Introduction

Welcome to GenLayer! The Intelligence Layer of the Internet

> 💡 To start building or testing how Intelligent Contracts work within GenLayer, explore the GenLayer Simulator - an interactive sandbox designed to replicate the GenLayer network's execution environment.

🔎 What is GenLayer?

GenLayer is a new kind of decentralized blockchain platform that introduces the concept of **Intelligent Contracts**. These are an evolution of smart contracts that, in addition to having the capabilities of traditional smart contracts, are also able to process Natural Language Instructions and access the internet. The intention behind GenLayer is to overcome the limitations of current smart contract platforms by providing more advanced functionalities.

Why you should use GenLayer

- **AI integration**: Intelligent Contracts on GenLayer can understand and process instructions in natural language, reducing the complexity and technical barriers traditionally associated with writing smart contracts.
- **Internet Access**: Intelligent Contracts can uniquely access and analyze data from the internet. This enables real-time, informed decision-making based on global events like stock prices, weather data, and news updates, etc. Thereby, transforming static contracts into dynamic, web-aware entities.
- **Unique Consensus Algorithm**: Our consensus mechanism **Optimistic Democracy** enables GenLayer handle non-deterministic instructions, such as interpreting natural language and fetching web data, with fairness and transparency. By distributing the decision-making process across a randomly selected pool of validators, it decentralizes LLMs decisions, ensuring that no single entity controls the outcomes. This is the best

way to bring AI onchain, allowing it to operate with enhanced security and reduced risk of fraud or bias in AI-driven decisions.

- **Python-Based Development**: GenLayer uses Python, a simple and widely-used programming language. This makes it easier for more people to start building blockchain applications quickly.
- **Interoperability with Existing Systems**: GenLayer's ability to interact seamlessly with other blockchain platforms and traditional web services opens up possibilities for creating hybrid systems that leverage the strengths of both decentralized and centralized technologies.

Core features of GenLayer

- **Intelligent Contracts**: Contracts that can understand and process instructions in natural language, which allows them to interact with and read data from the web, making them more versatile than traditional smart contracts.
- **GenVM**: This is the Python-based execution environment of GenLayer, which is responsible for the deployment, interaction, and state persistence of Intelligent Contracts. It operates within a secure sandbox to maintain security and integrity.
- **Optimistic Democracy**: GenLayer's consensus mechanism that uses a set of validators which can leverage Large Language Models (LLMs) to reach decisions on transactions. This system randomly selects validators to review and validate transactions, promoting efficiency and security.
- **Non-Deterministic Operations**: GenLayer supports operations that may have different outcomes upon different executions, which is a significant departure from traditional blockchain systems that rely on deterministic transactions.

Get started with GenLayer

Ready to build your first Intelligent Contract? Get started by using our GenLayer Simulator. The GenLayer Simulator provides an interactive development environment for testing and refining Intelligent Contracts within GenLayer. It replicates the network's behavior, including validators and the execution environment, enabling you to identify and resolve issues in a controlled setting.

- Setup and installation
- Usage and interaction
- Intelligent Contract syntax
- Use cases examples

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