NAAMI Token: Tokenomics and Governance

Naami Development Team
ted-nami@proton.me

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Abstract

This paper describes the economic model and governance framework for the NAAMI token, the native utility token of the Naami privacy-preserving expense tracking protocol. NAAMI is an SPL Token-2022 token on the Solana blockchain with a fixed supply of 1,000,000,000 tokens and irrevocably revoked mint authority. The token serves three primary functions: tier-based access control for premium features, reduced protocol fees for holders, and governance rights over protocol parameters. We detail the token distribution strategy, vesting schedules, progressive decentralization governance model, and the fee-based economic sustainability framework. Token distribution leverages Light Protocol's ZK compression for cost-efficient delivery, achieving approximately 94% cost reduction compared to standard token accounts. This paper is a companion to the Naami technical whitepaper [1], which describes the cryptographic architecture, zero-knowledge proof system, and privacy-preserving mechanisms of the protocol.

1 Introduction

Naami is a privacy-preserving decentralized expense tracking system that combines end-to-end encryption, event sourcing, zero-knowledge proofs, and blockchain-based cryptographic commitments to enable collaborative finance management without trusting centralized servers. The technical architecture, cryptographic primitives, and security analysis are described in the companion whitepaper [1].

This paper addresses the economic and governance dimensions of the protocol. A native token is introduced for three reasons:

1. **Incentive Alignment**: A token aligns the interests of users, developers, and the broader ecosystem by creating shared economic participation in the protocol's success.

2. **Decentralized Governance**: Protocol parameters—such as feature access thresholds, fee rates, and treasury allocation—should be governed by the community of stakeholders rather than a centralized entity.

3. **Premium Access**: Tier-based access control, enforced through on-chain token balance verification, provides a transparent and permissionless mechanism for unlocking premium features without relying on centralized subscription infrastructure.

2 The NAAMI Token

2.1 Technical Specification

The NAAMI token is deployed on the Solana blockchain using the SPL Token-2022 standard [2] with the following properties:

Table 1: NAAMI Token Specification

Property	Value
Standard	SPL Token-2022
Extensions	MetadataPointer, TokenMetadata
Total Supply	1,000,000,000 NAAMI
Decimals	9
Mint Authority	Irrevocably revoked
Freeze Authority	None
Metadata Storage	On-chain + Arweave (via Irys)

The choice of SPL Token-2022 over the legacy SPL Token program enables on-chain metadata through the MetadataPointer and TokenMetadata extensions, eliminating the need for the separate Metaplex metadata program and reducing account creation costs.

2.2 Immutable Supply

The mint authority has been irrevocably revoked on-chain, ensuring that no additional NAAMI tokens can ever be created. This provides a strong supply guarantee: the total supply of 1,000,000,000 NAAMI is fixed and immutable. Token holders can independently verify this by inspecting the mint account on the Solana blockchain, confirming that the mint authority field is set to null.

2.3 ZK Compression for Distribution

Token distribution leverages Light Protocol's ZK compression [3], enabling compressed token accounts that reduce the cost of token delivery by approximately 94% compared to standard Solana token accounts. This is particularly significant for community distribution and airdrop operations, where thousands of accounts may be created.

Compressed token accounts store their state in a Merkle tree with only the root on-chain, eliminating per-account rent while maintaining full verifiability through zero-knowledge proofs. The NAAMI token is registered with the Light Protocol compression pool, enabling both standard and compressed token accounts to coexist.

3 Utility

3.1 Tier-Based Access Control

NAAMI tokens gate access to premium protocol features through a tier system. Token balance determines the user's tier, with each tier unlocking progressively more capabilities:

Note on thresholds: Specific token amounts for Silver and Gold tiers are initial values, adjustable via governance. This design accommodates token price fluctuations that could otherwise render fixed thresholds inaccessible or trivial. Current threshold values are published in the protocol's live documentation and configuration.

3.1.1 Tier Enforcement

Tier verification is performed through real-time on-chain balance queries, supporting both standard and compressed token accounts:

1. The API queries the user's token balance across both standard SPL Token-2022 accounts and Light Protocol compressed accounts.

Table 2: Feature Tiers

Tier	Requirement	Features
Free	No tokens required	Basic expense tracking, limited sessions and participants
Silver	Token balance above Silver threshold	Expanded session and participant limits, export capabilities (CSV)
Gold	Token balance above Gold threshold	Unlimited sessions and participants, premium features (PDF exports, analytics, customization)

2. The balance is compared against the configured tier thresholds stored in the protocol's database.

3. The resulting tier determines feature access for the authenticated session.

4. A caching layer with webhook-based invalidation ensures low-latency tier resolution without excessive RPC calls.

3.1.2 Dynamic Configuration

Tier thresholds, feature gates, and per-tier limits are stored as protocol configuration rather than hardcoded values. This enables adjustment via governance without requiring protocol upgrades or redeployment, providing flexibility to respond to market conditions and community feedback.

3.2 Reduced Protocol Fees

NAAMI token holders benefit from reduced protocol fees on settlement transactions. The fee reduction mechanism applies a discount based on the user's tier: higher tiers receive greater fee reductions, creating a direct economic incentive for token holding. The specific fee schedule and discount rates are governance-controlled parameters.

3.3 Governance Rights

NAAMI token holders participate in protocol governance, voting on key parameters and strategic decisions. Governance scope and mechanisms are described in Section 6.

4 Distribution and Allocation

The total supply of 1,000,000,000 NAAMI tokens is allocated as follows:

Table 3: Token Allocation

Allocation	Percentage	Tokens	Purpose
Community	45%	450,000,000	Airdrops, rewards, ecosystem growth
Treasury	15%	150,000,000	Development, operations, partnerships
Early Supporters	12%	120,000,000	Beta testers, early adopters
Liquidity	10%	100,000,000	DEX liquidity pools
Founder	18%	180,000,000	Team, subject to vesting schedule
Total	**100%**	**1,000,000,000**	

4.1 Community Allocation (45%)

The largest allocation is reserved for the community, distributed through airdrops, usage rewards, and ecosystem growth programs. Community distribution uses the atomic claim flow: a single transaction mints compressed tokens to the claimant's account, with automatic rollback on failure ensuring atomicity. This mechanism leverages Light Protocol's ZK compression to minimize distribution costs.

4.2 Treasury (15%)

The treasury funds ongoing development, infrastructure costs, operational expenses, and strategic partnerships. Treasury management transitions from initial multi-signature control to community governance as the protocol matures (see Section 6).

4.3 Early Supporters (12%)

Reserved for beta testers and early adopters who contributed to protocol development and testing. Distribution criteria are based on verifiable on-chain and off-chain activity during the testing period.

4.4 Liquidity (10%)

Allocated to seed DEX liquidity pools on a major Solana decentralized exchange, ensuring sufficient market depth for token trading. Liquidity provider (LP) tokens are locked for a minimum of 24 months via an on-chain streaming protocol, preventing premature withdrawal.

4.5 Founder (18%)

The founder allocation is subject to a vesting schedule described in Section 5, ensuring long-term commitment alignment.

5 Vesting and Emission

5.1 Founder Vesting

The founder allocation of 180,000,000 NAAMI tokens follows a linear vesting schedule enforced via an on-chain streaming protocol:

Table 4: Founder Vesting Schedule

Parameter	Value
Total Amount	180,000,000 NAAMI
Cliff Period	12 months
Release Cadence	Monthly
Vesting Duration	24 months (after cliff)
Total Lock Period	36 months

During the 12-month cliff period, no tokens are released. After the cliff, tokens are released monthly in equal installments over 24 months. The vesting contract is deployed on-chain and is publicly verifiable, providing transparency into the founder's token release schedule.

5.2 No Additional Minting

The mint authority has been irrevocably revoked on-chain. No additional NAAMI tokens can ever be created, regardless of governance decisions or protocol upgrades. This hard supply cap is enforced at the blockchain level and is independently verifiable by any party.

5.3 Liquidity Lock

LP tokens resulting from the initial liquidity provision are locked for a minimum of 24 months via an on-chain streaming protocol. This prevents premature liquidity withdrawal and provides market stability assurance.

6 Governance

Naami adopts a progressive decentralization approach, recognizing that effective governance requires both technical infrastructure and community maturity.

6.1 Phase 1: Multi-Signature Control

During the initial phase, protocol operations are managed through multi-signature wallets requiring multiple authorized signers for any transaction. Multi-signature control applies to:

- Treasury and community wallet management
- Protocol parameter updates (tier thresholds, fee rates)
- Program upgrade authority
- Emergency protocol actions

Multi-signature governance provides security through distributed control while maintaining operational agility during the early growth period.

6.2 Phase 2: Community Governance

As the protocol matures and the token distribution becomes sufficiently decentralized, governance transitions to community-driven decision-making. Token holders vote on:

- **Tier Configuration**: Adjusting token thresholds for Silver and Gold tiers, modifying per-tier feature gates and limits
- **Protocol Fee Rates**: Setting fee percentages on settlement transactions, configuring tier-based fee discounts
- **Treasury Spending**: Approving development grants, partnership funding, and operational budgets
- **Feature Prioritization**: Guiding protocol development direction through signaling votes

The transition from Phase 1 to Phase 2 is progressive: individual governance responsibilities are transferred to the community as participation and infrastructure mature, rather than through a single transition event.

6.3 Governance Philosophy

The governance model is designed around the following principles:

1. **Transparency**: All governance actions are executed on-chain and publicly verifiable.
2. **Progressive Decentralization**: Control is transferred gradually from the founding team to the community, ensuring continuity and stability.
3. **Minimal Viable Governance**: Only parameters that directly affect stakeholders are subject to governance votes, avoiding governance fatigue.
4. **Separation of Concerns**: Technical protocol upgrades (security patches, bug fixes) remain under developer control, while economic parameters are governed by token holders.

7 Economic Model

7.1 Revenue

The protocol generates revenue through fees collected on settlement transactions. When users settle debts through on-chain refunds, a protocol fee is collected via the on-chain fee vault. This fee is separate from Solana network transaction fees (paid to validators) and represents protocol-level revenue.

7.2 Value Flow

The economic cycle operates as follows:

1. **Users** create and manage expenses within sessions, generating settlement transactions.
2. **Protocol fees** are collected on settlement transactions and deposited into the fee vault.
3. **Treasury** receives fee revenue and allocates funds to development, infrastructure, and ecosystem growth.
4. **Development** improves the protocol, attracting more users and increasing utility.

This creates a positive feedback loop where protocol usage funds further development, which in turn improves the user experience and drives adoption.

7.3 Sustainability

The fee-based revenue model is designed to cover infrastructure costs (RPC nodes, database hosting, API servers) and ongoing development. As the user base grows, fee revenue scales proportionally with transaction volume, providing a self-sustaining economic model. The companion whitepaper [1] provides a detailed cost analysis demonstrating that per-transaction costs remain practical even at scale.

8 Token Security

8.1 Immutable Supply

The mint authority has been irrevocably revoked on-chain, providing the strongest possible supply guarantee. This revocation is a one-way operation enforced by the Solana runtime: once the mint authority is set to null, no entity—including the original deployer—can mint additional tokens.

8.2 Upgrade Authority Security

The program upgrade authority is secured via a hardware wallet using BIP44 hierarchical deterministic key derivation. This ensures that program upgrades require physical access to the hardware device, preventing remote key compromise. The upgrade process follows a 3-step protocol minimizing hardware wallet interactions:

1. **Buffer Write**: Program binary is written to a buffer account using a software keypair as fee payer (no hardware wallet signature required).
2. **Authority Transfer**: Buffer authority is transferred to the hardware wallet key (no hardware wallet signature required).
3. **Upgrade**: The hardware wallet signs the upgrade transaction (single hardware wallet interaction).

This 3-step process reduces hardware wallet interactions from multiple signatures to a single confirmation, improving operational security while maintaining practical usability.

8.3 Multi-Signature Control

Treasury and community wallets are controlled by multi-signature accounts requiring multiple authorized signers for any transaction. This prevents unilateral actions and provides distributed control over significant token allocations.

9 Roadmap

The NAAMI token development follows three phases:

9.1 Launch

- Mainnet token deployment with SPL Token-2022 and metadata extensions
- Initial token distribution to allocation wallets
- Founder vesting activation via on-chain streaming protocol
- Liquidity pool creation on a major Solana decentralized exchange
- ZK compression registration for cost-efficient community distribution

9.2 Growth

- Community governance activation with on-chain voting
- Fee redistribution mechanism implementation
- Expanded tier features based on community feedback
- Airdrop campaigns leveraging compressed token distribution

9.3 Expansion

- Cross-chain exploration for multi-blockchain token presence
- Evolution of economic mechanisms based on governance decisions
- Advanced governance features (delegation, quadratic voting)
- Integration with broader Solana DeFi ecosystem

10 Conclusion

The NAAMI token provides an economic foundation for the Naami privacy-preserving expense tracking protocol, aligning incentives between users, developers, and the broader ecosystem. The fixed supply with irrevocably revoked mint authority, combined with a transparent vesting schedule and progressive decentralization governance model, establishes a credible framework for long-term protocol sustainability.

The tier-based access control system creates direct utility for token holders, while the fee-based revenue model ensures economic sustainability without reliance on continuous token issuance. By leveraging Light Protocol's ZK compression for distribution, the token benefits from the same cost-efficiency innovations described in the companion technical whitepaper [1].

The progressive decentralization approach—from multi-signature control to full community governance—reflects a pragmatic path toward decentralization that prioritizes security and operational stability during the critical early growth period while committing to long-term community ownership of protocol decisions.

References

[1] Naami Development Team. *Naami: A Privacy-Preserving Decentralized Expense Tracking System with Cryptographic Verifiability*. Companion paper, 2026.

[2] Solana Labs. *SPL Token-2022 Program*. `https://spl.solana.com/token-2022`

[3] Light Protocol. *ZK Compression for Solana*. `https://docs.lightprotocol.com/`

[4] A. Yakovenko. *Solana: A New Architecture for a High Performance Blockchain*. Solana Labs, 2018.