

Temporal Occupancy Drift

Expert Advisor Documentation

PLATFORM	TYPE	TIMEFRAME	WEBSITE
MetaTrader 5 (MT5)	Momentum / Regime Detection	H1 (single timeframe)	www.algotbot.live

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Overview

Temporal Occupancy Drift is an original, first-principles Expert Advisor built on a single statistical primitive rather than any conventional indicator, chart pattern, or published trading method. It uses no moving averages, oscillators, support/resistance, or SMC/ICT/Wyckoff constructs. Instead it asks one question about the recent price path: *how much of its time has price spent above where it started?*

Over the last **Window** closes, the EA measures the **occupation fraction** — the proportion of bars whose close sits above the "origin" (the close **Window** bars ago) — and centres it into a signed **imbalance** value **g** that runs from **-1** (path entirely below origin) to **+1** (path entirely above origin). By Lévy's arcsine law, occupation for a driftless walk is not clustered around 0.5; its distribution is U-shaped, so occupation is *metastable* — a path that currently spends most of its time on one side of its origin tends to keep doing so far longer than a coin-flip would suggest. Any genuine directional drift only deepens that asymmetry.

The EA reads the sign of the entire window at once, so it identifies an established directional regime with low lag and enters the *moment* that imbalance first crosses a volatility-adaptive dominance band — before a smoothed, moving-average-style signal would turn. Risk is sized directly from an in-line Average True Range (ATR), and an early dynamic exit releases the position the instant occupation flips back through the origin.

In one sentence: Temporal Occupancy Drift counts how much of the recent path has occupied one side of its starting point, and enters in that direction the moment the imbalance crosses a self-adjusting dominance threshold — trading the emergence of a regime rather than chasing a mature move.

How It Works

The core primitive — occupation fraction and imbalance

On each newly-closed bar the EA looks back over the last `Window` (N) closes and treats the close N bars ago as the **origin** `a`. It then counts how many of the N closes finished above that origin:

$$\begin{aligned} f &= (1/N) \times \text{count}(\text{Close}[t-k] > a) \quad \text{for } k = 0 \dots N-1 & (0 \leq f \leq 1) \\ g &= 2 \cdot f - 1 & (-1 \leq g \leq +1) \end{aligned}$$

`f` is the occupation fraction; `g` is the same quantity centred so that `0` means a perfectly balanced path, `+1` means every recent close was above origin, and `-1` means every recent close was below it. Because `g` aggregates N binary "which side of origin" votes, a single noisy bar cannot flip it — it is a robust, low-variance estimate of the prevailing regime, yet responsive because it is raw, unsmoothed count data.

The self-adapting dominance band

Volatility is measured in-line as an Average True Range over `AtrPeriod` bars and normalised by price (`nv = atr / close`). The base `DominanceThreshold` is then flexed by how hot the current normalised volatility runs relative to its own recent mean over the window:

$$\begin{aligned} \text{ratio} &= \text{nv} / \text{avgNv} && (\text{clamped to the range } 0.5 \dots 2.0) \\ \text{band} &= \text{DominanceThreshold} \times (1 + \text{AdaptGain} \times (\text{ratio} - 1)) \\ \text{band} &= \text{clamp}(\text{band}, 0.05, 0.95) \end{aligned}$$

When the tape is noisier than its own norm the band **widens** (the EA demands stronger consensus before committing); when the tape is calm it **narrows**. The `AdaptGain` knob controls how aggressively the band responds — set it to `0` to fix the band at the base threshold.

Entry logic

An entry fires only on a **fresh cross** of the dominance band, confirmed by the current close sitting on the matching side of the origin. Trading the emergence of the regime — rather than its mature state — avoids chasing moves that are already extended:

- **Long:** `g` crosses *up* through `+band` (previous `g` below, current `g` at or above) **and** the latest close is above the origin. Buys at Ask.

- **Short:** `g` crosses *down* through `-band` (previous `g` above, current `g` at or below) **and** the latest close is below the origin. Sells at Bid.

The two directions are fully symmetric. Only one position is held at a time — the EA lets the current regime bet resolve before considering a new one.

Exit logic — stops, targets, and the dynamic flip exit

Every position carries an ATR-scaled protective stop and target, so risk breathes with volatility:

- **Stop loss:** `AtrStopMult × ATR` away from entry.
- **Take profit:** `RewardRatio` multiplied by the stop distance (a reward-to-risk multiple of the risk).
- **Dynamic flip exit:** independent of the fixed stop and target, the EA closes the position immediately when occupation flips back through the origin — a long exits the instant `g < 0`, a short the instant `g > 0`. This releases a failing regime bet early rather than waiting for the full stop to be hit.

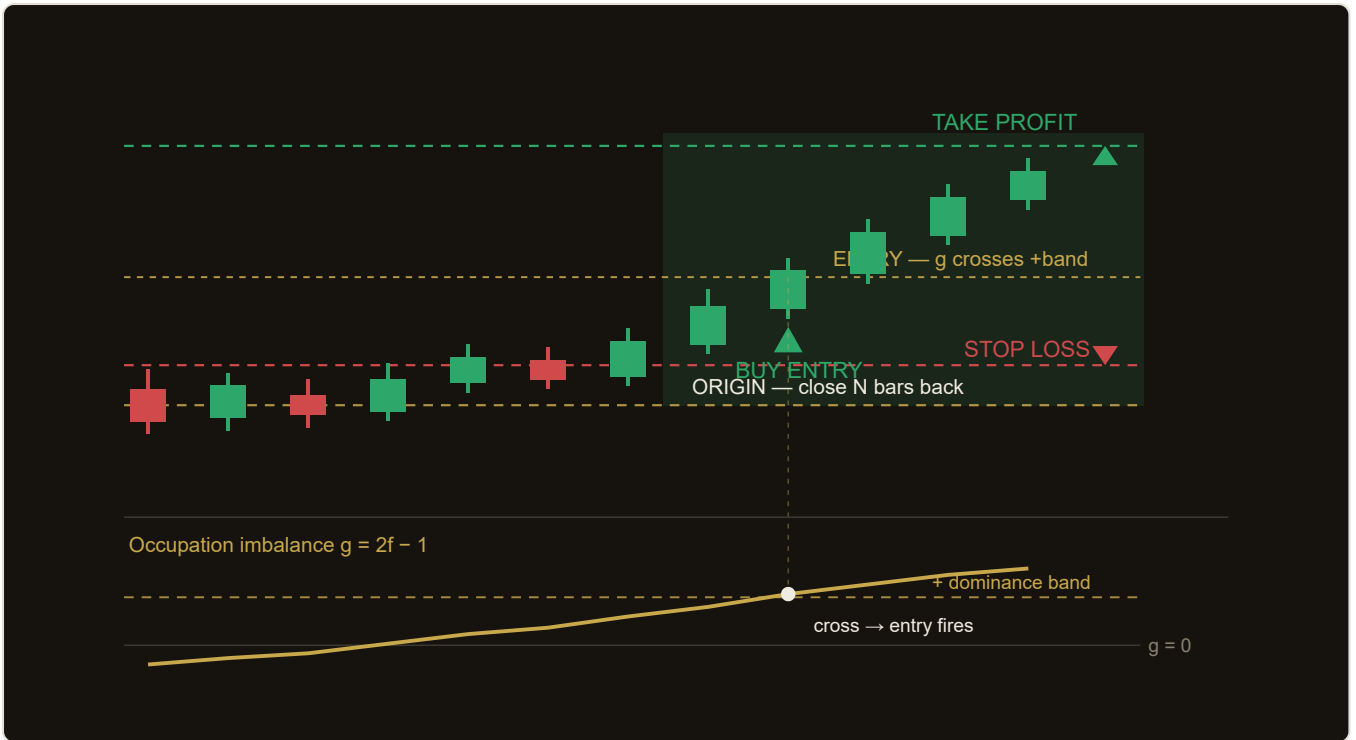
Worked example (long)

With `Window = 40` and `DominanceThreshold = 0.30`, suppose 26 of the last 40 closes are above the origin. Then `f = 0.65` and `g = 2 × 0.65 - 1 = +0.30`. If the previous bar's `g` was `+0.22` (below the band) and volatility is near its recent norm so `band ≈ 0.30`, this bar's `g` has just crossed up through the band. With the latest close above origin, the confirmation holds and a long is opened at Ask, with the stop `2 × ATR` below and the target `1.5 ×` the risk above. Should the path later slip back so that fewer than half the closes are above origin (`g` turns negative), the dynamic exit closes the trade at once.

Single timeframe only. Every price read uses the chart's own symbol and period — the C# engine calls `ctx.PrimaryTimeframe` and the MQL5 port reads `_Symbol / _Period`. There is no multi-timeframe logic and no indicator handle: the ATR is computed bar-by-bar in-line, exactly matching the C# source.

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.

Parameters

Parameter	Default	Description
Window	40	Number of recent closes (N) whose "which side of origin" votes are counted. Larger values give a smoother, slower-turning regime read. Range 10–120, step 5.
DominanceThreshold	0.30	Base dominance band on the centred imbalance <code>g</code> (which runs -1 to $+1$); a fresh cross of this band fires an entry. Higher values demand a stronger one-sided consensus. Range 0.10–0.60, step 0.05.
AdaptGain	0.50	How strongly the band flexes with normalised volatility versus its own recent mean. <code>0</code> fixes the band; higher values widen it faster in noisy conditions. Range 0.00–2.00, step 0.10.
AtrPeriod	14	Lookback for the in-line Average True Range used for risk sizing and the volatility filter. Range 5–40, step 1.
AtrStopMult	2.00	Stop-loss distance expressed as this many ATRs from entry. Range 0.50–5.00, step 0.25.
RewardRatio	1.50	Take-profit distance as a reward-to-risk multiple of the stop distance. Range 0.50–4.00, step 0.25.
Lots	0.10	Fixed trade size in lots. Range 0.01–1.00, step 0.05.
Magic	4021	Magic number identifying this EA's positions so it manages only its own trades.

Recommended Settings

The defaults above are a balanced starting point. Because the strategy is symbol- and timeframe-agnostic, tune it on the instrument and period you intend to run — always validate on out-of-sample data in the MT5 Strategy Tester before live use.

SUGGESTED STARTING CONFIGURATION

- **Timeframe:** H1 is a sensible default — long enough for the occupation window to describe a meaningful regime, short enough to produce regular signals. M30–H4 are reasonable neighbours to explore.
- **Symbol:** Liquid majors (e.g. EUR/USD, GBP/USD) or a major index CFD, where ATR-based sizing behaves predictably and spreads are tight.
- **Window:** Keep near `40` for H1. Raise toward `60–80` for a slower, higher-conviction regime read; lower toward `20–30` for a more reactive one.

- **DominanceThreshold / AdaptGain:** Start at `0.30` / `0.50`. If entries feel too frequent in choppy tape, raise the threshold or the gain so the band demands stronger consensus.
- **Risk:** The default `2.0` ATR stop with a `1.5` reward ratio pairs a volatility-scaled stop with a modestly larger target. Adjust `Lots` to your account size and risk tolerance.

Tuning tip: the dominance band and the ATR risk both key off the same normalised volatility. When you change `AtrPeriod`, re-check both the entry frequency *and* the stop distances together, since one lookback drives both behaviours.

Optimisation caution: aggressively curve-fitting `Window`, `DominanceThreshold`, and `AdaptGain` to a single historical period will overstate performance. Prefer parameter regions that stay robust across multiple symbols and date ranges rather than a single peak.

How to Install on MetaTrader 5

- 1 Copy `TemporalOccupancyDrift.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

Note: to compile from source, place `TemporalOccupancyDrift.mq5` in `MQL5\Experts\` and compile it in MetaEditor (it uses the standard `Trade\Trade.mqh` library and requires no external indicators). The EA acts once per newly-closed bar, so allow at least `Window + AtrPeriod + 8` bars of history to accumulate before it begins trading.

Risk Warning

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