

DecaGrid Whitepaper (v1)

DecaGrid Docs Pack v1 - generated 2026-01-10

Executive summary

DecaGrid is a regime-aware oscillation capture engine. It tracks a large universe of assets (50 BTC-beta + 50 ETH-beta), trades only the best few, and reallocates profits toward proven volatility.

Key invariant: DecaGrid refuses to place grid steps that cannot clear costs (fees, spread, slippage, safety). The goal is net-positive completed cycles, not constant trading.

Archive Segment 1 - DecaGrid Core (Locked)

- DecaGrid is not a single grid. It is a grid compiler + regime router + execution engine + inventory risk manager.
- Invariant: no order is placed unless $\text{step} > (2 \times \text{fees} + \text{spread} + \text{slippage} + \text{safety})$. Completed cycles must be net-positive after costs.
- Regime gating: RANGE enables full grid; TREND reduces/skews/hedges; CHAOS/NEWS pauses; ILLQUID widens or pauses.
- Execution edge: maker-first placement, queue-aware join/improve, cancel/replace throttling, anti-adverse-selection filters.
- Inventory defense: hard caps + inventory skew (if long -> sell closer/buy farther; if short -> buy closer/sell farther), controlled unwinds, stand-down logic.

Archive Segment 2 - Multi-Asset Rotation Engine (Locked)

- Track 100 coins (50 BTC-beta, 50 ETH-beta). Trade only 5-15 at a time to avoid fee bleed and dilution.
- Per-coin records: volatility efficiency, cycle completion rate, net PnL per dollar, fees/slippage, inventory drawdown, liquidity health, regime stability.
- DecaScore ranks coins using real performance. Capital flows to winners and new proven volatility; losers are demoted and paused.
- Capital ladder tiers: Reserve, Proving, Core Earners, Winners. Profits are pooled and reallocated upward, not evenly spread.
- Fees/slippage/transfers are first-class costs. Prefer internal rotation to avoid transfer costs; pause coins when minStep cannot clear costs.

Archive Segment 3 - HTML + PDF System Plan (Locked)

- Deliver offline HTML app with pages: Overview, Architecture, DecaScore, Ladder, Execution & Risk, Universe, Simulator, Records, Compliance.
- Deliver two PDFs: Whitepaper (20-40 pages target) and Runbook (10-20 pages target). Both mirror the HTML content and core diagrams.

- Single-source content approach: shared content blocks render into both HTML and PDF to prevent drift.
- Exports: config template JSON, sample trade receipt JSON, sample daily log JSON.
- Quality: offline-ready (no CDNs), clear hierarchy, printable styling, and locked copy that avoids guarantees.

System architecture

Module	Responsibility
Market Data	Candles + order book metrics. Produces spread, depth, volatility signals.
Regime Router	Classifies RANGE/TREND/CHAOS/ILLQUID and gates trading.
Grid Compiler	Builds candidate grids; enforces minStep; stacks micro/core/macro.
DecaScore	Ranks coins from records; penalizes costs and inventory risk.
Allocation Ladder	Reserve/Proving/Core/Winners. Promotes/demotes; reallocates profit pool.
Execution	Maker-first, queue-aware placement; paired exits; cancel throttles.
Records	Receipts + daily summaries. Proves edge and prevents weight gaming.

Growth model (planning)

DecaGrid growth is driven by selective compounding: capital rotates toward coins with high DecaScore (profit efficiency, cycle completion, volatility efficiency) while standing down in unprofitable regimes.

Planning bands discussed: conservative 0.5-0.7% average daily on total capital; strong 0.8-1.2% average daily on total capital (varies by conditions, venue, and implementation).

Under 0.8-1.0% average daily, the planning timeline for 100 -> 10,000 is approximately 15-20 months. This is not a guarantee and will be validated only via logs.

Cost model (min profitable step)

$\text{minStep} = 2 * \text{makerFee} + \text{spread} + \text{slippageBuffer} + \text{safety}$. If planned step \leq minStep, DecaGrid does not place that grid level. If liquidity worsens, step widens or the bot stands down.

Verification

All performance claims must be supported by the records layer: per-trade receipts linked into completed cycles, and per-day summaries per coin with fees, slippage estimates, drawdowns, and stand-down intervals.