Snap Coin: P2P feeless transactions for day-to-day transactions

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Abstract: Snap Coin is a *mostly* Bitcoin inspired, PoW heavy, electronic cash system, with an emphasis on effortless transactions. Peer-to-peer network architecture ensures security, immutability, and transparency. The blockchain is mostly structured like Bitcoin's original implementation (https://bitcoin.org/bitcoin.pdf), which ensures stability and safety. Bitcoin's transaction fees have been replaced by a set of work / incentive solutions, that prevent malicious transaction overflows, and incentivizes miners to include transactions in blocks.

1. Introduction

Bitcoin has proven to be one of the most revolutionary inventions of the 21st century, bringing the world closer to trustless, permissionless transactions that can't be controlled by one party. However we currently face an issue, where Bitcoin and other major cryptocurrencies are being used primarily for investing, long-term and short-term. I believe that these activities should not be interpreted as the aim of cryptocurrency. Transaction fees on most networks are very expensive, causing users to minimize transactions to the absolute minimum, which in turn causes most people to yield to different forms of payment for day to day transactions. Another side effect of this *fear of spending* is users moving their funds to centralized exchanges with services that internally handle balances, letting users transact with no fees: however, this approach is centralized and defeats the purpose of using cryptocurrency. Snap Coin aims to increase on-chain transacting for day-to-day purposes by introducing free transactions.

2. Feeless Transactions

Instead of forcing each transaction to pay a fee to incentivize miners to include their transaction in a block, and prevent flooding the network with pointless transactions, Snap Coin forces each sender to compute a Proof of Work puzzle that proves they put in the effort to submit the transaction. The difficulty of this puzzle is re-targeted every block to target 100 transactions per block. However this still leaves one issue and one attack vector.

- We must consider that malicious actors might try to take advantage of the time it takes for the transaction difficulty to re-target, and create many malicious transactions when the network is not congested. Snap Coin addresses this by introducing a concept called live transaction difficulty. This is not a protocol feature, it's a node policy. Nodes will only accept new transactions if they match the live transaction difficulty (on top of the normal transaction difficulty), which is scaled based on how many transactions the node currently holds in its mempool, and by the

maximum transactions permitted per block (500). This ensures each new transaction is harder and harder to compute the more are already waiting, and that we never exceed 500 waiting transactions. This however raises a few concerns. One of these is that the network will not always agree on what the current transaction difficulty (live) is, since it is a node policy. This is not an issue, because transaction senders can compute their transactions to match an even higher difficulty (difficulty margin) that ensures that even if this transaction is not delivered to the same live transaction difficulty it was computed to, the margin will let it propagate nevertheless.

- Miners are not incentivized to include transactions by fees, but by a difficulty adjustment to the block PoW difficulty, which decreases the difficulty linearly for each included transaction, making miners that include transactions more likely to find a valid solution, in turn producing more revenue for them, and that to stay competitive miners must keep including all the transactions they can.

3. Transaction Model

Snap Coin's transaction model is very similar to Bitcoin's implementation, with the primary way of storing balances being UTXOs (un-spent transaction outputs). Each transaction consists of:

- A list of inputs (UTXOs) that this transaction is funded by, with a signature from each owner of the previous transaction output)
- A list of outputs (UTXOs) specifying who is credited from this transaction
- A timestamp (for reference, can be inaccurate by a margin of 5 min (5 * expiration time for transactions)
- A transaction ID that is a RandomX hash of the transaction, and the reference ID of the transaction on the blockchain.
- A nonce, that a transaction submitter alters to try to find the solution to the PoW puzzle

Transactions that expire are considered expired and are not confirmed and abandoned by the network after 5 minutes of being pending (does not include the time of computing the PoW puzzle). There is a maximum of 150 inputs + outputs per transaction to prevent spam.

4. Block Model

Blocks are also similar to Bitcoin's model, however the block metadata (header in BTC) is a part of the block and is hashed with it. Each block is structured in the same predictable way:

- A list of transactions this block commits to
- A timestamp (for reference, can be inaccurate by a margin of 5 min (5 * expiration time for transactions)
- A nonce, that block miners alter to try to find the solution to the block PoW puzzle
- Block metadata:
    - The target difficulty at which the block was mined (excluding the difficulty adjustment mentioned in 2.)
    - A target transaction difficulty
    - A previous block hash

- A RandomX hash of the block that commits to all the metadata, and all the transactions (Transactions aren't fully hashed, their inputs and outputs are ignored as their Transaction IDs already committed to them)
- A merkle tree root that commits to all transactions for easy verification
- An address inclusion filter, that is a Bloom filter (a heuristic) that can be used to quickly assess if the block includes an address, with a low false positive rate.

5. Blockchain Model & Snap Coin Ledger

Snap Coin's core blockchain functionality is very similar to Bitcoin's, each block is stored on the node's hard drive, and all the blocks form a chain that connects each block to the next one (via previous hash), in a way that ensures that transactions can't be faked, thanks to the work that PoW miners committed to the blockchain. Each block is aimed to emit every 35 seconds, which is a good balance between blockchain speed, and storage. This is considered the Snap Coin Ledger, that stores all transactions and blocks ever processed.

6. Rewards and Economics

The block reward is halved every 1,000,000 blocks emitted to ensure stability, and prevent inflation. The initial block reward is 100 SNAP, and the maximum supply approaches 200,000,000 SNAP. There is no premine of any kind, instead there is a 2% block reward fee, to the developer, to ensure stable development of the core protocol and its related software.

7. Anonymity

Snap Coin is pseudo-anonymous, public addresses are not tied in any way to any legal entity by the blockchain, but all transactions are visible on the public ledger. This way every day transactions are completely safe and anonymous.

8. Consensus

The nodes must agree on certain details about blocks and transactions, to achieve consensus. Whenever a competing parallel chain (fork) gets longer than the previous longest chain, we always abandon the shorter one, if the fork point (the last common block) is at most 30 blocks away from our current chain end. If a fork is created and not resolved during this 30 block timeframe the network is considered permanently forked, however the chances of this ever happening are vanishingly unlikely. The official developer wallet is:
5wpj4mklmxjrvus1ct3b3idvrvfymjq255ne7jm0tspavqrfyz
(*base36* encoded)
The network officially launched into its MainNet phase on January 26 12:00 CET 2026. The first created genesis block (*mined by ~Ice*) is:
41oms2f37oxiqzh0sp3g2g0iv5m1vzdmqzsw50g47p21bmmx53
(*base36* encoded)
and marks the start of the Snap Coin Blockchain.

9. Cryptography

Snap Coin uses RandomX hashing to ensure that only CPU mining is economically viable, in turn to make it easier for anyone to mine Snap Coin. RandomX is used both for block PoW and transaction PoW. Signatures are handled by ed25519 Elliptic Curve public / private keypairs, to ensure speed and keep signatures small in size. Public keys and signatures are encoded in base36 (all letters plus all numbers, ignoring case), to make address mistakes harder.

10. Double Spending

If two nodes receive conflicting transactions, spending the same UTXO twice to different addresses, at most one will ever be accepted into each node's mempool - whichever arrives to it first. The other will expire. The transaction that will be first included in a block will be considered the correct transaction, and the invalid one will expire. If a block is submitted with a transaction that was not in the mempool, and it conflicts with any other transaction in that block, the block will be considered invalid and rejected.

11. Auto Peer

Snap Coin nodes find peers over the Snap Coin P2P Protocol, by requesting a list of publicly available peers from a peer the node is already connected to (at the beginning, any normal peer to bootstrap), and trying to connect to the referred peers. This process is automatic and happens every 30s.

12. Difficulty adjustments and Calculations

Note: Difficulties are represented as 32 byte long arrays (BE), and represent the hash target, so the higher the difficulty array, the easier the target.

Block difficulty re-targeting post SCIP-2:

$T_{block\ time}$ - Target Block Time (35 s)

$A_{block\ time}$ - Actual Block Time

DB_{new} - New Block Difficulty

DB_{old} - Last Block Difficulty

$DB_{adjustment\ factor}$ - Block Difficulty Adjustment Factor (63)

$$e = \frac{T_{block\ time} - A_{block\ time}}{T_{block\ time}}$$

$$a = clamp(\frac{e}{DB_{adjustment\ factor}},\ -0.05,\ 0.05)$$

$$DB_{new} = DB_{old} \times (1 + a)$$

Transaction Difficulty re-targeting:

$T_{transactions}$ - Target Transactions per Block (100)

$B_{transactions}$ - Number of Transactions included in block

DT_{new} - New Transaction Difficulty

DT_{old} - Last Transaction Difficulty

$\gamma = clamp(\frac{T_{transactions}}{B_{transactions}}, 0.8, 1.2)$

$DT_{new} = DT_{old} \times \gamma$

Block Difficulty Decay per Transaction (miner incentive):

DB - Block difficulty

$B_{transactions}$ - Amount of transactions in block

$DB_{effective}$ - Effective block difficulty

$DB_{effective} = DB \div (1 + 0.005 \times B_{transactions})$

Live Transaction Difficulty adjustment (spam prevention, mempool pressure):

$B_{max\ transactions}$ - Max amount of transactions in block

$M_{transactions}$ - Current amount of transactions in mempool

DT_{base} - Base transaction difficulty

DT_{live} - Live transaction difficulty

$\delta = clamp(\frac{M_{transactions}}{B_{max\ transactions}}, 0, 1)$

$DT_{live} = DT_{base} \times (1 + \delta)$

13. Snap Coin Improvement Protocol

Whenever the Snap Coin Protocol needs to be changed to support a new feature, patch a bug, etc. a new file is created at https://github.com/snap-coin/scip (This is where the initial SCIP repository currently lives), and it's discussed among Snap Coin's technical community, to achieve consensus within developers on the right decision, about the issue / feature. These changes then get developed, tested locally on local development networks, it is then moved on to the test network (with a SCIP migration date, coordinated exclusively by block timestamp or block height) and then on to mainnet with a SCIP migration date that will allow enough time for all node operators to update their software.

14. Conclusion

Snap Coin presents a practical approach to the problem of cryptocurrency usability in everyday transactions. By replacing transaction fees with a Proof of Work requirement on the transaction sender, Snap Coin removes the primary barrier that discourages on-chain spending, while maintaining the security and decentralization guarantees that make blockchain technology valuable in the first place.

The design deliberately stays close to Bitcoin's proven architecture wherever possible, deviating only where necessary to support feeless operation. The live transaction difficulty system, miner incentive through block difficulty decay, and the 5-minute transaction expiry

together form a cohesive set of mechanisms that keep the network functional and spam-resistant without relying on a fee market.
The network launched on MainNet on January 26, 2026, with no premine, and the blockchain is open to any participant willing to run a node, mine a block, or spend some SNAP. The system will continue to evolve through community-driven SCIPs, with the goal of keeping Snap Coin useful, lightweight, and accessible for as long as the network runs.

IMPORTANT: Snap Coin is a **community project,** no one owns it. It's not to be confused with a "meme coin" or a "hype coin", its aim is organic growth. Integration with users is most important, and it is to be mostly treated as a **medium of exchange for goods and services** for day-to-day transactions and trade.

PS: Snap Coin is always open to **contributions** and **fully open source**, contributing to the source code and in non-coding ways is the best way to support it.
https://github.com/snap-coin initial repository host.

~ Ice
Snap Wallet: 5wpj4mklmxjrvus1ct3b3idvrvfymjq255ne7jm0tspavqrfyz
Friday 20.02.2026

May the world be a better place, where
Cryptocurrency is used for trade, not trading.