

AUXIDIEN

Volatility-Weighted Adaptive Index Token

Using precious metals as volatility signals

WHITEPAPER

Property	Value
Token Symbol	AUXI
Network	BNB Smart Chain (BSC)
Total Supply	100,000,000 AUXI
Index Components	Gold, Silver, Platinum, Palladium

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www.auxidien.io

1. Executive Summary

Auxidien (AUXI) is a volatility-aware adaptive index token designed to operate independently of any commodity backing, redemption mechanism, or price peg.

AUXI derives its index behavior from precious metals market volatility signals, but does not represent ownership of physical metals, nor does it track or mirror their prices. Precious metals are used strictly as external signal sources within a transparent, rules-based index methodology.

The AUXI index value functions as a reference signal, published on-chain via an oracle, while the market price of AUXI is determined freely through supply and demand on exchanges. No algorithmic peg, stabilization target, or redemption claim exists.

IMPORTANT: AUXI is not a commodity-backed or redeemable token. It is an adaptive index whose market price emerges from rule-based mechanisms and free price discovery on exchanges.

2. Introduction

The precious metals market, with a combined market capitalization exceeding \$15 trillion, has long served as a source of volatility signals in global finance. Gold, silver, platinum, and palladium exhibit unique volatility characteristics that make them valuable inputs for sophisticated index construction.

Auxidien leverages these volatility signals through blockchain technology, creating an adaptive index that responds to precious metals volatility dynamics. Unlike commodity-backed tokens or ETFs, AUXI does not represent ownership of physical metals. Instead, it is a rules-based index token whose behavior is derived from—but not pegged to—precious metals market data.

Why Precious Metals as Signal Sources?

- Volatility Signals: Precious metals exhibit well-studied volatility patterns that provide reliable inputs for index construction.
- Uncorrelated Dynamics: Low correlation with crypto assets makes precious metals ideal signal sources for portfolio diversification.
- Global Price Discovery: Deep, liquid markets provide robust and manipulation-resistant price signals.
- Multi-Asset Diversification: Four metals with different volatility profiles enable sophisticated weighting strategies.

3. The AUXI Solution

Auxidien introduces an adaptive index token that solves these challenges through a novel architecture separating signal processing from price discovery.

Core Design Principles

- **Signal, Not Peg:** The index value serves as a reference signal derived from precious metals data. It is NOT a target price that AUXI must match.
- **Free Price Discovery:** AUXI trades freely on exchanges. Market price is determined by supply, demand, and participant behavior.
- **Adaptive Weights:** Component weights adjust dynamically based on realized volatility and regime detection.
- **Transparent Rules:** All index calculations follow published formulas with no discretionary intervention.

Signal Components

Metal	Symbol	Signal Characteristics	Weight Range
Gold	XAU	Low volatility, primary signal	35% - 55%
Silver	XAG	Moderate volatility, industrial correlation	15% - 30%
Platinum	XPT	Unique volatility profile	10% - 25%
Palladium	XPD	High volatility, capped influence	5% - 15%

4. Index Methodology

The Auxidien Index employs a sophisticated volatility-weighted methodology that dynamically adjusts component weights based on market conditions.

4.1 Volatility-Weighted Approach

Traditional indices use market capitalization or fixed weights. AUXI instead uses inverse volatility weighting, where assets with lower volatility receive higher weights. This is based on the principle that volatile assets contribute disproportionately to portfolio risk.

4.2 Mathematical Framework

Step 1: Calculate Log Returns $r_t = \ln(P_t / P_{t-1})$

Step 2: Calculate Volatility $\sigma_i = \text{stddev}(r_t)$ for asset i

Step 3: Calculate Weights (Inverse Volatility) $W_i = (1/\sigma_i) / \sum(1/\sigma_j)$

Step 4: Smooth Transitions $W_{\text{new}} = W_{\text{old}} \times (1 - \lambda) + W_{\text{target}} \times \lambda$, where $\lambda = 0.08$

4.3 Index Normalization

Auxidien expresses index values in normalized units relative to an initial base level (Base = 1.00). This design choice improves interpretability and avoids misleading absolute price comparisons.

```
normalized_index = raw_index / raw_index_base indexValueE6 =
normalized_index * 1,000,000
```

Normalization does not change percentage movements. It improves interpretability and reinforces index–price separation.

5. System Architecture

5.1 Oracle Update Frequency

The Auxidien system separates computation frequency from publication frequency to optimize for data quality while minimizing market influence:

Layer	Frequency	Purpose
Data Collection	Every 5 minutes	Gather price signals from sources
Index Calculation	Every 5 minutes	Internal volatility & weight analysis
Oracle Publication	Configurable	On-chain index value update

Discovery Phase: Oracle publication is limited to 1–2 times daily (UTC 00:00 and 12:00). This allows sufficient data collection before publication and reduces perception of algorithmic price control.

6. Price Formation & Market Interaction

Index Value vs. Market Price

Concept	Description
Index Value	Calculated reference signal published by oracle (derived from precious metals volatility-weighted formula)
Market Price	Actual trading price on exchanges, determined by supply/demand and market participant behavior
Relationship	Index value informs market participants but does NOT enforce a peg. Price discovery is free.

Index ≠ Price: The oracle publishes reference signals only. Market prices are independent and exchange-determined.

7. Risk Moderation & Behavioral Safeguards

Auxidien prioritizes behavioral stability and interpretability over price targeting or artificial stabilization. The protocol introduces rule-based safeguards that moderate how the index responds to changing conditions.

7.1 Rate-Limited Index Drift

Index value adjustments are subject to time-based rate limits:

Regime	Daily Cap	Weekly Cap
LOW	3%	8%
MEDIUM	2%	5%
HIGH	1.5%	4%
EXTREME	1%	2.5%

7.2 Drawdown-Aware Dampening

If the index experiences sustained drawdown beyond a threshold (5% over 14 days), the system transitions to conservative mode: weight adjustments slow, volatility caps tighten.

7.3 Correlation Stability Awareness

Rapidly shifting correlations signal market fragmentation. Index responsiveness is reduced when correlation stability falls below threshold.

7.4 Regime Persistence Constraints

Once a volatility regime is identified, minimum duration is enforced before regime changes are permitted. This prevents flip-flopping and improves behavioral consistency.

7.5 Explicit Non-Objectives

Auxidien does NOT attempt to:

- Target a specific price
- Stabilize market value
- Suppress volatility
- Intervene in exchange trading

Market price formation remains entirely free and participant-driven.

8. Tokenomics

AUXI has a fixed supply of 100,000,000 tokens with a carefully designed distribution.

Allocation	Amount	%	Purpose
Public Distribution	35,000,000	35%	DEX/CEX liquidity, organic distribution
Treasury	20,000,000	20%	Operations, partnerships
Liquidity Pool	20,000,000	20%	DEX market making
Team & Dev	15,000,000	15%	36-month vesting, 6-month cliff
Advisors	10,000,000	10%	Strategic partners (vested)

Important: Token supply mechanics do not target or support any specific market price. Public distribution occurs through organic exchange activity, not promotional incentive programs.

9. Smart Contracts

All contracts are open-source and verified on BscScan:

Contract	Address
AuxiToken (AUXI)	0x03e5FD0dfc9755f070BA420Ae364c452C1aFbd36
AuxidienOracle	0xFc124A410A4AD4c448911735BF0BCc44E8C74Fbd
AuxiVesting	0x48D15B999c0cD5f160D739974188193c59c13474

Oracle Functions

- `getIndexValueE6()` → Current AUXI index value (normalized, scaled by 10^6)
- `getLastIndexUpdate()` → Timestamp of last index calculation
- `updateIndexValue(uint256)` → Publish new index value (authorized only)

Note: The index value is a reference signal, not a price target. AUXI market price is determined by exchange trading, not by the oracle.

10. Security & Audits

Security Measures:

- **Smart Contract Verification:** All contracts verified on BscScan with full source code
- **Access Control:** Critical functions restricted to authorized wallets
- **Index Drift Bounds:** Oracle validates index updates using max change limits
- **Team Token Lockup:** 15M team tokens locked in vesting contract
- **No Mint Function:** Fixed supply with no ability to create new tokens

Note: Index Drift Bounds limit the rate of index value changes, not market price. Market price is determined freely by exchange trading.

11. Roadmap

Phase	Title	Key Milestones
Phase 1 Q1 2026	Foundation (Completed)	Contract deployment, Oracle system, Vesting contracts
Phase 2 Q1-Q2 2026	Discovery (In Progress)	Public interface, DEX liquidity, Community research outreach
Phase 3 Q2-Q3 2026	Expansion	CEX listings, Cross-chain bridge, External audit
Phase 4 Q4 2026+	Evolution	DAO governance, Additional indices, Institutional partnerships

Discovery Phase Approach: During the initial market discovery period, Auxidien focuses on observation and data collection rather than promotional activities. Community outreach emphasizes education and research collaboration.

12. Legal Disclaimer

Not a Commodity or Security

AUXI is an index token. It is NOT backed by physical precious metals, does NOT represent ownership of any commodity, and is NOT redeemable for physical assets. AUXI is NOT intended to be a security, share, or ownership stake in any company or project.

No Investment Advice

This whitepaper is for informational purposes only and does not constitute investment advice, financial advice, trading advice, or any other sort of advice.

Risk Disclosure

Cryptocurrency investments, including AUXI tokens, carry significant risk. The value of AUXI may fluctuate significantly and you may lose some or all of your investment. Past performance is not indicative of future results.

No Guarantees

The Auxidien team makes no guarantees regarding the future value, utility, or performance of AUXI tokens.

13. Contact & Resources

- **Website:** <https://auxidien.io>
- **Twitter:** [@auxidien](https://twitter.com/auxidien)
- **Telegram:** t.me/auxidien
- **BscScan:** bscscan.com/token/0x03e5...bd36

*Thank you for your interest in Auxidien.
Building the future of adaptive index technology.*

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