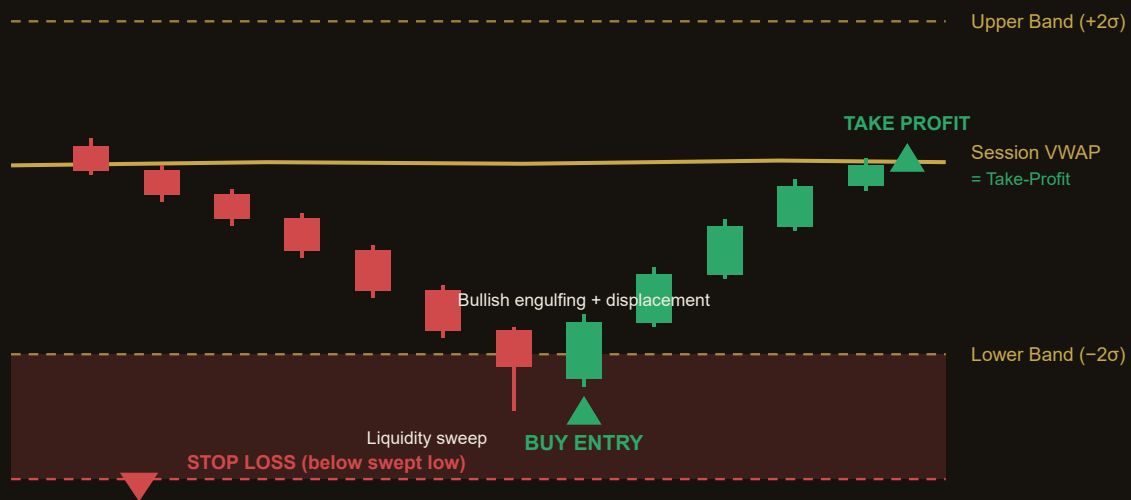
5. Execution Cadence

Structural and entry logic is gated to exactly one pass per freshly-closed bar (detected by a change in the current bar's open time). The reactive hedge management, by contrast, runs every tick. A spread guard (`MaxSpreadPoints`) skips new entries while the spread is too wide.

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.

Session VWAP — Mean-Reversion Long Setup



Illustrative example only. Actual market behaviour varies.

Reading the illustration

Price drifts down and the final red bar *sweeps* below the lower band, making a new local low. The next green bar *engulfs* it and displaces upward — the long entry. The stop sits just beyond the swept low; the take-profit is the session VWAP, which price reverts back toward. Had price instead kept falling past the hedge trigger, an opposite sell leg would have been armed to cap the loss.

Parameters

Parameter	Default	Description
DeviationMult	2.00	How many standard deviations from VWAP count as "stretched" (band half-width). Range 1.00–3.50, step 0.25.
RangeLookback	14	Bars used for the average-range and average-body baselines. Range 5–40, step 1.
SweepLookback	10	Window the swept extreme must be the new low/high of (liquidity-grab depth). Range 3–40, step 1.
MomentumMult	1.10	Trigger body must be at least this multiple of the recent average body. Range 0.50–2.50, step 0.10.
StopPadFrac	0.50	Base stop pad beyond the swept extreme, in units of the average range. Range 0.10–3.00, step 0.10.
MinRewardRisk	0.80	Reject setups whose reward (entry→VWAP) is below this multiple of the risk. Range 0.20–3.00, step 0.10.
TpFloorMult	1.50	Fallback TP distance (average-range units) if VWAP is too close to give a real reward. Range 0.30–5.00, step 0.10.
HedgeTriggerFrac	0.70	Adverse excursion (fraction of base risk) that arms the reactive hedge. Range 0.20–1.50, step 0.05.
HedgeReleaseFrac	0.30	Adverse excursion (fraction of base risk) at/below which a live hedge is released. Range 0.05–1.00, step 0.05.
HedgeRewardFrac	1.00	Hedge TP distance beyond the base SL, in fractions of base risk. Range 0.20–4.00, step 0.10.
HedgeReclaimFrac	0.50	Hedge SL distance on the reclaim side, in fractions of base risk. Range 0.10–2.00, step 0.10.
HedgeMult	1.00	Hedge size as a multiple of the base size. Range 0.30–2.00, step 0.10.
MinSessionBars	6	Minimum closed bars since the session anchor before VWAP/bands are trusted. Range 2–50, step 1.
MaxSpreadPoints	50	Skip new entries while spread (points) exceeds this (0 = off). Range 0–500, step 5.
Lots	0.10	Base trade size in lots. Range 0.01–1.00, step 0.05.

Parameter	Default	Description
Magic	7420	Magic number identifying this EA's orders. Range 0–9,999,999, step 1.

Recommended Settings

This EA is designed for liquid, VWAP-respecting intraday instruments where the stretch–sweep–snap rhythm around value is strongest.

- **Instruments:** FX majors (EUR/USD, GBP/USD), XAU/USD (gold), or a major index CFD.
- **Timeframes:** M5, M15, or M30. The EA runs on whatever timeframe is selected at backtest time and adapts automatically.
- **Account type:** a **HEDGING** account is mandatory for the hedge mechanic to behave correctly.
- **Spread:** keep `MaxSpreadPoints` tuned to your broker; wide-spread instruments will see fewer (or no) entries.

Tuning tip — `DeviationMult` controls how rare a setup is: a higher value (e.g. 2.50–3.00) waits for deeper stretches and trades less often but with cleaner reversions. The hedge trio (`HedgeTriggerFrac` , `HedgeReleaseFrac` , `HedgeMult`) controls how aggressively the EA defends a losing base — widen the trigger to hedge later, raise the multiplier to offset harder.

Always validate first. Run a full backtest across multiple market regimes and forward-test on a demo account before committing real capital. Mean-reversion systems can suffer sustained drawdowns during strong trend days, which is precisely the scenario the reactive hedge is built to manage — but it does not eliminate risk.

How to Install on MetaTrader 5

- 1 Copy `SessionVwapEngulfingHedge.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

Trading foreign exchange, CFDs, and other leveraged financial instruments involves substantial risk of loss and is not suitable for all investors. The strategies and tools described in this document are provided for **educational purposes only** and do not constitute financial advice, investment recommendations, or solicitation to trade. Always consult a qualified financial adviser before making trading decisions. Past backtest performance is not indicative of future results.