SV2 can be used as is today, allowing miners and pools to enjoy better security and efficiency. Several pools support it or have announced plans to. You can even connect SV1 devices with SV2 pools! While SRI is still a work in progress, it means there are many opportunities to get involved. From documentation and testing, to code review and actual development, there is something for everyone.

> SV2 IS NOT JUST A WIN FOR MINERS, IT'S A WIN FOR ALL OF BITCOIN. IT REDUCES BARRIERS TO ENTER MINING WHILE INCREASING PROFITABILITY, SECURITY & DECENTRALIZATION. IT MAKES THE WHOLE BITCOIN NETWORK MORE ROBUST.

Thanks for reading!
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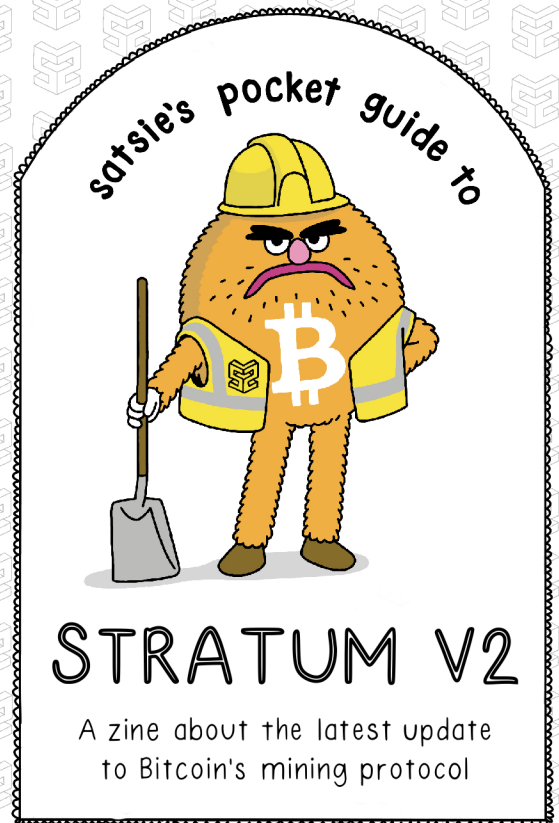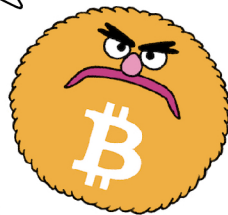
Job Declaration: Miners can eliminate a source of latency by declaring jobs themselves instead of waiting for pools. Future jobs are also supported, allowing devices to work on new blocks faster with resources that would otherwise be idle with SV1.

SV2's performance improvements make mining more accessible to those with weaker internet connections, limited bandwidth, and less resources. They lead to fewer empty blocks, greater efficiency, and higher profits!

Shortcomings

Making sure pools pay their miners, and that they pay the rightful amount are two issues SV2 does not address. Ideally, pools would be non custodial and payouts would go straight to miners. There would also be much more transparency into how pools calculate the amount of work a miner contributes.

By 2019 the mining landscape had drastically evolved. Late that year, the spec for Stratum V2 (SV2) was released.

Why is SV2 great?

✫ Decentralization ✫

In SV1, pools decide what transactions go into a block. If just a few of the largest pools collude, transaction censorship is possible. With the Job Declaration (JD) feature, SV2 flips this dynamic, letting miners pick the transactions. While pools can still reject blocks from miners, SV2 makes it easy for a miner to switch pools or solo mine. This incentivizes pools to avoid censorship, otherwise they risk losing miners.

JD also helps decentralize mining infrastructure. In addition to pools, miners and third parties can now construct block templates. This leads to more Bitcoin nodes, strengthening the network's peer-to-peer layer.

As a way to stabilize revenue, most Bitcoin miners join pools. Stratum is a protocol (set of communication rules) that allows individual mining devices ("devices") to talk to pools and the Bitcoin network. Stratum clients and servers form a communication layer above Bitcoin, facilitating the easy exchange of data between devices, Bitcoin nodes, and pools. It's used for things like connecting to, receiving jobs from, and submitting work to pools.

History

slush (Marek Palatinus) proposed Stratum in late 2011. While initially intended for Electrum, a lightweight Bitcoin client, it was repurposed for mining. It quickly gained industry adoption and enjoyed years of success.

Timeline

November 2019 The SV2 spec by Pavel Moravec, Jan Capek, Matt Corallo, + other industry experts is published.

April 2020 Braiins releases the first (partial) implementation of SV2.

January 2021 Work begins on a community based, open source implementation of SV2, The Stratum Reference Implementation (SRI).

October 2022 SRI is released. Additional releases followed April 2023 and March 2024.

Today ✰

While SV2 has come a long way, development is far from over! There is still code in progress for things like monitoring, testing, and general usability. Even when SV2 is fully implemented, there are hurdles to overcome before complete adoption.

✰ Standardization ✰

Despite widespread use, SV1 was never standardized. Parts of the spec are open to interpretation, resulting in inconsistent SV1 implementations that aren't guaranteed to be compatible. This defeats the purpose of a protocol!

In contrast, SV2 has a well defined spec maintained by an independent, open source working group. It's more developer friendly and has a large, growing community.

✰ Security ✰

In SV1, communications between miners and pools are unauthenticated and unencrypted. Messages are plain text and available for anyone to read! Miners are vulnerable to an attack called hashrate hijacking. When a miner sends the work they have done to a pool, an attacker can intercept the message and take all the credit.

SV2 fixes this by adding authentication and encryption, a simple addition with a huge security impact.

✰ Performance ✰

Messaging: By making network messages smaller and less frequent, SV2 is more efficient and uses less bandwidth. Instead of JSON RPC, a popular yet verbose format, SV2 uses binary. Compared to SV1, the average message is over 50% smaller!

Pooled Connections: In SV1, the TCP connections between devices and pools are one-to-one.* With SV2's new mining proxy, messages are collected and forwarded to and from the pool as one big unit, reducing bandwidth, CPU load, and infrastructure costs. This message aggregation lowers the total amount of data sent by reducing overhead and redundancy.

*at least officially. there are non standard ways to get around this