

Satoshi (SATO) Litepaper

A Universal Unit of Account and a Fractional Version of Bitcoin

Litepaper Version 1.0
June 2024

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Introduction

Since its birth in 2009, Bitcoin has undergone a monumental shift from an odd experiment favored by computer enthusiasts to a globally recognized reserve currency¹ and a best-performing investment asset class².

With its fixed supply of 21 million coins, Bitcoin is inherently scarce, making it appealing to anyone looking to preserve their wealth, especially during the time of unprecedented money printing by central banks and global instability. While Bitcoin maintains its most valuable and recognized asset status, it's starting to lag behind newer cryptocurrencies in user adoption due to its reliance on older standards. The goal of the Satoshi (SATO) project is to launch a wrapped version of Bitcoin that addresses its usability issues and makes it easier to use for first-timers.

Satoshi: A Bitcoin's Native Unit of Account

“Eventually at most only 21 million coins for 6.8 billion people in the world if it really gets huge. But don't worry, there are another 6 decimal places that aren't shown, for a total of 8 decimal places internally. It shows 1.00 but internally it's 1.00000000. If there's massive deflation in the future, the software could show more decimal places.”

Satoshi Nakamoto
Bitcointalk forum, February 06, 2010³

Satoshi himself, the incognito creator and visionary behind Bitcoin, understood early on that further development of Bitcoin may require it to become more divisible, however, back in 2009, when he conceived this concept, it was difficult to predict that the price would grow to \$50,000 per coin and beyond, so the decision was made to cap the Bitcoin supply at 21 million instead of billion or a trillion units. Shortly after, another user named “ribuck”, suggested⁴ the idea of commemorating Satoshi by using his name for the smallest fractional unit of Bitcoin currency (i.e. satoshi to Bitcoin is what cent is to

¹ <https://cointelegraph.com/news/us-government-largest-bitcoin-holdings-arkham>

²

<https://www.wisdomtree.com/investments/-/media/us-media-files/documents/resource-library/market-insights/gannatti-commentary/bitcoin-correlations.pdf>

³ <https://bitcointalk.org/index.php?topic=44.msg267#msg267>

⁴ <https://bitcointalk.org/index.php?topic=369.msg22160#msg22160>

Dollar). Years later the community embraced the idea and it became a de-facto standard name for $1/100000000$, the smallest fraction of a Bitcoin.

We believe that we have reached the point where Bitcoin's scarcity and high price have become a considerable adoption barrier for new users: more first-time investors prefer to own a whole number of the assets that they're buying, and many of them are not even aware that Bitcoin is divisible. Furthermore, it always takes a significant amount of engineering and design effort for cryptocurrency software developers to make their user interfaces work with micro-fractional balances.

We assert that Bitcoin will become much easier to sell to new users if we transition the display of the balances to satoshis. Meet Satoshi (SATO): a fractional version of Bitcoin, backed 1:1 by satoshis, as defined above and wrapped into the ERC-20 standard.

If adopted, the Satoshi token (SATO) will make Bitcoin's value more accessible to billions of people while also making it much easier to use in daily life.

Benefits

What Satoshi (SATO) is offering is similar to the benefits of a stock split in traditional finance. A stock split increases liquidity and makes shares more affordable for more investors. Splitting the stock lowers the price per share, making it easier for everyone to buy. Satoshi (SATO) does the same, offering such benefits as:

Human-readable Numbers

The need to count zeroes and deal with micro amounts introduces a lot of friction to Bitcoin's useability. New users perceive assets as more valuable if they own whole numbers. Receiving 1,362 Satoshis (SATO) is a much nicer first-timer experience than 0.00001362 BTC.

No Rounding Losses

Significant amounts of Bitcoin are lost by users due to inadequate rounding of balances by wallet and exchange services. 0.00014 BTC often becomes 0.0001 and 0.00004 goes to the exchange balance. Transitioning to whole numbers would help avoid such mistakes.

Small Balance Abandonment

It is also pretty common among Bitcoin users to abandon or neglect wallets with perceptually insignificant balances, such as 0.0023 BTC, while the dollar equivalent of such balance can often buy you a pair of new shoes. 230,000 SATO equivalent is much less likely to be abandoned.

Lower Transaction fees

EVM-based blockchains enable lower transaction fees compared to the original Bitcoin blockchain, particularly for mass distribution use cases, such as airdrops and reward claims. A ~\$0.01 per transfer fee unlocks day-to-day retail and p2p use cases.

DeFi Ecosystem

ERC-20 standard brings Bitcoin to the whole spectrum of DeFi ecosystem services. Satoshi (SATO) can be bridged to any other blockchain using existing ERC-20 bridges.

Recognized Unit of Account

The “Satoshi” is already widely recognized by the crypto community as a unit of account, meaning 0.00000001 BTC. Now you can use it in your wallets.

The Peg Mechanism & Security

Satoshi (SATO) is a 100,000,000:1-backed wrapped version of WBTC. Therefore each SATO is backed by 1/100000000 of Bitcoin, aka satoshi.

For the initial version of SATO, we wanted to follow the KISS⁵ principle and decided to rely on an already existing widely adopted version of wrapped Bitcoin - WBTC⁶, as a proxy between the SATO ERC-20 contract and the Bitcoin network. Therefore the currently deployed version of SATO is just a simple wrapper⁷ contract that wraps and unwraps WBTC and does not interact with Bitcoin’s blockchain directly. The locked WBTC is kept at the wrapper contract. Anyone can mint SATO by depositing WBTC or unlock & retrieve WBTC by burning SATO.

This approach provides the following benefits:

1. No new security risks - WBTC has ~1M users across 5+ blockchains and has already been tested from every angle.
2. Easy audit: the balance of WBTC of the contract account is changed immediately after each wrap or unwrap operation.
3. Minimal amount of code: wrapped tokens have been around for 10+ years and have become a well-understood. We’re using standard code OpenZeppelin framework.
4. We can allow multiple interchangeable versions of wrapped BTC, representing alternative custodian mechanisms, to be accepted by the contract. For instance,

⁵ https://en.wikipedia.org/wiki/KISS_principle

⁶ <https://wbtc.network/>

⁷ <https://forum.openzeppelin.com/t/erc20-wrapper-tutorial/23536>

Binance launched its version⁸ of WBTC, with custody mechanisms different from BitGo (the original custodian of WBTC).

We may introduce SATO-native decentralized custody mechanism in the future, if necessary.

Blockchains & Smart Contracts

At the moment of writing, the production version of SATO token has been deployed to the following blockchains:

Blockchain	Contract Address & Blockchain Explorer Link ⁹
Ethereum	0x6739810CA1C46BdA089db02125716fBe7D34e1CE
Optimism	0x6739810CA1C46BdA089db02125716fBe7D34e1CE
Arbitrum One	0x6739810CA1C46BdA089db02125716fBe7D34e1CE
Polygon	0x6739810CA1C46BdA089db02125716fBe7D34e1CE

The choice of the blockchains is dictated by the presence of the native version of WBTC in the corresponding chain.

Code

The code is based on the OpenZeppelin framework and the full source is available and verified at Etherscan and other blockchain explorers:

<https://etherscan.io/address/0x6739810CA1C46BdA089db02125716fBe7D34e1CE#code>

GitHub repository: <https://github.com/Getsatoshi/solidity>

We will make an effort to maintain an up-to-date list of the contracts for all blockchains at the project's official website - <https://getsatoshi.org/>. Bridged and wrapped versions of the contract may appear with different addresses.

⁸ <https://www.binance.com/en/research/projects/wrapped-bitcoin>

⁹ Blockchain explorer links may change or become broken over time. If that happens, just use an alternative blockchain explorer for the same contract address.

Fees

The Satoshi smart contract allows developers to activate an optional variable transaction fee. A few years down the road, if the project becomes successful, we may start charging small blockchain-adjusted transaction fees to fund the protocol development.

2030 Vision

Witnessing the global adoption among both retail market and institutional investors, and considering well-known price projections from respected financial analysts, we believe that Bitcoin is positioned to reach \$1,000,000 in the foreseeable future. Upon reaching this milestone, we anticipate Bitcoin becoming an official reserve currency for world's major economic powers. Therefore there will be an increasing need to make this currency easier to use.

With Bitcoin hitting \$1,000,000, one Satoshi token will be worth exactly 1 cent, and some of the most common day-to-day products will be priced intuitively and comfortably:

- A \$3 coffee would otherwise cost 0.000003 BTC, but with Satoshi, it will be 300 SATO.
- A \$20 book would cost 0.0002 BTC, but in Satoshi, it will be 2,000 SATO.
- A \$500 plane ticket would cost 0.0002 BTC or 50,000 SATO.

With further Bitcoin growth, Satoshi (SATO) will be poised to become a more usable global method of payment, still accessible even if Bitcoin eventually reaches \$100 million per coin.

Roadmap

As we move forward this year, we're focusing on enhancing SATO user experience and trust, believing it is at the foundation of future growth and adoption.

Automatic Detection in Major Wallets

We are working on providing all required data and verifications to token aggregators and wallet providers to enable the automatic detection of SATO in all major wallets.

Partnerships With Wallets

We believe that Satoshi is a perfect substitute for Bitcoin for referral rewards and other marketing campaigns. We will try partnering with major wallets to enable the use of SATO for user onboarding and first-time crypto experiences.

DeFi Liquidity

We will work on establishing relevant liquidity pools at major DeFi platforms and protocols.

Yield Farming

We will consider developing a yield farming program that will share a portion of the protocol fees with Satoshi holders, to incentivize conversion from BTC to SATO.

Diversification of Reserves

WBTC depends on BitGo as a custodian for custody of the wrapped Bitcoins. This is not ideal, since BitGo is a centralized company with proprietary security systems. There exist multiple security models that provide more decentralized custody solutions for Bitcoin reserves, however, they require significant investments in infrastructure and governance.

Our strategy is to make SATO reserve work with any wrapped BTC project that gained a reputation of reliability, comparable to the original WBTC.

If SATO gains wide adoption, we will prioritize developing a native decentralized Bitcoin custody solution, that will be directly pegged to SATO smart contracts.

DAO

At some point, we may establish Satoshi DAO, which will govern the list of accepted versions of [wrapped] Bitcoin, protocol fees, and further development proposals.

Feedback and Partnership

We value your feedback and welcome any contributions. Please don't hesitate to share your thoughts with us at hello@getsatoshi.org.