

F L O F M A T R I X

Fractal Liquidity & Order Flow Trading System

EXTERNAL REVIEW
FIXES & HARDENING

9 Architectural Fixes | 3 Critical Bug Repairs | 3 Profile Patches | 3 Optimizations

Resolves: Schema Shifting Paradox • Market Order Slippage • IV Crush Blindspot • OI Delta Gap
New Toggles: T47 (Dynamic Scale-Outs) | T48 (Toxicity Exit)

Version:	3.2 (External Review Hardening)
Companion to:	All Prior FLOF Matrix Documents
Classification:	CONFIDENTIAL

1. Overview & Severity Matrix

This addendum addresses nine issues identified by an external architectural review of the complete FLOF Matrix system. Each issue was independently validated against the existing documentation. Three are critical bugs that would cause real production failures, three are asset-class-specific patches, and three are profitability optimizations.

#	ISSUE	SEVERITY	VERDICT	AFFECTS	ACTION
A	Ring Buffer / Schema Shifting Paradox	CRITICAL	MUST FIX	Data Layer	Keep trades+tbbo during Killzones
B	Market Order Slippage Trap (T11)	HIGH	VALID	Execution	Switch to MWP / Aggressive Limit
C	Absorption Formula Ambiguity (M07)	MEDIUM	PARTIAL	Order Flow	Formalize math, logic already works
D	Options IV Crush Blindspot	CRITICAL	MUST ADD	Options Profile	IVR filter in OptionsRouter
E	Equities Pre-Market Blindness (T44)	HIGH	VALID	Equities Profile	Pre-market volume check on Gap-FVG
F	Crypto Missing OI Delta	CRITICAL	MUST ADD	Crypto Profile	OI Delta as primary LiquidationFeed signal
G	Dynamic Scale-Outs by Grade	OPT	VALID	Trade Management	Grade-based Phase 1 scaling (T47)
H	Tick-Based Velez MAs	OPT	PARTIAL	Velez Layer	Experimental parallel only, don't replace
I	Toxicity Exit (Dead Tape)	OPT	VALID	Trade Management	Sub-condition in T18 + new T48

2. Fix A: Ring Buffer / Schema Shifting Paradox

Severity: CRITICAL — This is a genuine production bug that would cause the bot to miss the best trades of the week.

2.1 The Bug

The original architecture contains two contradictory statements:

Statement 1: "The bot holds a 60-second Ring Buffer of tick data to eliminate wake-up lag during fast moves."

Statement 2: "The bot only subscribes to trades + tbbo when price breaches the Proximity Halo."

If the bot only subscribes to trades data when the Halo is breached, then during a Type B cascade where price crosses the Halo and reaches the POI in under 2 seconds, the Ring Buffer will contain only 2 seconds of data. This immediately fails the MIN_RING_BUFFER_SECONDS (30s) rule defined in the Sudden Move Policy. The bot classifies the event as "insufficient data" and stands down, missing the highest-probability trade of the week.

2.2 The Fix: Revised Schema Shifting

STATE	SCHEMA (BEFORE)	SCHEMA (AFTER FIX)	COST IMPACT
Scouting Mode (outside Killzone)	ohlcv-1m	ohlcv-1m (no change)	Zero. Connection severed outside Killzones.
Scouting Mode (inside Killzone)	ohlcv-1m only	ohlcv-1m + trades + tbbo	MODEST INCREASE. trades + tbbo are lightweight schemas. The cost is a fraction of mbp-10.
Stalking Mode	trades + tbbo (activated by Halo)	trades + tbbo (already running)	NO CHANGE. Data was already streaming. Halo breach now triggers structural analysis, not data subscription.
Kill Mode	mbp-10 (activated by POI tap)	mbp-10 (activated by POI tap)	NO CHANGE. L2 depth only activated when truly needed.

WHY THIS FIX WORKS

The Ring Buffer now has continuous trades + tbbo data during every Killzone, so it is always full (60 seconds) regardless of how fast price moves. The Proximity Halo no longer toggles the data subscription — it toggles the bot's structural analysis (entering Stalking Mode). The expensive mbp-10 schema is still gated behind Kill Mode. The incremental cost of maintaining trades + tbbo during Killzones is modest: approximately 4–5 hours per day of lightweight data (NY AM 8:30–11:30 + NY PM 1:30–3:30). This is a small fraction of what 24/7 mbp-10 would cost.

2.3 Implementation

The following changes apply to the Data Ingestion Engine and the Predator State Machine:

STEP	CHANGE
1	At Killzone start (e.g., 8:30 AM EST for NY), the bot subscribes to trades + tbbo in addition to ohlcv-1m. The Ring Buffer begins filling immediately.
2	The Proximity Halo breach no longer triggers a DataBento subscription change. It triggers the Predator State Machine transition to Stalking Mode, which activates 1m structural analysis (CHOCH detection, FVG scanning) using the data already flowing.
3	Kill Mode activation (POI tap + 1m CHOCH) upgrades the subscription to mbp-10 for deep L2 analysis. This is the only data cost escalation point.
4	At Killzone end (e.g., 3:30 PM EST for NY PM), the bot drops trades + tbbo and reverts to ohlcv-1m only. The Ring Buffer is flushed. If no position is open, the entire DataBento connection is severed until the next Killzone.
5	For Crypto (free WebSocket), this change has zero cost impact. The Ring Buffer already runs 24/7 on the free Binance/Bybit streams. No fix needed for the Crypto profile.

TOML CHANGE

```
[constants.data_ingestion]
killzone_base_schema = ["ohlcv-1m", "trades", "tbbo"] # Was ohlcv-1m only
non_killzone_schema  = ["ohlcv-1m"]                  # Unchanged
kill_mode_schema      = ["ohlcv-1m", "trades", "tbbo", "mbp-10"] # Unchanged
```

3. Fix B: Market Order Slippage Protection

Severity: HIGH — Firing raw Market Orders during thin-book cascades causes 5–10 ticks of slippage, destroying R:R.

3.1 The Problem

Toggle T11 (Fast Move Switch) fires a Market Order when tape speed is extreme and absorption is confirmed inside the POI. During liquidity cascades, the Level 2 order book thins drastically. A raw Market Order will sweep through multiple price levels to get filled, producing catastrophic slippage. On a tight Rejection Block stop (wick tip + 0.5 ATR), 5–10 ticks of entry slippage can instantly reduce R:R below 1:1 or trigger an immediate stop-out.

3.2 The Fix: Order Type Override by Asset Class

ASSET CLASS	ORDER TYPE (BEFORE)	ORDER TYPE (AFTER)	RATIONALE
Futures (ES/NQ)	Market Order	Market with Protection (MWP)	CME-native order type. Acts like a market order but rejects fills beyond a configurable price collar. Best of both worlds: speed + slippage cap.
Crypto	Market Order	Aggressive Limit	No MWP equivalent on crypto exchanges. Aggressive Limit = best_ask + (2 × tick_size) for longs. If not filled within 2 seconds, cancel and accept the miss.
Equities	Market Order	Aggressive Limit	Same as Crypto. SIP-consolidated best ask + buffer. 2-second timeout.
Forex	N/A (T11 OFF)	N/A (T11 OFF)	Forex profile disables Fast Move Switch. No change needed.
Options	N/A (routes to chain)	N/A (routes to chain)	Options execution routes through OptionsRouter, not T11.

```
[constants.fast_move_switch]
order_type_futures      = "MWP"          # Market with Protection (CME native)
mwp_protection_ticks    = 3              # Max slippage allowed beyond trigger price
order_type_crypto       = "AGG_LIMIT"    # Best ask/bid + buffer
order_type_equities     = "AGG_LIMIT"
agg_limit_buffer_mult   = 2              # N × tick_size beyond best bid/ask
agg_limit_timeout_sec   = 2              # Cancel if unfilled after N seconds
```

4. Fix C: Absorption Detection Formula Clarification

Severity: MEDIUM — Documentation ambiguity. The existing T08 logic already works correctly in practice.

4.1 The Issue

The Engineering Spec defines absorption as "price displacement < 0.25 × expected displacement." The reviewer correctly pointed out that "expected displacement" is undefined without a continuous L2 model, which doesn't exist until Kill Mode.

4.2 Formalized Definition

The existing T08 implementation already uses trades + tbbo data (not L2). The following formalized definition replaces the ambiguous "expected displacement" language:

ELEMENT	FORMAL DEFINITION
Absorption Detected	TRUE when ALL three conditions are met simultaneously within a rolling window:
Condition 1: Volume	Cumulative aggressive sell volume (for bullish absorption) exceeds the configurable threshold within the rolling window. Default: ≥ 200 contracts for ES, ≥ 10 BTC for crypto. This proves heavy directional pressure exists.
Condition 2: Duration	The aggressive selling persists for ≥ N consecutive seconds. Default: 3 seconds. This filters out single large prints that don't represent sustained pressure.
Condition 3: Price Stability	Net price movement (tbbo midpoint change) during the window is ≤ 1 tick. This is the critical test: heavy selling with no price drop = a large passive buyer is absorbing all the selling. No L2 model required — this is measured directly from the tbbo stream.
Rolling Window	Configurable. Default: 5-second rolling window. Recalculated every 100ms. The window slides forward continuously while the bot is in Kill Mode.

```
[constants.absorption]
volume_threshold_es      = 200      # contracts in rolling window
volume_threshold_crypto  = 10.0     # BTC in rolling window
min_duration_seconds     = 3        # sustained pressure required
max_price_displacement   = 1        # ticks (net move in tbbo midpoint)
rolling_window_seconds   = 5
recalculation_interval_ms = 100
```

5. Fix D: Options IV Crush Protection

Severity: CRITICAL — Without this fix, the Options profile can win the directional trade and still lose money.

5.1 The Scenario

Price sweeps into a bullish POI during extreme volatility (earnings, FOMC, CPI). IV spikes to the 99th percentile. The OptionsRouter buys a Call. The underlying bounces exactly as predicted, but IV collapses ("IV crush") as volatility normalizes. The Call's extrinsic value evaporates. Net result: the underlying moved +2R in your favor, but the option is flat or negative because you paid massively inflated premium.

5.2 The Fix: IVR Gate in OptionsRouter (M14)

ELEMENT	SPECIFICATION
IV Rank (IVR) Calculation	$\text{IVR} = (\text{Current IV} - 52\text{-week Low IV}) / (52\text{-week High IV} - 52\text{-week Low IV}) \times 100.$ Sourced from broker options chain API. Updated per trade signal evaluation. IVR tells you where current volatility sits relative to the past year.
Low IVR ($\leq 50\%$)	Standard behavior. Buy Calls (long) or Puts (short) as designed. Premium is reasonably priced. No override needed.
Medium IVR (51–80%)	Caution zone. Reduce DTE by 1 tier (e.g., if the grade would normally use 5–7 DTE, use 1–3 DTE instead). Shorter DTE = less extrinsic value exposed to IV contraction. Trade is still viable but with tighter time management.
High IVR ($> 80\%$)	TWO OPTIONS (configurable per profile): Option A (high_iv_strategy = "spread"): Route to a DEFINED-RISK SPREAD instead of naked options. For longs: Bull Put Spread (sell a put, buy a lower put). For shorts: Bear Call Spread. Spreads benefit from IV contraction because you are net short extrinsic value. Option B (high_iv_strategy = "abort"): Abort the options routing entirely. Log the signal as "IV too high for directional options." The trade is still valid on the underlying — just not as an options trade.

```
[constants.options]      # append to existing options section
ivr_threshold_caution   = 50  # Medium zone starts here
ivr_threshold_high      = 80  # High zone / abort-or-spread zone
high_iv_strategy        = "spread" # Options: "spread" or "abort"
dte_reduction_tiers     = 1   # Reduce DTE by N tiers in caution zone
```

5.3 New Function

FUNCTION	INPUTS	OUTPUTS	DESCRIPTION	MODULE
evaluate_iv_risk()	underlying: str ivr_threshold_caution: int ivr_threshold_high: int	iv_zone: str ("low", "caution", "high") ivr: float	Queries broker API for current IV, 52-week high IV, and 52-week low IV. Calculates IVR. Returns the zone classification. Called by OptionsRouter before contract selection.	OptionsRouter

build_spread()	underlying: str direction: str grade: str dte_config: dict	SpreadOrder	Constructs a Bull Put Spread (for long signals) or Bear Call Spread (for short signals). Selects short strike at target delta, long strike 1–2 strikes further OTM. Validates liquidity on both legs. Only called when iv_zone = "high" and high_iv_strategy = "spread".	OptionsRouter
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6. Fix E: Equities Pre-Market Volume Check

Severity: HIGH — Treating heavily-traded pre-market gaps as empty FVGs produces false POIs.

6.1 The Problem

Toggle T44 (Gap-as-FVG) calculates the gap as yesterday's close to today's open. For high-volume equities (SPY, AAPL, NVDA), the pre-market session (4:00–9:30 AM EST) often trades significant volume. If this volume fills the gap zone, the zone is no longer an "inefficiency" — it has genuine structural nodes that should be mapped normally, not treated as a blank FVG.

6.2 The Fix: Conditional Gap-FVG with Pre-Market Check

STEP	LOGIC
1	At 9:30 AM EST, calculate the raw gap: $\text{gap_size} = \text{abs}(\text{today_open} - \text{yesterday_close})$. If $\text{gap_size} < 0.5 \times \text{Daily ATR}$, no Gap-FVG (too small). Standard T44 behavior.
2	Query pre-market volume (4:00–9:30 AM EST) from SIP data. Calculate: $\text{premarket_ratio} = \text{premarket_volume} / (10\text{-day Average Daily Volume})$.
3	If $\text{premarket_ratio} < 0.15$ (less than 15% of average daily volume): the pre-market was quiet. Create the Gap-FVG as designed. The gap zone is genuinely unfilled.
4	If $\text{premarket_ratio} \geq 0.15$: check whether pre-market trading filled the gap. Calculate: $\text{premarket_range} = \text{premarket_high} - \text{premarket_low}$. If premarket_range covers $> 70\%$ of the gap zone, DISABLE the Gap-FVG and let the POIMapper scan the pre-market structure normally for Order Blocks and FVGs.
5	If $\text{premarket_ratio} \geq 0.15$ BUT premarket_range covers $\leq 70\%$ of the gap: PARTIAL GAP-FVG. Shrink the Gap-FVG zone to only the unfilled portion (the part of the gap not covered by the pre-market range). This captures the remaining inefficiency.

```
[constants.gap_fvg]           # append to existing section
premarket_volume_threshold = 0.15 # 15% of 10-day ADV
premarket_fill_threshold   = 0.70 # 70% of gap covered = fully filled
adv_lookback_days         = 10
```

7. Fix F: Crypto Open Interest Delta Integration

Severity: CRITICAL — Funding rates update every 8 hours. OI Delta provides real-time liquidation confirmation.

7.1 Why OI Delta Is Essential

Crypto price movements are overwhelmingly driven by leveraged liquidations. When a cluster of overleveraged positions gets forcibly closed, the exchange's liquidation engine fires Market Orders that create massive directional flow. OI Delta (the rate of change of Open Interest) is the fastest, most direct measurement of this: when OI drops sharply while price drops into a bullish POI, it is definitive proof that long positions are being liquidated. Those liquidation market-sell orders are the "liquidity" that institutional passive buyers absorb.

Funding rates (currently the primary signal in T43) update every 8 hours. A liquidation cascade can start and finish in 30 seconds. By the time the funding rate reflects the event, the trade is over. OI Delta is measured in real-time and captures the cascade as it happens.

7.2 Data Source & Integration

ELEMENT	SPECIFICATION
Data Source	Binance Futures API: /fapi/v1/openInterest (REST, polled every 5 seconds). Bybit equivalent as redundancy. Both are free.
OI Delta Calculation	$oi_delta = (current_oi - oi_60_seconds_ago) / oi_60_seconds_ago \times 100$ A rolling 60-second rate-of-change. Stored in the LiquidationFeed module alongside the existing liquidation event stream.
Signal Classification	<p>LARGE NEGATIVE OI DELTA ($\leq -2\%$): Confirmed liquidation cascade. If concurrent with price dropping into a bullish POI, this is the highest-conviction crypto entry signal.</p> <p>MODERATE NEGATIVE OI DELTA (-1% to -2%): Likely liquidations occurring. Supports the Liquidity Sweep criterion (+2) but doesn't override other scoring.</p> <p>FLAT or POSITIVE OI DELTA ($\geq 0\%$): No liquidations. Price movement is organic. Standard scoring applies.</p>
Scoring Integration	OI Delta does NOT add new points. It enriches the existing +2 Liquidity Sweep criterion by confirming whether the sweep was liquidation-driven (highest conviction) or organic (standard conviction). When $oi_delta \leq -2\%$ during a sweep into a POI, the sweep criterion is automatically confirmed without needing traditional price-action sweep detection.
Signal Hierarchy (Updated)	<p>PRIMARY: OI Delta (real-time, 5-second polling, 60-second window)</p> <p>SECONDARY: Liquidation Event Stream (real-time, per-event WebSocket)</p> <p>TERTIARY: Funding Rate (every 8 hours, penalty-only function via T43)</p>

FUNCTION	INPUTS	OUTPUTS	DESCRIPTION	MODULE
poll_open_interest()	instrument: str exchange: str	oi: float, timestamp: datetime	Polls exchange REST API every 5 seconds for current Open Interest. Stores in a rolling 60-second circular buffer (same pattern as the	LiquidationFeed

			Ring Buffer). Runs only in Crypto profile.	
calculate_oi_delta()	oi_buffer: list[float]	oi_delta_pct: float	Calculates (latest_oi – oldest_oi_in_buffer) / oldest_oi_in_buffer × 100. Returns the 60-second rate of change. Updated every 5 seconds.	LiquidationFeed
classify_liquidation_signal()	oi_delta: float price_delta: float trade_direction: str	signal: str ("confirmed", "likely", "none")	Combines OI Delta with price direction. If oi_delta ≤ -2% AND price is dropping into a bullish POI, returns "confirmed". Used by ConfluenceScorer to auto-confirm the Liquidity Sweep criterion.	LiquidationFeed

8. Tweak G: Dynamic Scale-Outs by Trade Grade (T47)

Severity: OPTIMIZATION — The current rigid 50% scale-out at 2R leaves money on the table for A+ trades.

8.1 The Insight

A+ trades (Unicorn setups, all tiers firing, massive absorption) have the highest probability of reaching the macro target. Taking 50% off at 2R treats them identically to B trades. This reduces the system's overall expectancy because the highest-conviction trades — the ones most likely to produce 5R–10R runners — are being prematurely cut in half.

8.2 Grade-Based Phase 1 Scaling

GRADE	SCALE-OUT %	TARGET	RATIONALE
A+	25%	2.0R	Maximum runner exposure. 75% rides to the macro target. Only 25% is banked to fund risk (move stop to breakeven). These trades have the highest win rate and largest potential payoff.
A	40%	2.0R	Strong runner exposure. 60% rides. Slightly more conservative than A+ because one or two Tier 3 criteria may be missing.
B	60%	1.5R	Aggressive banking. Only 40% runs. Lower R target (1.5R instead of 2R) because B trades have lower conviction and the priority is locking in profit quickly.

After Phase 1 exit, the remaining position (75% / 60% / 40%) enters Phase 2 (Structural Node Trail) and Phase 3 (Dynamic Climax Exit) unchanged. The trail logic, RBI/GBI filters, and 20 SMA Health Check all operate identically regardless of the initial scale-out percentage.

```
[constants.phase1_scaling]      # NEW section
a_plus_scaleout_pct    = 0.25  # 25% off at 2R
a_plus_target_r        = 2.0
a_scaleout_pct         = 0.40  # 40% off at 2R
a_target_r             = 2.0
b_scaleout_pct         = 0.60  # 60% off at 1.5R
b_target_r             = 1.5
```

TOGGLE T47: DYNAMIC SCALE-OUTS

Default: OFF. When OFF, the system uses the original rigid 50% at 2R for all grades. When ON, the grade-based table above is applied. This allows direct A/B backtesting: run the same trade set with T47 ON vs. OFF and compare total expectancy, max drawdown, and profit factor.

9. Tweak H: Tick-Based Velez MAs (Experimental)

Severity: OPTIMIZATION — Theoretically sound but untested. DO NOT replace existing Velez layer.

9.1 The Argument

Time-based 2-minute candles contain wildly different amounts of information depending on market speed. During a fast cascade, a single 2-minute bar might contain 5,000 trades. During lunch chop, it might contain 200. This distorts the 20 SMA slope, halt detection, and elephant bar criteria because the same "bar count" represents completely different market states.

Tick-based or volume-based bars normalize this: each bar contains a fixed number of trades (e.g., 1,000) or a fixed volume (e.g., 500 contracts for ES). Fast markets produce more bars per minute; slow markets produce fewer. The 20 SMA on a 1,000-tick chart adapts naturally to market speed.

9.2 Why We're Not Replacing the Velez Layer

CONCERN	EXPLANATION
Calibration Loss	Oliver Velez's strategies were developed, tested, and taught on time-based 2-minute charts. All SMA slope thresholds, halt criteria, and elephant bar range calculations in Tier 2 are calibrated to time-based bars. Switching to tick bars changes the statistical properties of every Velez constant. We would need to recalibrate from scratch with no reference material.
Backtesting Complexity	Historical tick data is required to reconstruct tick charts for backtesting. This data is significantly more expensive and voluminous than OHLCV data. The backtesting infrastructure would need a parallel bar construction pipeline.
Uncertain Payoff	The theoretical benefit (volume-normalized MAs) is plausible but unproven for Velez-style patterns. It may improve results, make no difference, or actively degrade performance. We don't know until we test it.

9.3 Recommendation: Experimental Parallel

Keep the existing 2-minute time-based Velez layer as the authoritative Tier 2 scoring layer. Add an optional tick-based MA as a logging-only experimental signal. During backtesting and paper trading, log the tick-based 20 SMA slope and halt detection alongside the time-based versions. After accumulating sufficient data (minimum 500 trades), compare the two: does the tick-based version predict entry success more accurately? If yes, migrate. If no, drop it.

This is NOT a toggle. It is a research task with no production impact. No toggle number assigned until data justifies promotion to a scoring criterion.

10. Tweak I: Toxicity Exit — Dead Tape Detection (T48)

Severity: OPTIMIZATION — Low complexity, meaningful protection against "abandoned" institutional zones.

10.1 The Insight

When the bot enters a trade at a POI, it expects institutional defense: aggressive absorption, delta flips, large block trades. This is what SMC calls "institutional intent." If the tape goes completely dead after entry — volume vanishes, velocity drops to near zero, no block prints — it means institutions are NOT defending the zone. The POI may still hold by coincidence, but the thesis (institutional accumulation at this level) is invalidated. Sitting in a dead zone for 10 minutes exposes the position to random adverse drift with no institutional backstop.

10.2 Specification

ELEMENT	SPECIFICATION
Trigger Condition	After entry, tape velocity (ticks per second) drops below 10% of the 1-hour rolling average AND stays below that threshold for ≥ 5 consecutive minutes.
Exit Behavior	If the position is at or above breakeven: exit at market (Time Stop). If the position is underwater but above the hard stop: exit at market (Time Stop). Either way, the logic is: no institutional defense = exit before random drift turns a small loss into a full stop-out.
Interaction with T18	Toxicity Exit (T48) is a sub-condition within the Tape Failure Exit logic (T18). T18 currently only triggers on aggressive selling (80%+ sell delta at high velocity inside the HVN). T48 adds a second trigger: NO activity at all. Both trigger conditions independently cause an exit.
Asset Class Support	Active for Futures, Crypto, and Equities (all profiles with real volume data). OFF for Forex (no tape data). OFF for Options (exits based on underlying price + theta, not tape).
Override	If the position has already hit Phase 1 (partial taken, stop at breakeven), the Toxicity Exit is DISABLED for the runner. The runner is already risk-free and should be allowed to wait for the structural trail to play out. Dead tape is only dangerous when the position still carries risk.

```
[constants.toxicity_exit]
velocity_threshold_pct = 0.10    # 10% of 1-hour rolling average
dead_tape_duration_min = 5       # minutes below threshold
disable_after_phase1   = true    # Runner is risk-free, don't exit
```

11. New Feature Toggles (T47 – T48)

ID	FEATURE	LAYER	DEFAULT	DEPENDS ON	WHAT HAPPENS WHEN OFF
T47	Dynamic Scale-Outs by Grade	Management	OFF	T23	Rigid 50% scale-out at 2R for all grades. Original Phase 1 behavior.
T48	Toxicity Exit (Dead Tape)	Management	ON	T18	No dead-tape detection. Bot holds position until hard stop, Tape Failure (aggressive selling), or trail exit. Disabled in Forex and Options profiles.

TOGGLE COUNT UPDATE

The system now has 48 toggles (T01–T48). T47 defaults to OFF (backtest before enabling). T48 defaults to ON (protective, low risk of false triggers). Note: the tick-based Velez MA experiment (Tweak H) does NOT receive a toggle number — it is a research/logging task only, promoted to a toggle if data justifies it.

12. Complete System Summary (v3.2)

COMPONENT	TOTAL
Feature Toggles	48 (T01–T48). 42 universal + 4 asset-class + 2 optimization. Plus 2 deferred (T35, T37).
Pre-Scoring Gates	3 gates: G1 Premium/Discount, G2 Inducement, G3 Chop Detector.
Scoring Criteria	13 criteria across 3 tiers. Maximum: 17 points. Unchanged from v3.0.
POI Types	7: ORDER_BLOCK, FVG, LIQUIDITY_POOL, SYNTHETIC_MA, REJECTION_BLOCK, BREAKER_BLOCK, GAP_FVG.
Modules	15: 12 original + SessionProfiler + LiquidationFeed + OptionsRouter.
Asset Class Profiles	5: Futures (baseline), Forex (structure-only), Crypto (liquidation-aware), Equities (gap-aware), Options (derivative routing).
Schema Shifting (REVISED)	Killzone base = ohlcv-1m + trades + tbbo (Ring Buffer always full). Kill Mode adds mbp-10. Non-Killzone = ohlcv-1m only. Halo triggers analysis, not data subscription.
Fast Move Entry (REVISED)	MWP for Futures, Aggressive Limit for Crypto/Equities. No raw Market Orders in production.
Absorption (CLARIFIED)	Volume threshold + duration + price stability. No L2 model dependency. Works on trades + tbbo.

12.1 Document Lineage

VERSION	DOCUMENT	SCOPE
v1.0	Engineering Specification	12 modules, Predator State Machine, 14-point rubric, HVN/LVN stops, Sudden Move Policy.
v2.0	HTF MA Integration + Feature Toggles	Velez 20/200 SMA, Tier 2 scoring, 30 toggles (T01–T30), TOML config.
v3.0	Confluence Grading Rubric v3.0	Premium/Discount gate, Inducement gate, Flip/Sweep Zones, VWAP, Tier 3, 17-point rubric, T31–T38.
v3.1	POI Refinement + Chop Protection	Extreme/Decisional OBs, Unicorn Setup, Rejection Blocks, Chop Detector, T39–T42.
v3.1+	Multi-Asset Profile System	5 asset class profiles, LiquidationFeed, OptionsRouter, Gap-FVG, T43–T46.
v3.2	External Review Fixes (this document)	Schema shifting fix, MWP/Aggressive Limit, absorption formalization, IV Crush protection, pre-market check, OI Delta, dynamic scale-outs, Toxicity Exit. T47–T48.

E N D O F D O C U M E N T

FLOF Matrix — External Review Fixes & Hardening v3.2

Read in conjunction with all prior FLOF Matrix documents.