

Writing Smart Contracts

04 Tokens

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Supported by the Algorand Foundation

Tokens

Token = entry in the blockchain that represents a claim.

Fungible Token

- All are the **same**
- Cryptocurrency
- Stock token

Non Fungible Token = NFT

- All are **different**
- "Art", "Moment", "Event", real estate
- Algorand NFTs: <https://www.nftexplorer.app>

Implementation

- Algorand Standard Asset = ASA

ASA as Fungible Token

Properties

- AssetName (long), UnitName (short)
- Total supply
- Decimals
- Asset index (obtained from blockchain at creation)

Opt-in

- Can only receive token after opted-in
- Send 0 tokens to yourself
- Avoid spam transactions

Special addresses (can be empty)

- Manager: can re-assign the special roles
- Reserve: information only – store for not yet minted tokens
- Freeze: can (un)freeze assets in a given address
- Clawback: can undo a given transaction

ASA as Fungible Token

Opt-out

- “Leaving” a token is possible via a special *closeout* transaction

Limits

- Must have hold 0.1 ALGO for each ASA that I hold or create

Destroy

- Creator can destroy an ASA, if she possesses all the tokens