TradeBot v1.0.5 — Detailed Guide

What's New in v1.0.5

- Hybrid AutoTune (winner↔choppy blend)
  • Snap to strict regime if a winner reaches ≥70% of votes.
  • Blend winner ↔ Choppy when winner is 55–69% (only sensitivity knobs).
  • Force Choppy if <55% (safe fallback).

- Blended clamps: conservative ranges keep interpolated values safe.

- Enhanced logging: regime, mode (SNAP/BLEND/CHOPPY), vote breakdown, blend alpha, knob changes, advisory-only disables, and per-product offsets.

- AutoTune remains telemetry-only for product disabling — no assets are actually turned off.

Quickstart (PowerShell)

Run from the repo root:

```
python main.py
```

APIkeys.env (root):

```
COINBASE_API_KEY=your_key_here
COINBASE_API_SECRET="your_secret_here"
PORTFOLIO_ID=optional
```

Tip: You can set a custom env file path via ENV_PATH.

How It Works (strategy overview)

Captain + Advisors: EMA crossover drives direction; RSI and MACD act as veto advisors.

Signals: require confirm_candles consecutive closes beyond the EMA cross, plus an ema_deadband_bps to avoid whipsaws.

Execution: prefers post-only maker limits (with maker offsets); BUYs respect a daily spend cap; SELLs require position; optional hard stop exits below cost basis.

Persistence: runtime state lives under .state/ (portfolio, processed fills, daily spend, trades.csv, logs). trades.csv feeds AutoTune KPIs.

AutoTune (v1.0.5)

When: runs once at startup if enabled; optional one-time refresh after ~4h runtime.

Inputs: market snapshot (autotune_lookback_hours window) + recent KPIs from .state/trades.csv.

Hybrid regime logic:

- Winner share ≥70% → snap to strict regime.
- Winner share 55–69% → blend winner with Choppy (sensitivity knobs only).
- Winner share <55% → force Choppy.

Adjusts (bounded): confirm_candles, per_product_cooldown_s, RSI/MACD veto thresholds, ema_deadband_bps, and maker_offset_bps_per_product (±1 bps nudges).

Choppy safeguard: in “choppy”, parameters are pinned to the stable v1.0.2 profile.

Disable logic: remains telemetry-only (no actual disables).

Modes: autotune_preview_only=True logs proposals without mutating config; False applies changes.

Reconcile Cadence (v1.0.5)

- Startup reconcile: default 48h sweep.
- Mid-session reconcile: default every 90 minutes.
- On SELL attempt: quick sweep before placing orders (optional).
- Shutdown: final sweep and CSV write so session P&L is accurate.

Run Lifecycle & Logs

At start: AutoTune logs regime and tweaks (including BLEND details if applicable); warm-up backfills indicators; startup reconcile runs.

During session: signals fire on candle closes; mid-session reconcile logs on schedule; dry-run entries are clearly labeled.

On Ctrl+C: final reconcile → session P&L footer in trade_log.txt → clean exit.

Key Settings (v1.0.5)

Note: Defaults shown are examples; your local bot/config.py may differ.

User-Configurable Parameters

Setting	Default (example)	Purpose
dry_run	True	Enable simulation mode (no live orders).
autotune_enabled	True	Enable AutoTune at startup.
autotune_preview_only	True	Log proposals only; no config changes.
autotune_lookback_hours	18	Candle window (hours) AutoTune uses for regime voting.
lookback_hours	48	Startup reconcile horizon (hours).
mid_reconcile_enabled	True	Toggle mid-session reconcile.
mid_reconcile_interval_minutes	90	Mid-session sweep cadence (minutes).
reconcile_on_sell_attempt	True	Quick sweep before SELL.
short_ema / long_ema	12 / 26	Global EMA lengths.
enable_advisors	True	Toggle RSI/MACD veto logic.
rsi_period	14	RSI length.
macd_fast/slow/signal	12 / 26 / 9	MACD parameters.
usd_per_order	20.0	USD size per BUY order.
daily_spend_cap_usd	100.0	Max BUY spend per day.
hard_stop_bps	None	Optional stop-loss trigger.
prefer_maker	True	Prefer post-only maker orders.
prefer_maker_for_sells	True	Prefer maker for SELLs too.
maker_offset_bps	10	Default maker offset if no per-product override.
maker_offset_bps_per_product	{...}	Per-asset maker offsets (AutoTune may nudge).
ema_params_per_product	{...}	Per-asset overrides.
use_backfill	True	Backfill candles on startup.
warmup_candles	200	Candles to seed indicators.
log_level	INFO	Logging verbosity.

portfolio_id	optional	Override portfolio (or from ENV).

AutoTune-Controlled Parameters

Setting	Default (example)	AutoTune behavior
confirm_candles	2	Tightened/relaxed based on regime or blend.
per_product_cooldown_s	300	Lengthened/shortened based on regime.
rsi_buy_max	70	Lowered in overheated markets; blended in gray zone.
rsi_sell_min	30	Raised in oversold conditions; blended in gray zone.
macd_buy_min	-5	Adjusted within safe bounds depending on trend/blend.
macd_sell_max	5	Adjusted within safe bounds depending on trend/blend.
ema_deadband_bps	3	Widened in choppy; narrowed in trends; blended in gray zone.
maker_offset_bps_per_product	{...}	Nudged ±1 bps per asset from 3-day KPIs.

Common Preset Profiles

Profile	Candle Interval	Warmup Candles	Confirm Candles	Lookback Hours	AutoTune Lookback	Notes
Morning Session (default)	5m	200	3	48	18h	Good turnover, balanced risk. Designed for daily ~5–8h runs.
Choppy but Cautious	15m	90–120	3	48	18h	Smooths out noise; fewer false flips in sideways markets.
Trend-Focused	15m	120	4 (optional)	48	18–24h	Holds positions longer; good for sustained up/downtrends.

Aggressive Test	5m	200	2 (optional)	48	18h	More trades in trends; riskier in chop. Use with caution.
Dry Run	5m or 15m	match interval	3	48	18h	`dry_run: true` mode. Logs + telemetry only; no live orders.
No AutoTune	any	match interval	manual	manual	disabled	Static regime knobs. For A/B testing or fixed strategies.

Threads in this program (v1.0.5)

1. MainThread — startup, logs, config, initial reconcile, then just orchestration.

2. WS thread — spawned by the Coinbase SDK (Thread-1 (run_forever) in your logs). Handles websocket I/O and calls your message handler.

3. Mid-session reconcile thread — your mid_reconcile daemon (every N minutes) if mid_reconcile_enabled=True.

4. Elapsed AutoTune thread — the one-shot 4-hour retune (daemon) if AUTOTUNE_ELAPSED_REFRESH_ENABLED=True.

Run Settings

```
#Dry run with AutoTune preview:
dry_run = True
autotune_enabled = True
autotune_preview_only = True

#Live run with active AutoTune:
dry_run = False
autotune_enabled = True
autotune_preview_only = False

#Static (no AutoTune):
autotune_enabled = False
```

Release Safety Notes

- Start with dry_run=True to validate setup and data flow.
- Use conservative daily_spend_cap_usd until confident.
- Keep .state/ and APIkeys.env untracked (already in .gitignore).
- Tag releases (e.g., v1.0.5) for reproducibility.

Tips

- Optional restart if too many vetoes: Interval changes are read at startup. Just Ctrl+C, edit config, run again.
- Warmup sizing: If you switch from 5m → 15m, consider adjusting warmup_candles so you seed about the same time span.
- Rough math: desired_hours ÷ interval_minutes.
- If you like ~18h of warmup, then for 15m: 18h / 0.25h = 72 candles. I'd use 90–120 for cushion.
- (Your 200×5m warmup ≈ 16.7h; the 15m equivalent is ~67–80 candles.)
- AutoTune lookback: The 18h regime vote is independent of bar interval. No change needed unless you want a different vote horizon.
- Indicators: RSI/MACD periods stay the same; moving to 15m naturally smooths noise. Thresholds (bps, RSI caps) don't need changes.
- State & CSV: Safe to stop/start. Startup reconcile pulls in any fills from downtime; no risk to positions.

Quick presets

1) Morning session (default, responsive)

- candle_interval: "5m"
- warmup_candles: 200
- confirm_candles: 3, ema_deadband_bps: 8
- autotune_lookback_hours: 18
- lookback_hours: 48, mid_reconcile_interval_minutes: 90

Why: Good turnover; confirmation + deadband tame chop.

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2) Choppy-but-cautious (cleaner signals, lower churn)

- candle_interval: "15m"
- warmup_candles: 90–120

- keep confirm_candles: 3, ema_deadband_bps: 8
- rest same as default

Why: 15m smooths noise; you'll see fewer near-miss entries.

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3) Trend-focused (hold longer, fewer flips)

- candle_interval: "15m"
- warmup_candles: 120
- (Optional) confirm_candles: 4 if you want extra patience
- keep autotune_lookback_hours: 18 (or try 24 for steadier regime calls)

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4) Aggressive test (more trades)

- candle_interval: "5m"
- confirm_candles: 2 *(only if market is clearly trending!)*
- keep ema_deadband_bps: 8 and **watch logs**
- leave AutoTune on; BLEND will nudge sensitivity back in ambiguity

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5) Dry run (full telemetry, no orders)

- dry_run: true
- Everything else same as default
- You'll still get warmup/backfill, WS, startup + mid-session reconcile, and AutoTune logs.

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6) No AutoTune (static profile)

- autotune_enabled: false
- Manually set confirm_candles, rsi_*, macd_*, ema_deadband_bps, per_product_cooldown_s to your desired regime.
- Use this only for A/B comparisons.