ClearCoin White Paper

Version 1.5.0 — June 21, 2025

Maintained by the ClearCoin Foundation DAO

Chain ID: `clearcoin`

Executive Summary

ClearCoin is a real-world-asset-backed blockchain protocol designed to provide a stable, transparent, and scalable ecosystem for global digital finance. Built on the Cosmos SDK and managed by the ClearCoin Foundation DAO, the network issues a native stablecoin, CLR, that is fully collateralized by $1 billion in real estate holdings. These assets are legally held in documented partnerships and continuously verified by a decentralized oracle and audit framework. Alongside CLR, the protocol uses CLRTx as its utility token for fees, staking, and governance, while RET is a non-circulating token used internally by the treasury to account for real estate valuation.

The ClearCoin blockchain supports CosmWasm smart contracts, enables interoperable dApp development, and integrates rigorous KYC/AML processes through a native compliance module. Its infrastructure runs on AWS EC2 and EKS, combining performance, reliability, and enterprise-grade observability.

Introduction

ClearCoin was created to bring real-world trust and usability to blockchain-based finance. While many digital currencies suffer from volatility and speculative trading, CLR is designed to function as a reliable medium of exchange backed by tangible, income-producing real estate assets. Its peg to the U.S. dollar is maintained by collateral, not algorithms or market speculation. The entire system is governed by a DAO composed of CLRTx stakeholders who vote on protocol upgrades, treasury usage, and ecosystem growth.

The protocol is written in Go, utilizing the Cosmos SDK for modularity, Tendermint BFT for consensus, and CosmWasm for smart contract execution. It supports

Inter-Blockchain Communication (IBC) for seamless integration with other blockchains in the Cosmos ecosystem.

Token Economy

ClearCoin operates with three distinct tokens: CLR, CLRTx, and RET. CLR is the core stablecoin of the ecosystem, fixed at a 1:1 peg to the U.S. dollar and hard-capped at one billion tokens. It is backed by an equal value of real estate assets, which ensures that every CLR in circulation corresponds to a dollar's worth of appraised property. CLRTx serves as the gas token for transactions, staking, and governance. Its supply is capped at nine hundred million tokens, and it is minted exclusively through user exchange of CLR. RET is a non-transferable token held solely by the treasury to represent the real estate portfolio. It cannot be bought, sold, or transferred, and is used for internal valuation and collateral tracking.

Real Estate Backing and Oracles

The real estate portfolio that underpins CLR includes commercial and residential properties held through legal partnership agreements. The assets are geographically diversified and generate income through leasing and development. These assets are appraised quarterly by independent real estate auditors. The appraisal data is published in a structured JSON document, then hashed and recorded on-chain by the ClearCoin oracle module. The original JSON file is uploaded to IPFS or a similarly secure public repository. This system ensures that anyone can verify the data’s integrity using the on-chain hash, providing full transparency to users and regulators.

The oracle module is built using Cosmos SDK patterns and designed for resilience. Validator nodes participating in oracle duties must pass strict compliance verification. Multiple oracles are supported to avoid single points of failure and enable decentralized audit verification.

Governance and Consensus

ClearCoin employs a bonded Proof-of-Stake consensus mechanism powered by Tendermint Core. Validators earn CLRTx from transaction fees and staking rewards, and are subject to slashing for misbehavior or downtime. The DAO governs the chain through proposals voted on by CLRTx holders. These proposals

may include parameter changes, software upgrades, community spending initiatives, or any critical decision relevant to the protocol's future.

To prevent governance capture, quorum and threshold requirements are encoded into the chain, and all proposals are logged immutably on-chain. The governance module supports deposit requirements to prevent spam, and every voter must be KYC-approved through the compliance system.

ClearWallet

ClearWallet is the official wallet interface of the ClearCoin ecosystem. It is a standalone web application accessible at wallet.clearcoinfoundation.org, separate from browser extensions like Keplr. ClearWallet supports secure storage of keys via local device encryption, staking and delegation of CLRTx, transaction history, and full access to DAO governance features.

Version 1.4 introduces server-side support for PostgreSQL to track user account metadata such as staking activity, proposal voting, and KYC status. This database never stores private keys, mnemonics, or any sensitive data. It exists to support analytics, compliance, and usability improvements without compromising decentralization or user control.

Developer Support and Smart Contracts

ClearCoin is designed for extensibility. Developers can build new modules using Ignite CLI (version 28.x.x), and deploy CosmWasm smart contracts to extend functionality. Smart contracts are compiled to WebAssembly and validated through governance before deployment to mainnet.

The chain exposes a full REST API on port 1317, a Tendermint RPC interface on port 26657, and a gRPC interface on port 9090. These services are publicly accessible and documented, supporting integration with explorers, wallets, dApps, and third-party services. The ClearCoin Foundation maintains SDKs in Python and TypeScript, simplifying contract interaction and wallet signing for developers.

All contract deployments are logged and linked to governance proposals, ensuring auditability and democratic control over the expansion of on-chain logic.

Compliance and KYC/AML

Compliance is a core feature of the ClearCoin protocol. Every validator, merchant, and user who wishes to transact above a minimal threshold must complete KYC/AML verification. The system is implemented as a modular compliance engine within the blockchain that hashes and stores verification results without leaking private data.

Users submit identity information through a secure portal. Once verified, their status is recorded as a signed certificate linked to their wallet address. Smart contracts and modules can query whether an address has passed compliance without knowing any personal details. This system enables decentralized enforcement of regulatory rules and ensures the protocol remains usable in jurisdictions that require AML controls.

Technical Deployment and AWS Infrastructure

The ClearCoin blockchain and associated applications are hosted on Amazon Web Services (AWS), using a hybrid architecture that combines EC2 virtual machines and Amazon EKS Kubernetes clusters. Validator and full nodes run on EC2 instances, typically using m6a.large or similar compute-optimized instances with attached EBS volumes formatted for high-throughput IOPS.

The nodes are managed using systemd and auto-updated through a CI/CD pipeline. Data directories are stored under `/var/lib/clearcoind`, with automatic backups pushed to S3. NGINX is used as a reverse proxy to serve the REST and RPC endpoints over HTTPS, using TLS certificates issued by AWS Certificate Manager. Domains are managed using Route 53, with subdomains mapped to the correct ports and services.

In parallel, dApp infrastructure—including ClearWallet, block explorers, educational portals, and merchant services—is containerized using Docker and deployed into EKS. Helm charts are used to define and manage deployments. PostgreSQL and Redis are deployed with persistent volumes and monitored using Prometheus and Grafana. All logging is centralized through Fluent Bit and routed to AWS CloudWatch for alerting and archival.

Ecosystem and Use Cases

ClearCoin supports a wide variety of use cases. CLR is used by individuals for stable payments, remittances, and savings. Merchants accept CLR for retail payments with immediate finality and no chargebacks. CLRTx enables staking and DAO participation, encouraging users to take an active role in chain governance.

Developers build financial apps, games, and marketplaces on ClearCoin using CosmWasm contracts and the REST/gRPC interfaces. Auditors and analysts use the oracle module and JSON-backed audit trail to verify the legitimacy of collateral in real time. Institutions leverage the compliance module to offer custody or exchange services while meeting regulatory requirements.

The ClearCoin blockchain enables permissionless innovation on a foundation of financial stability and regulatory confidence.

Roadmap

In Q2 2025, the ClearCoin blockchain launched on mainnet with active validator onboarding, the CLR and CLRTx economic model, and the deployment of ClearWallet version 1.4. By Q3 2025, the protocol will integrate the oracle audit system and enable CosmWasm smart contract execution, with initial DAO governance proposals and module upgrades. Q4 2025 will see the release of the merchant payment gateway, real-time dApp dashboards, and broader IBC integration with partner chains. In 2026, the protocol will expand its asset base, international partnerships, and infrastructure, focusing on compliance, usability, and global growth.

Contact and Additional Information

More information about ClearCoin can be found on the official website at clearcoinfoundation.org. The wallet interface is available at wallet.clearcoinfoundation.org, and the blockchain explorer is accessible at clearcoinfoundation.org/explorer2.html.

The latest reserve audit is published at clearcoinfoundation.org/chain-report2.html, and new team members can request wallets at clearcoinfoundation.org/newteamwallet.

For business, technical, or partnership inquiries, please contact the Foundation at admin@clearcoinfoundation.org.