The Stamp Protocol

Secure Trustless Anonymous Micropayment Protocol (S.T.A.M.P.)

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Author: Joe, Stamp Protocol

Contact: joe@stampprotocol.org

1. The Problem

On Solana today, every action—whether trading, messaging, or calling an API—ties back to a wallet. That wallet is like an ID tag: it follows the user everywhere.

Paying directly with it exposes identity and usage patterns. Even creating a fresh “anonymous” account doesn’t help—its activity still leaks metadata. A messaging account that only sends between 8am–8pm, for example, already hints at the owner’s timezone. And if billing is shifted off-chain, trust shifts too: operators must be believed not to overcharge, underreport, or censor.

The consequence is simple: there is no way to pay per use, privately, at scale.

It’s like a world without stamps. Imagine a post office where, instead of buying a roll once and dropping letters anonymously in a box, you had to walk to the counter every time. Even if the clerk doesn’t know your name, they see the same face returning again and again, at the same hours, leaving the same patterns. Privacy is broken before the letter ever leaves your hand.

2. The Breakthrough

The problem is solved by separating funding from usage.

Instead of paying with a wallet each time, users prepay once and receive a batch of **one-time credits.** Before spending, these credits can be exchanged for fresh ones through a process that checks validity without revealing who paid.

It’s like handing old stamps to a **blind cashier**: the cashier confirms they’re genuine but never sees the buyer’s face. In return, they pass back brand-new stamps that carry no visible link to the originals. When these fresh credits are finally used, nobody can trace them back to the funding account—and since anyone holding one can redeem it, they can also be passed around, circulating like bearer notes of value.

3. The Solution

S.T.A.M.P. is a credit layer for Solana that makes private, per-use payments as simple as mailing a letter.

- Zero-knowledge proofs are what make the cashier blind: they let the verifier confirm that a stamp is genuine without ever seeing who bought it or where it came from. The proof is checked, the credit is accepted, and yet no identifying detail is revealed — even if the cashier could otherwise see everything, the cryptography keeps them in the dark.
- Relayers are the post offices. They accept stamped letters (service requests), front the execution costs, and guarantee delivery.

- Watchers are the inspectors. They audit the post offices after the fact, catching fraud and slashing dishonest operators.

The design ensures:

- Fast usage — services execute instantly, like dropping a letter in a box, with the guarantee that once accepted, the letter will be delivered.
- Durable accountability — if a post office cheats, inspectors slash its bond and restore the system.
- Unlinkable privacy — no one can tie a delivered letter back to the buyer of the stamp.
- Fair incentives — every role is rewarded: issuers are prepaid, relayers earn fees, and watchers collect bounties when they expose fraud.

Just as postage made mail universally usable, S.T.A.M.P. makes every Solana service—from trading to messaging to APIs—instantly monetizable, without ever exposing who's paying.

4. Applications

- Private messaging → Each message can cost a tiny credit, deterring spam while keeping sender identity hidden. The service is paid fairly, but no link exists between the payer and the message stream.
- APIs & cloud services → Developers can sell prepaid access without accounts or billing. A stamp is simply redeemed as an "access credit," making metered services anonymous, efficient, and globally usable.
- On-chain actions → Trades, DAO votes, or transactions can be executed by relayers who bundle the stamp redemption with the service call. The transaction settles on Solana as usual, but the payer's identity never appears.
- Anti-spam & fair-use → Open platforms can charge a fraction of a cent per action, without accounts or persistent identities. Bots are priced out, honest users remain frictionless, and privacy stays intact while operators gain a sustainable revenue model.

5. Why It Matters

S.T.A.M.P. transforms Solana into more than just a fast settlement layer—it becomes the backbone for private digital services.

- **Services** get paid fairly, with fraud protection built in.
- **Users** keep their privacy, spending without revealing their funding source.

- **Infrastructure** stays decentralized and trustless, with open roles for relayers, aggregators, and watchers.

S.T.A.M.P. turns Solana into the first high-throughput chain where value moves with the speed of finance, but with the privacy of stamps—making every service, from trading to messaging, instantly monetizable without ever exposing who's paying.