

Writing Smart Contracts

03 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"
- Algorand NFTs
 - <https://dartroom.xyz>, <https://www.dahai.uk>
 - <https://dittomusic.com>

Implementation of both tokens

- Algorand Standard Asset = ASA

ASA as Fungible Token

Properties

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

Opt-in

- Avoid spam transactions on blockchain
- Address can only receive token to which it has opted-in
- Opt-in by sending 0 tokens to yourself

Special roles

- Manager: can re-assign the special roles
- Reserve: information only – 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 min 0.1 ALGO for each ASA that I hold or create

Destroy

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