

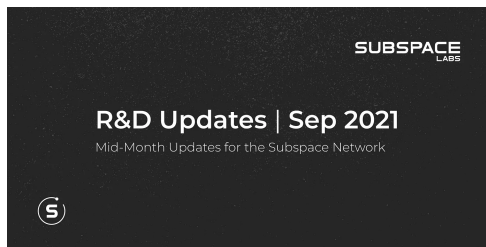
September Engineering Updates. The Subspace Network provides a permanent, scalable, and decentralized storage solution for the Polkadot Network. | Subspace Network

By Subspace Network

Source: <https://blog.subspace.network/r-d-updates-sep-2021-c4ca10e60e1a>

R&D Updates | Sep 2021

Welcome to the first edition of our monthly R&D updates for the Subspace Network!



Going forward, the Subspace Network team will be publishing mid-month R&D updates to keep you abreast of the amazing work being done by our engineering team.

Subspace Blockchain Client → **<https://github.com/subspace/subspace>**

A highly-customized substrate node using our novel Proof-of-Archival-Storage (PoAS) consensus algorithm

Merged 19 PRs → <https://github.com/subspace/subspace/pulls?q=is%3Apr+is%3Aclosed>

- Implemented the first four steps of PoAS consensus including archiving, erasure coding, root block construction, and runtime storage of the root chain for light-farmer verification.
- Migrated our fork of Substrate into a new monorepo that is more maintainable and extensible, following the best practices in the Substrate ecosystem. <https://github.com/subspace/subspace>
- Merged in the last several months of upstream changes from paritytech/substrate and pallet_babe, applying to pallet_spartan.

Next Steps — Finish the upgrade from Spartan to Subspace consensus, replacing a *useless* proof-of-space with a *useful* proof-of-storage.

Subspace Farmer Protocol → **<https://github.com/subspace/sloth256-189>**

A heavily optimized disk-based plotter and distributed storage node.

Merged 9 PRs → <https://github.com/subspace/sloth256-189/pulls?q=is%3Apr+is%3Aclosed>

- Created highly-optimized sloth256–189 library and codec on top that will soon be upgraded to Subspace consensus in farmer, refactored API, improved docs, and added more test coverage.
- Integrated CUDA-based plotting w/ codec allowing farmers with NVIDIA GPUs to plot their drives up to 10x faster.
- Initial steps towards the farmer storage network, integrating LibP2P Kademlia-DHT.

Next Steps — Upgrade the farmer to create plots using improved codec under the new Subspace consensus scheme.

Desktop Farmer → <https://github.com/subspace/desktop-farmer>

An easy-to-use cross-platform app that makes farming accessible to anyone with a hard drive.

Merged 6 PRs → <https://github.com/subspace/desktop-farmer/pulls?q=is%3Apr+is%3Aclosed>

- Integrated with the blockchain client to render live chain data.
- Code-signing for macOS for easier and more secure installation, preparation for code signing on Windows.
- Improved UX to include auto-start on launch and run in the background through a tray icon.

Next Steps — Integrate with the farmer protocol to allow for the first end-to-end demo of desktop plotting and farming.

Front-End Apps

Wallets, explorers, and other web-based apps for the Subspace Network.

Merged 7 new PRs -

Polkadot Apps → <https://github.com/subspace/apps/pulls?q=is%3Apr+is%3A>

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Status Page → <https://github.com/subspace/status/pulls?q=is%3Apr+is%3A>

closed

- Polkadot-JS apps integration completed (basic wallet and block explorer) PR under review by Parity:
<https://github.com/polkadot-js/apps/pull/6105>
- Live status page to show the uptime of our various network endpoints: <https://status.subspace.network> → <https://status.subspace.network/>
- Completed an initial version of a custom block explorer based on a fork of Polkascan.

Next Steps — Upgrade all of the above to work with Subspace consensus and re-theme to match our new and improved style guide.

Developer tooling and applications for storing data forever on Subspace.

Merged 2 PRs → <https://github.com/subspace/subspace/pulls?q=is%3Apr+is%3Aclosed+author%3AISerge>

- A demo of our Kusama Storage Service is working! This backs up the Kusama relay chain and all parachains block-for-block on Subspace!
- Completed the first version of pallet_feeds, allowing for archival storage of data within Subspace transactions through Substrate.
- An initial version of Subspace.js, a dev-friendly wrapper around Polkadot.js for storage and retrieval.

Next Steps — Add a web-based front-end for the relay service, showing the live status of all Kusama data being stored on Subspace, while extending the service to be more robust.

Thanks for reading and don't hesitate to reach out if you have any questions or ideas!