

Fraxtal: A High-Performance Layer 1 Blockchain with Ethereum Enshrinement

Fraxtal is a high-performance Layer 1 (L1) blockchain optimized for fast computation, fast-finality, and high security.

It is an Ethereum Virtual Machine (EVM)-compatible chain leveraging Rust EVM for execution, designed to support scalable decentralized applications.

Fraxtal features an enshrined bridge to Ethereum mainnet, making it a "quasi-layer 2" but maintaining full sovereignty as an L1 blockchain.

The native gas token, \$FRAX, serves as the backbone of the network's proof-of-stake (PoS) consensus mechanism, where permissionless validators secure

the network by staking a minimum of 10,000 FRAX tokens. This whitepaper outlines the architecture, consensus, tokenomics, and core advantages of Fraxtal.

Architecture Overview

Fraxtal is an EVM-compatible blockchain using Rust EVM as its execution client within its reference implementation. This design choice allows for optimized computation

and high-performance execution while maintaining compatibility with existing Ethereum tooling and smart contracts.

Consensus Mechanism

Fraxtal employs a PoS consensus similar to Ethereum, incorporating a staking queue and a validator set. Validators are randomly selected to propose and attest to blocks,

ensuring network security and decentralization.

Validator Requirements:

- Minimum Stake: 10,000 FRAX per validator
- Slashing Conditions: Misbehavior results in slashing of staked FRAX
- Staking Queue: Validators enter via a first-come, first-serve mechanism
- Rewards: Earned via transaction fees and newly emitted FRAX

Tokenomics

The \$FRAX token has a controlled emission model to ensure long-term sustainability:

- Initial Supply: 100 million FRAX
- Year 1 Emission: 8%
- Subsequent Years: Annual emission rate decreases by 5%

Emission Formula:

$$E_n = E_{(n-1)} * (1 - 0.05)$$

where:

- E_n is the emission rate for year n
- $E_{(n-1)}$ is the emission rate for the previous year
- 0.05 represents the 5% annual reduction

