

# Synthetic ETH (sETH) Whitepaper

## Abstract

Synthetic ETH (sETH) is a decentralized, 1:1 ETH-pegged token minted exclusively via an autonomous on-chain vault. It forms the liquidity backbone for DRTv1 and DRTv2, enabling verifiable, closed-loop redemptions and price-stable value anchoring within Ethereum. sETH is designed for stability, transparency, and zero-dependency on fiat.

## 1. Design Goals

- Maintain a stable 1:1 peg with ETH
- Enforce mint/burn control via a dedicated vault
- Eliminate reliance on centralized oracles or collateral
- Optimize for gas efficiency and integration into DeFi ecosystems

## 2. Smart Contract Architecture

sETH is an ERC-20 token with mint and burn functions restricted to a vault contract. The vault receives ETH deposits, mints sETH to users and itself, and burns sETH when ETH is redeemed. Only the vault contract can perform these actions, ensuring sETH's backing remains fully verifiable and on-chain.

## 3. Integration with DRT Tokens

sETH is intrinsically linked with the DRTv1 and DRTv2 tokens. When users mint DRT based on AI-evaluated resources, the system splits received ETH into sETH: part sent to the user, part retained in the vault. This creates a feedback loop of liquidity, anchoring DRT tokens to ETH while keeping the system decentralized and permissionless.

## 4. Benefits Over Existing Stable Models

- Purely ETH-backed, not fiat-based
- Transparent and verifiable minting mechanism
- Autonomous value cycling without collateral managers
- Independent of market oracles or custodians

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## 5. Use Cases

- DRT liquidity backbone
- Decentralized ETH vaulting
- Redeemable DeFi instrument
- Potential integration with LPs, staking, and synthetic instruments

## 6. Future Outlook

- Scaling with Layer 2 networks
- DAO-controlled vault policies
- Cross-collateralization with LSTs or wrapped ETH variants
- Protocol-level integrations with other DeFi ecosystems