

Duino-Coin

Whitepaper

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What is Duino-Coin?

Duino-Coin is a transparent, centralized, eco-friendly coin that focuses on mining with low-powered devices - especially with [Arduino](#), [ESP8266/32](#) and [Raspberry Pi](#) boards, while also allowing PCs and many other hardware configurations to earn coins. [DUCO](#) (short for Duino-Coin) tries to achieve a reward system which low-power devices benefit the most.

Technical specifications

Algorithms	DUCO-S1
Supply	Infinite (with burning)
Transactions	Instant
Decimals	up to 20
Rewards	distributed by the original "Kolka system"
Ticker	DUCO (?)
Supported Devices	CPUs, GPUs, smart TVs, smartphones, older feature phones, Arduinos , ESP8266 , ESP32 , Raspberry Pis , Orange Pis , Banana Pis , etc.

Form

We're trying to create the official Duino-Coin softwares to be as accessible as possible. Encountering problems, ambiguity or insufficient documentation is a common sight in quite a lot of projects, especially those that focus on cryptography; what's more - most of them are copies of each other which can lead to confusion. Duino's focus has been on creating an easy to use environment for every newcomer in the cryptocurrency world since the beginning.

Uniqueness

Like all modern coins, Duino-Coin has instant transactions, global availability and is open-source. We place great emphasis on cost effectiveness and being written from scratch - implementing its own ideas where possible.

It should be noted that in the current form Duino is mostly a for-fun project, but it's expanding greatly in the last few months and profits can be made thanks to a few exchanges that already support DUCO.

Mining

The Duino-Coin algorithm (DUCO-S1) is based on the **SHA1** hash chain. Each miner is being rewarded for each mined share that is based on the previous one.

The miner asks for the job from one of the nodes and receives an expected hash, the hash of the last block, and a difficulty. The miner needs to find a valid nonce (that is always within the range of the given difficulty), which gets appended to the last block hash so that after hashing it again, it produces the expected hash.

When a valid hash is found, the miner submits the nonce result to the node. The server then takes care of the results and rewards by calculating them with the **Kolka** system.

This pseudocode demonstrates the simplest implementation of the process:

```
last_block_hash, expected_hash, difficulty = receive_job
temporary_hash = sha1.init(last_block_hash)
for nonce = 0 to difficulty * 100
    current_hash = temporary_hash.update(nonce)
    if current_hash equals expected_hash
        // Resulting nonce gets found
        send_result
```

Rewards

The system that takes care of the rewards, named *Kolka*—an inside joke from *Coca Cola*—is designed in such a way to make the low-powered devices earn almost as much as powerful ones. It encourages the use of eco-friendly equipment, such as development boards, which are the main focus of Duino-Coin

Efficiency drop

In order to prevent people from creating huge mining farms, which disallow “regular” users to mine, we’ve come up with a system called Kolka efficiency drop, which causes each additional miner to earn a bit less than the previous one. The formula for it is $last_miner_efficiency * 100 - drop\%$, the drop for AVR and ESPs is 4%, and for PCs it is 20%.

Centralization

Making Arduinos and other low-powered devices not only profitable, but just possible, would be impossible to maintain if the coin was decentralized. Since the coin is meant to be mostly a fun project for all, it’s better to keep a few good servers running than a whole network, which would be really hard to maintain. Storing stuff inside a secure server also ensures the funds won’t be lost.

Decentralization

Users wanting to store their funds in a decentralized way can wrap their Duino-Coins (and vice-versa) directly from their wallet. Duino-Coins can be wrapped to exist on the Tron, Binance Smart Chain, Celo or Matic blockchains.

Features of Kolka

Other than having rules which miners have to follow (see Terms of Service), here are some of the main methods Kolka utilizes:

- Kolka V1 (introduced around March 2020):
 - have separate difficulties for AVR, ESP, and PC mining
 - make the rewards dependent on (but not only):
 - * hashrate used to find a share
 - * time it took to find a share
 - * number of shares submitted in a period of time
 - * amount of workers mining on an account
 - * used difficulty
 - * randomness
- Kolka V2 (introduced around June 2020):
 - everything from the previous point, with addition of:
 - throttling fast miners (those, who exceed max shares per some period of time)
 - checking for hashrate on difficulties (for example, AVR boards won't make more than 200 H/s) and rejecting shares which come from suspicious miners
- Kolka V3 (introduced in March 2021):
 - everything from the previous points, with addition of:
 - variable difficulty dependent on sharetime
 - * if the sharetime was faster than the expected sharetime, raise the difficulty with the help of this formula:
$$\text{difficulty} = \text{Math.floor}((\text{hashrate} / 100) * \text{expectedSharetime}) * (1 \pm \text{hashrateScalingFactor})$$
 - * automatically moving miner to the correct difficulty tier if it's too low or too high
- Kolka V4 (introduced around May 2021):
 - everything from the previous points, with addition of:
 - reporting unique IDs of AVR and ESP chips to the server for verification

This system essentially ensures that the miner is using the correct difficulty for his equipment and is being rewarded fairly.

Exchanges

DUCO Exchange (official, DUCO):

<https://exchange.duinocoin.com/>

SunSwap (wDUCO):

<https://sunswap.com/#/scan/detail/>

TWYaXdxA12JywrUdou3PFD1fvx2PWjqK9U

SushiSwap (maticDUCO):

<https://sushi.com>

UbeSwap (celoDUCO):

<https://info.ubeswap.org/pair/>

0x7703874bd9fdacceca5085eae2776e276411f171

PancakeSwap (bscDUCO):

<https://pancakeswap.finance/swap?inputCurrency=>

0xcf572ca0ab84d8ce1652b175e930292e2320785b

Sources and useful links

Website: <https://duinocoin.com>

GitHub: <https://github.com/duino-coin/duino-coin>

Explorer & Network stats: <https://explorer.duinocoin.com>

Online (Web) Wallet: <https://wallet.duinocoin.com>

Discord server: <https://discord.gg/kvBkccy>

FAQ: <https://github.com/duino-coin/duino-coin/wiki/FAQ>

Thank you for reading this document.

We hope we convinced you to take a look at our project.

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