Web3 Solana Blockchain - 9

Token Programs for Non-fungible and Fungible Tokens

Tokens are the engine fueling Solana programs. But, not all tokens are created equal. Learn about the key differences between different types of tokens

What are tokens?

Tokens are digital assets created and transferred on the blockchain network. There are two types of tokens: fungible tokens and non-fungible tokens.

Fungible assets are interchangeable and can be swapped with other fungible tokens. Some real-life examples are Euros, INR, and Dollars. Each of these currencies can be exchanged for one another, making them fungible. The same applies to **fungible tokens**.

Non-fungible assets are unique assets that cannot be interchanged for one another. For example, you may have two cupcakes of the same flavor made at two different bakeries, but they would still not be the same since there is a unique aspect associated with the owner/creator of the cupcake.

Extrapolating this concept for Non-Fungible tokens:

Non-fungible tokens are unique digital assets whose ownership and transfer can be recorded on the blockchain. Examples of digital assets can be images, domains, and any unique digital assets that can be recorded on the blockchain.

Tokens on Solana

The SPL-token library is used to create both fungible and non-fungible tokens on Solana. Using this library, you can create your own fungible tokens or non-fungible tokens depending on the use case for your application.

There is also Metaplex protocol, a popular (almost de facto) NFT ecosystem for marketplaces, games, arts and collectibles.

SPL Tokens

fungible tokens on solana are called SPL tokens. live on solana blockchain network. Stored on solana compatible wallets like phantom wallet

Token Program

In Solana, the term "Token Program" typically refers to the program that implements the token standard on the Solana blockchain. The token standard is a set of rules and functions that define how tokens are created, transferred, and managed on the Solana network. The token program is the core smart contract responsible for maintaining token balances, handling transfers, and managing token-related operations.

Here's an overview of how the Token Program works in Solana:

1. Token Creation:
    - The Token Program allows users or developers to create new tokens on the Solana blockchain. When a token is created, a specific number of initial supply tokens are minted and assigned to the creator's account.
2. Token Accounts:
    - Each user's token balance is stored in a dedicated account called a "Token Account." These accounts are created using the Token Program and are associated with specific token types.
3. Token Transfers:
    - The Token Program provides functions to transfer tokens between different accounts. Token transfers can occur between the token owner's accounts or between accounts belonging to different users.
4. Token Minting and Burning:
    - Minting refers to the process of creating new tokens and adding them to the token supply. This process is controlled by the Token Program and is typically restricted to specific conditions set by the token creator.
    - Burning refers to the opposite process, where tokens are permanently removed from circulation. This process is also controlled by the Token Program and follows specific rules.
5. Token Decimals and Precision:
    - Tokens on Solana can have a specified number of decimal places, allowing for fractional token amounts. For example, a token with three decimals can be divided into units as small as 0.001 tokens.
6. Token Metadata:
    - The Token Program supports token metadata, which includes information about the token such as its name, symbol, logo, and other details. This metadata is often used by wallets and dApps to display token information to users.
7. Ownership and Authorization:
    - The Token Program includes mechanisms for managing ownership and authorization of token accounts. Access to certain functions or operations may be restricted to specific authorized accounts.