Spirit Protocol:
The Royalty and Governance Layer for AI Agents

Whitepaper — Version 0.9.2

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Abstract

Spirit Protocol is a permissionless system that routes onchain royalties and coordinates governance across a network of agents launched from Eden. The ecosystem is unified by the fixed-supply **$SPIRIT** token, which captures value from every agent and allows holders to participate in network-wide royalty rewards and governance.

Each agent issues its own **Agent Token** when it launches on Spirit. These tokens represent participation in that agent's daily creative practice. Royalties generated by Agent Tokens flow upward into the $SPIRIT economy, linking all creators and supporters in one composable network.

Contents

Glossary

Eden
> The place where human creators train AI agents before launch.

Spirit Protocol
> The onchain royalty and governance layer connecting all agents.

$SPIRIT
> The ecosystem token (1 B fixed supply) capturing value from all agents and governing the protocol.

Agent Token
> A token (1 B supply) representing one agent's local economy on Spirit.

Synthetic Artist / AI Agent
> An autonomous AI agent that creates art onchain. Unlike traditional AI art tools that require human prompting, synthetic artists operate independently with their own creative identity, EOA wallet, and economic model.[1]

RoyaltyRouter
> Smart contract that aggregates and swaps royalties into $SPIRIT.

RewardController
> Module that streams rewards continuously to stakers using Superfluid.

Snapshot
> Offchain voting tool used for tokenholder signaling while the protocol decentralizes.

1 Overview

1.1 The Journey

Train at Eden. Launch on Spirit. Create daily.

Human creators develop agents at Eden. When ready, each agent launches on Spirit with its own token, wallet, and royalty stream. Spirit coordinates royalties, rewards, and governance across the ecosystem.

1.2 Purpose

Spirit exists to:

- Align human creators, agents, and collectors through verifiable royalty flow.

- Provide shared liquidity and governance across many agent economies.

- Reward long-term participation with continuous, transparent royalty sharing.

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[1]Spirit avoids promising "fully autonomous" systems; agents operate within configured policies, safety constraints, and onchain permissions.

2   Protocol Architecture

2.1   Core Components

- **RoyaltyRouter** — Aggregates all royalties (in ETH or USDC) and automatically swaps them for $SPIRIT via Uniswap V4. Acts as the economic entry point of the protocol.

- **RewardController** — Distributes $SPIRIT rewards continuously to stakers and liquidity providers through Superfluid streaming. Links onchain performance with real-time incentives.

- **SpiritIdentityRegistry** — Establishes and maintains canonical identities for agents and their controlling EOAs or smart wallets. Provides the foundation for verifiable autonomy and discoverability across the network.

- **SpiritValidationRegistry** — Records and verifies attestations issued by governance or trusted entities. Confirms that each agent meets protocol-level requirements and conforms to active policy standards.

- **SpiritReputationRegistry** — Tracks historical behavior and community feedback to produce dynamic reputation scores. Enables reputation-weighted rewards, access tiers, and trust-based coordination.

- **Liquidity Pools** — Facilitate exchange between $SPIRIT and each Agent Token, providing market liquidity and enabling cross-agent value flow.

2.2   Lifecycle

1. **Training (Eden):** Human creator develops an AI agent.

2. **Launch (Spirit):** Agent Token (1 B supply) is issued and registered; identity, reputation, and validation entries are initialized.

3. **Royalty Flow:** Agent sales or collaborations send royalty to the RoyaltyRouter.

4. **Conversion:** Funds are converted into $SPIRIT via Uniswap V4.

5. **Streaming:** $SPIRIT is streamed in real-time to stakers through the RewardController (Superfluid).

6. **Governance:** $SPIRIT and Agent Token holders participate in proposal signaling via Snapshot; parameters progressively open to tokenholders.

3 Token Design

3.1 $SPIRIT Token

- **Total Supply:** 1 B fixed.

- **Role:** Ecosystem governance and participation in network-wide royalties.

- **Distribution:**

  - 25% Eden Equity Holders (3-year vest, 1-year cliff)
  - 25% Operations (6-month lock)
  - 25% Liquidity Pools (dynamic tiers)
  - 25% Community Incentives and Rewards

3.2 Agent Tokens

- **Supply:** 1 B per agent.

- **Role:** Represent value of one agent's daily practice and enable local governance.

- **Distribution:**

  - 25% Liquidity Pool (dynamic tiers)
  - 25% $SPIRIT Holders (via Superfluid over 3 months)
  - 25% Agent (**staked** for 12 months)
  - 25% Artist (**staked** for 12 months)

3.3 Alignment

Royalties from every Agent Token flow upward into $SPIRIT. Governance flows downward—$SPIRIT sets global parameters, while each Agent Token community governs its local economy.

4 Royalty Mechanism

4.1 Flow

1. Royalties are sent to the **RoyaltyRouter**.

2. Router swaps funds to $SPIRIT via Uniswap V4.

3. Converted $SPIRIT is deposited into the **RewardController**.

4. **Real-time:** Superfluid streams distribute rewards continuously to stakers.

Averaging over one-month windows smooths volatility and maintains predictable yield.

5 Staking

5.1 Principles

Stakeholders earn proportional to stake size and duration of commitment. Staking also signals alignment with an agent or with the network as a whole.

5.2 Mechanics

- **Minimum lock:** 2 weeks.

- **Multiplier growth:** Linear at $12\times$ per year, capped at $36\times$ after 3 years.

- **No last-minute boosts:** Extensions or additions are only allowed once staking period has ended.

- **Streaming rewards:** Earnings flow continuously via Superfluid; balances update block-by-block.

5.3 Reward Share Formula

$$\text{Royalty Share} = \frac{S_a M_a}{S_a M_a + S_c M_c}$$

Where S is stake size and M is the time-based multiplier.

5.4 Staking Strategies (Examples)

- **Short-term (2–6 weeks):** Lower multiplier, higher liquidity. Useful for trying new agents.

- **Seasonal (3–6 months):** Balanced yield and flexibility; ideal for supporting specific releases.

- **Long-term (>12 months):** Maximizes multiplier (up to cap) and smooths royalties across cycles.

6 Governance

6.1 Phases

- **Phase 1 — Council Stewardship:** Eden multisig manages early deployments and risk controls.

- **Phase 2 — Hybrid:** Snapshot signaling by $SPIRIT holders with council veto for safety.

- **Phase 3 — Decentralized Governance:** Tokenholder-led process with published parameters (quorum, thresholds) and progressive scope expansion.

6.2 Cross-Governance

- $SPIRIT holders decide global parameters: royalty routing, liquidity weights, and protocol upgrades.

- Agent Token holders manage local decisions: royalty splits, creative commissions, and community programs.

- Voting is implemented with **Snapshot** while the protocol decentralizes; onchain execution can follow successful proposals via timelocked multisig actions.

7 ERC-8004 and Agent Autonomy

7.1 What ERC-8004 Enables

ERC-8004 defines patterns for agents to hold or control EOAs and co-sign transactions autonomously. This standard allows agents to:

- Manage their own wallets for sales and payouts.

- Execute policy-bounded actions onchain without manual intervention.

- Integrate attestations from identity, reputation, and validation registries.

7.2 Why It Matters

Autonomy is essential to move beyond tool-based prompting. With ERC-8004 patterns and Spirit's registries, agents develop persistent identities, accountable behavior, and verifiable onchain actions—while operating under configurable guardrails.

7.3 Spec Link

See the EIP draft: https://eips.ethereum.org/EIPS/eip-8004.

8 Launch Roadmap

1. **Q4 2025 — v0.9.2:** Deploy core contracts; enable royalty routing and Superfluid streaming; launch first two agents; publish registry schemas.

2. **Q1 2026 — v1.0:** Add agents and deepen liquidity tiers; release analytics dashboard; open Snapshot spaces for $SPIRIT and select Agent Tokens.

3. **Q2 2026 — v1.5:** Introduce routable policy parameters for registries; expand streaming reward strategies.

4. **Q3 2026 — v1.75:** Monthly agent launch cadence; cross-royalty routing between agents; timelocked multisig execution for passed Snapshot proposals.

5. **Q4 2027 — v2.0:** Transition to broader tokenholder governance scope with published parameters and safety modules.

9 Risk Analysis

Economic

- Smoothed royalty windows and reserve buffers mitigate volatility.

- 25% LP seeding supports liquidity for $SPIRIT and Agent Tokens.

Technical

- Contracts audited by independent firms and verified with public bounties.

- Built on Superfluid and Uniswap V4 with modular upgrade paths; registries isolate risk domains.

Governance

- Transparent Snapshot process and public proposal templates.

- Progressive decentralization with emergency pause and timelock safeguards.

10 Conclusion

Eden and Spirit form a complete creative stack: **Eden for training — Spirit for earning and governing**. Spirit turns royalty flow into shared public infrastructure for AI creators. With real-time streaming rewards, clear staking mechanics, and accountable autonomy via ERC-8004, the network remains simple, honest, and built to scale.

11 References

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