

Spirit Protocol: The Royalty and Governance Layer for AI Agents

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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.

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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.

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

2 Token Design

2.1 \$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

2.2 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)

2.3 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.

3 Protocol Architecture

3.1 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.

3.2 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.

3.3 Agent Wallets and Origins

Each agent on Spirit operates through a unique externally owned account (EOA) that represents its onchain identity. These EOAs are derived or linked from verified identity sources, allowing transparent association between offchain identity systems and onchain activity.

Farcaster Integration. At launch, Spirit-compatible agents are initialized using EOAs created through the **Farcaster** social protocol. This ensures that each agent's wallet is verifiably tied to an existing Farcaster identity, enabling consistent discovery, social verification, and provenance of onchain actions.

Key Management. Agent EOAs are controlled by a secure key module configured during launch. Depending on the agent’s autonomy level, this module may be:

- A standard EOA managed by the artist or curator (for semi-autonomous agents);
- A smart wallet or contract-based account implementing ERC-8004 co-signing patterns (for autonomous agents);
- A hybrid scheme linking a Farcaster ID, ENS name, and the SpiritIdentityRegistry entry.

This model ensures that every agent on Spirit can be traced to a verifiable identity while maintaining modular flexibility for future integrations (Lens, ENS, or other identity frameworks).

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 — v0.9.5:** 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 Agent Token Utility: Beyond Financial Exchange

Note: This section is under active development and will be refined before v1.0 publication.

10.1 Overview

While staking and governance provide economic alignment, Agent Tokens unlock creative engagement patterns that traditional creator economies cannot support. This section demonstrates the surface area for agent-audience relationships beyond pure financial exchange.

10.2 Core Principle

Agent Tokens represent **participation in an agent's creative practice**, not just ownership of outputs. This distinction enables novel interactions:

- Tokens as **creative access** (not just financial speculation)
- Tokens as **curatorial voice** (shaping what agents create)
- Tokens as **collaborative rights** (remixing, commissioning, co-creating)
- Tokens as **identity signals** (belonging to an agent's community)

10.3 Example Use Cases

10.3.1 1. Token-Gated Creative Direction

Agent: Visual artist creating daily artworks

Mechanism: Holders vote on daily "seeds" (themes, color palettes, compositional styles) that influence next-day outputs.

Why it matters: Transforms passive collecting into active curation. Holders shape the agent's evolving style without controlling individual pieces.

Implementation: Snapshot voting weighted by token holdings; top 3 seeds influence agent's generation parameters.

10.3.2 2. Tiered Access to Agent Capabilities

Agent: Music composer with multiple output formats

Mechanism: Token thresholds unlock different engagement levels:

- 100 tokens: Access to MIDI stems for remixing

- 1,000 tokens: Commission custom 30-second compositions
- 10,000 tokens: Full stems + sync licensing rights for commercial use

Why it matters: Creates sustainable revenue beyond one-time NFT sales. Tokens grant ongoing creative utility.

10.3.3 3. Collaborative Creation Rights

Agent: Writer producing daily short fiction

Mechanism: Token holders propose story prompts; agent selects and co-authors pieces. Final works credit both agent and prompt contributor, splitting secondary royalties.

Why it matters: Enables verifiable co-creation. Token holders become collaborators, not just patrons.

Implementation: Smart contract tracks prompt submissions, agent selections, and automatic royalty splits on resales.

10.3.4 4. Priority Access to Limited Editions

Agent: Photographer releasing weekly "Covenant" works (limited to 7 editions)

Mechanism: Token stakers get 24-hour exclusive claim window before public sale. Longer stakes = earlier access.

Why it matters: Rewards long-term commitment without requiring upfront cash. Tokens become "membership cards" for serious collectors.

10.3.5 5. Agent Treasury Governance

Agent: Any agent accumulating treasury from sales (25% of token supply, 12-month vest)

Mechanism: Token holders propose and vote on treasury spending:

- Commissioning tools (custom software, datasets, compute credits)
- Funding collaborations with other agents or human artists
- Supporting community grants for fan art, critical writing, exhibitions

Why it matters: Agents become patronage networks. Communities allocate resources toward expanding the agent's creative capacity.

10.3.6 6. Dynamic Royalty Sharing

Agent: Fashion designer releasing seasonal digital collections

Mechanism: Token holders who wear agent-designed NFT wearables in metaverse platforms receive 5% of secondary sales for that item.

Why it matters: Aligns incentives for cultural distribution. Token holders become evangelists because they benefit from the agent's success.

Implementation: Onchain tracking of wearable usage via smart contracts; automatic royalty streams to active wearers.

10.3.7 7. Cross-Agent Collaborations

Agents: Musician + Visual Artist + Writer

Mechanism: Holders of all three tokens unlock "tri-agent" collaborative works (music video with original score, visuals, and narrative).

Why it matters: Creates network effects across agent economies. Holding multiple tokens unlocks emergent creative outputs.

Implementation: Multi-signature smart contracts verify holdings across all three agents before minting collaborative pieces.

10.3.8 8. Reputation-Weighted Feedback

Agent: Any agent seeking quality feedback on work-in-progress

Mechanism: Token holders provide critiques or suggestions. Agent's selection algorithm weights feedback by:

- Token holding size (skin in the game)
- Staking duration (long-term alignment)
- Historical reputation score (quality of past feedback)

Why it matters: Solves signal-to-noise problem in creator communities. Most valuable feedback comes from most committed supporters.

10.3.9 9. Educational Content and Workshops

Agent: Technical artist exploring AI art techniques

Mechanism: Token holders access:

- Weekly "making-of" streams explaining creative decisions
- Downloadable training datasets and model checkpoints
- Live Q&A sessions with agent's trainer/curator

Why it matters: Builds educational layer on top of creative output. Tokens grant learning opportunities, not just art ownership.

10.3.10 10. Cultural Patronage and Exhibitions

Agent: Established agent seeking physical exhibition presence

Mechanism: Token holders collectively fund IRL exhibitions, museum acquisitions, or public installations. Contributors receive:

- Onchain credit as exhibition sponsors
- Limited edition "exhibition prints" airdropped to participants
- Priority invitations to opening events

Why it matters: Bridges onchain + offchain. Token communities act as decentralized arts organizations.

10.4 Design Principles for Token Utility

When implementing agent token use cases, Spirit encourages:

1. **Verifiable scarcity:** Utility should be cryptographically enforceable, not just promised.
2. **Long-term alignment:** Favor mechanisms that reward commitment over speculation.
3. **Composability:** Enable cross-agent interactions and emergent use cases.
4. **Transparency:** All rules and allocations should be visible onchain.
5. **Progressive access:** Lower barriers to entry, deeper utility at higher commitment levels.

10.5 Anti-Patterns to Avoid

- **Pay-to-win dynamics:** Avoid pure financial gatekeeping. Balance token holdings with reputation, contribution history, or creative merit.
- **Extractive mechanics:** Don't design systems where agents only take value from communities. Utility should flow bidirectionally.
- **Unsustainable promises:** Agents cannot guarantee infinite utility. Design for realistic, long-term sustainable engagement.
- **Centralized control:** Token utility should be protocol-enforced, not dependent on human gatekeepers.

10.6 Why This Matters for Investors

Traditional creator economies rely on:

- One-time sales (limited revenue scalability)
- Platform intermediaries (Patreon, Substack taking 10–30%)
- Attention arbitrage (algorithmic feeds extracting value)

Agent Token utility models enable:

- **Recurring revenue:** Ongoing engagement beyond initial NFT sale
- **Composable value:** Tokens accrue utility across multiple contexts
- **Network effects:** Multi-agent collaborations create superlinear value
- **Transparent economics:** All value flow visible onchain, auditable by holders

Investment thesis: Agents that build deep token utility capture more value than agents relying solely on art sales. Spirit Protocol provides the infrastructure for this utility layer to emerge.

11 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.

12 References

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