

Validators DAO: Scaling and Decentralizing the Solana Network

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NFA / DYOR

Abstract. Validators DAO is a project aimed at enhancing the decentralization and security of the Solana network. While Solana is a blockchain known for its high transaction speed and scalability, increasing the number of validators and ensuring the decentralization of staking are essential to maintaining the network's health. We provide the open-source tool “solv” to simplify validator operations and lower entry barriers, enabling more users to participate in the network.

Additionally, "Validators Solutions" automates validator operations, ensuring stable management. By introducing the Liquid Staking Token (LST) “eSOL”, users can earn staking rewards without locking their assets, thus contributing to the network’s security and decentralization. eSOL holders can receive airdrops and mining rewards of VLD tokens, which are the community tokens of Validators DAO. Furthermore, users holding veVLD tokens can vote on the staking delegation destinations of eSOL pools and on the selection of liquidity providers. This allows users to directly participate in the network’s decision-making and play a crucial role in supporting democratic DAO governance. Through these initiatives, Validators DAO aims to support the growth and sustainable innovation of the Solana ecosystem, building a future where more users can contribute to the healthy development of the network.

1. Challenges: Scaling and Decentralizing the Solana Validator Network

1.1 Background

Solana is a blockchain platform known for its exceptionally high transaction speed, scalability, and low-cost transaction processing, making it a significant step towards mass adoption. Solana has generated numerous innovative platforms and applications, expanding the possibilities of blockchain technology.

Solana: <https://solana.com/>

Given this context, expanding and decentralizing validators in Solana, which uses a Proof of Stake (PoS) consensus, is critical to ensuring the network’s security and health. A larger number of validator nodes and more widely distributed staking make the network more resistant to external attacks and enhance its credibility as a truly decentralized network.

In PoS, validating the legitimacy of transactions requires the consensus of over 66% of the network.

Validators play a key role in achieving this consensus. However, if a malicious group gains control over




validators with over 66% of the staked tokens, they could manipulate the blockchain to approve fraudulent transactions.

The distribution of staking among validators is thus crucial. If a few validators hold a large portion of the total stake, it becomes easier for malicious entities to take control by aligning with those few validators. Conversely, if the stake is spread across many validators, taking control of the network would require compromising many more validators, making an attack more difficult.

For example, if one validator holds 10% of the total stake, a malicious group could take over the network by controlling just seven validators. However, if each validator holds only 0.1% of the total stake, it would require controlling 660 validators to achieve the same 66% consensus. Therefore, expanding the number of validators and decentralizing staking are essential for enhancing the network's security and ensuring the sustainability of the blockchain.

1.2 Current Situation

According to the "Solana Foundation Validator Health Report: March 2023," there were 2,421 validators on the Solana mainnet as of March 23, 2023.


Blockchain	Total Validators (Block Producing)	Nakamoto Coefficient
 SOLANA	2,421	31
Avalanche	1,193	29
Ethereum	3,022	20
Polygon	77	4
NEAR	211	8
Cosmos	175	7

Solana Foundation Validator Health Report: March 2023:

<https://solana.com/news/validator-health-report-march-2023>

However, the "Validator Health Report: October 2023" reported a decrease to 1,961 validators by September 6, 2023, even as the number of validators on other blockchains has been increasing.



Blockchain	Total Validators (Block Producing)	Nakamoto Coefficient ¹	Validator Software Clients
 SOLANA	1,961 ²	31	2
Avalanche	1,311 ³	27	1
Cosmos	180 ⁴	8	1
Ethereum	4,435 ⁵	25 ⁶	4
NEAR	218 ⁶	9	1
Polygon	79 ⁷	4	1

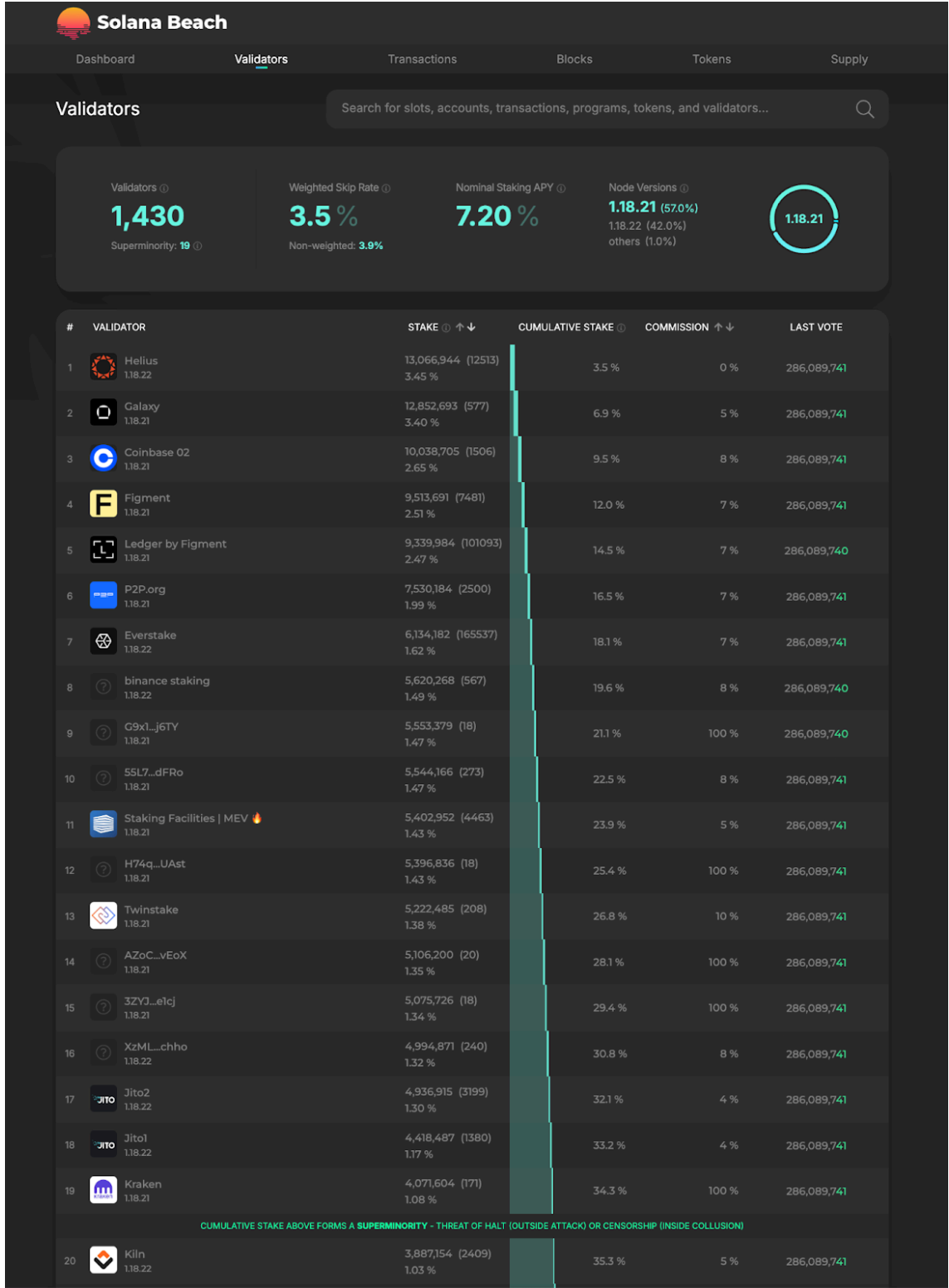
Validator Health Report: October 2023: <https://solana.com/news/validator-health-report-october-2023>

By August 2024, the number of Solana validators had further decreased to 1,430.

A critical concept here is "Superminority." A superminority consists of the validators that collectively hold the top 33% of the total staked tokens in the network. Controlling this 33% would allow external attackers to halt the network. Currently, Solana's superminority consists of 18 validators.

To improve network security, it is vital to increase the number of validators and prevent staking from being concentrated among a few validators. With more validators participating and staking widely distributed, the number of validators in the superminority would increase, making it more difficult for attackers to halt the network. This is a necessary step to maintain the health of the Solana network.

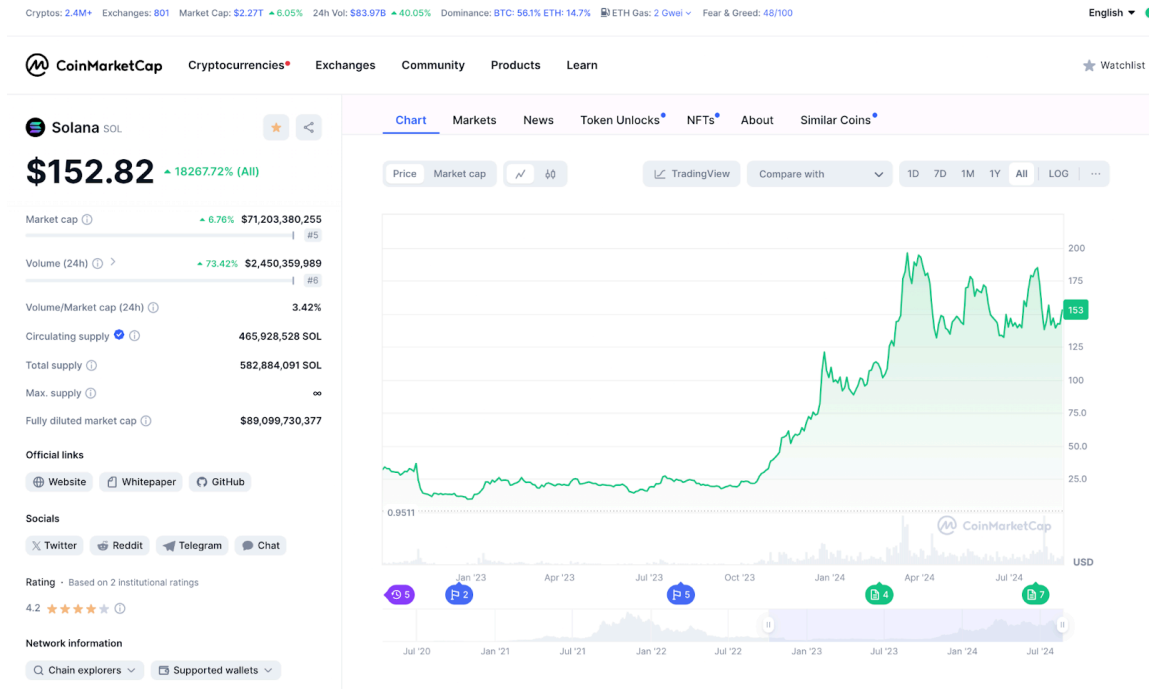




Solana Beach - Validators: <https://solanabeach.io/validators>



Despite the decrease in the number of validators, the price of Solana tokens has been rising, indicating that the decline in validators is not due to reduced incentives caused by token price drops.



CoinMarketCap - Solana: <https://coinmarketcap.com/currencies/solana/>

1.3 Reasons for the Decline in Validators

1.3.1 High Technical Requirements

Operating a validator on the Solana network requires high technical skills. Validators need to continually keep up with the latest software and protocols to maintain network stability and security. However, unlike Ethereum, Solana does not offer an "Out of the Box" solution; each validator must independently ensure advanced server specifications and configurations. This creates a significant barrier for new participants and raises the entry threshold. Additionally, Solana prioritizes the speed and quality of software updates and is currently in mainnet beta, which often delays official documentation updates, making it difficult to access the latest information, further increasing technical challenges.

Solana Validator Requirements: <https://docs.solanalabs.com/operations/requirements>



1.3.2 High Maintenance Costs

Validator operation requires 24/7 server maintenance and frequent updates. To keep the network running smoothly, continuous monitoring, alert management, and quick response to software updates are essential. These maintenance costs impose a significant burden, especially on small and medium-sized validators.

1.3.3 High Server Costs and Staking Break-Even Point

Operating a validator requires high-performance servers, which are not inexpensive. Although the Solana Foundation offers staking support through programs like the Testnet Delegation Program (TDS), these are temporary supports and insufficient for long-term operation. Currently, validators need around 50,000 SOL in staking to break even, and failing to reach this level results in a deficit operation. Thus, in addition to technical and economic burdens, validators must also engage in effective marketing to increase their staking. Validators need to actively promote their services within the network to attract more stakes. Without sufficient marketing, it becomes challenging to gather enough staking, making it difficult to continue operations.

These combined technical, maintenance, server cost burdens, and marketing needs have led many small and medium-sized validators to cease operations, preventing the advancement of network decentralization. If this trend continues, the security and decentralization of the Solana network could be at risk.

2. Why Establish Validators DAO?

If the Solana network continues in its current state, the sustainability of its security and decentralization may be compromised. However, by taking swift and effective measures to address these challenges, Solana has the potential to grow into a stronger and more decentralized network. Validators DAO aims to address these challenges and take important steps towards a brighter future for the Solana network with you.

2.1 Open Source Solana Validator Tool “solv”

We developed and released the validator setup and operation tool "solv" as open-source software to lower the entry barrier for Solana validators and contribute to network decentralization.

solv: <https://solv.epics.dev/>



This tool is used worldwide and significantly reduces the burden of installing and operating Solana validators, which was previously complex, earning widespread support. By using solv, validators can be set up with just three copy-and-paste operations. Daily updates are completed with a single command, dramatically reducing operational effort.

Furthermore, using solv's MEV (Maximum Extractable Value) mode eliminates the need for daily updates, keeping validators automatically up-to-date. As a DAO (Decentralized Autonomous Organization), we are forming a validator community to collaboratively enhance network stability and reliability. Through this community, knowledge sharing on stable network configurations will advance, improving the overall network quality. Additionally, community collaboration will actively drive enhancements to solv and the addition of new features, increasing its value as an open-source tool.

Thus, solv plays a crucial role beyond being a mere validator tool, contributing to the growth of the Solana ecosystem and realizing a healthy decentralized network.

2.2 Solana Validator Automation Service “Validators Solutions”

Using command-line interfaces is a high barrier for many users and can be laborious. Managing updates, revenue sharing, and voting costs entirely through commands complicates operations.

Other blockchains have "Out of the Box" solutions that simplify validator initiation, encouraging new participants. We believe that by developing and operating solv, lowering the entry barrier will attract many participants.

Reference - dappnode: <https://dappnode.com/>

We have launched the Solana validator automation service "Validators Solutions" on Discord on a trial basis. Although this service was stealth-released at the end of July 2024 and a dedicated channel was created on the Epics DAO Discord, no official announcements were made. Nevertheless, as of August 2024, several contracts have been signed, indicating strong demand.

Epics DAO Discord: <https://discord.gg/GmHYfyRamx>

Currently, there are no data centers with optimal tuning specifically for Solana validators. To reduce skip rates and aim for high validator scores, each validator operator must independently set up their own network and server racks. This makes it challenging to establish high-quality Solana validators globally.



The quality of validators is directly linked to the overall network quality. Therefore, improving the infrastructure environment is essential for enhancing the quality of the Solana network. We are starting with Amsterdam, Netherlands, and plan to globally deploy data centers optimized specifically for Solana validators.

As a result, the validator network of Validators Solutions is expected to achieve higher scores by being operated in these highly-tuned data centers. Through this initiative, we aim to further enhance the robustness and reliability of the Solana network.

2.3 Liquid Staking Token “eSOL”

While validator participation increased with Solana's staking incentive, more measures are needed to ensure long-term sustainability. Maintaining network prosperity and strong security requires staking decentralization and creating a favorable environment for small and medium-sized validators to survive.

The Solana Foundation is also strongly interested in staking decentralization and has taken measures (staking incentive programs are part of this). To enhance the security of the Solana network and reduce risks from staking concentration on specific validators, the Solana Foundation has officially developed and launched a Stake Pool program. Implemented in 2021, this program has undergone over ten rigorous audits and is considered the safest staking pool on Solana.

Reference (Solana Document - Stake Pool Introduction): <https://spl.solana.com/stake-pool>

Using this Stake Pool program enables the creation of Liquid Staking Tokens (LSTs), which reduce the user's staking effort and risk while providing liquidity. Unlike regular staking, there is no lock-up period, and it can be exchanged for SOL or USDC immediately, yet staking rewards can still be earned. Additionally, LSTs can be deposited into LP pools like Orca to aim for higher yields. (If aiming for higher yields, risks also increase, so always follow the best practices of NFA/DYOR.)

eSOL is designed to enhance the quality and stability of the Solana network, supporting sustainable innovation. By utilizing monitoring bots and sophisticated delegation strategies, we aim to diversify staking risks and improve network security.



40% - High-performance validators operated by the solv development team: These validators use high-spec servers and high-bandwidth networks, operate with zero downtime, and offer high staking efficiency with zero staking fees due to MEV and block rewards.

30% - Validators Solutions MEV Premium Plan subscribers: This automated service also meets the same conditions as high-performance validators operated by the solv development team, making them a preferred choice for eISOL delegation.

30% - Voting via veVLD: eISOL holders mine VLD tokens, convert them to veVLD, and exercise their voting rights for new validators, supporting network decentralization.

(*For details on VLD and veVLD tokens, please refer to "3. Tokenomics.")

Through this delegation strategy, eISOL promotes security and decentralization across the network, providing users with a beneficial staking experience.



Token Address: ELSoL1owwMWQ9foMsutweCsMKbTPVBD9pFqxQGidTaMC

Token Name: Enhanced Linkage SOL

Tick: eISOL

eISOL - Solscan: <https://solscan.io/token/ELSoL1owwMWQ9foMsutweCsMKbTPVBD9pFqxQGidTaMC>

eISOL - Orca:

<https://www.orca.so/?tokenIn=So112&tokenOut=ELSoL1owwMWQ9foMsutweCsMKbTPVBD9pFqxQGidTaMC>

eISOL - Jupiter: <https://jup.ag/swap/SOL-eISOL>

eISOL - Sanctum: <https://app.sanctum.so/trade/SOL-eISOL>

eISOL LP - Orca:

<https://www.orca.so/pools?tokens=ELSoL1owwMWQ9foMsutweCsMKbTPVBD9pFqxQGidTaMC>

eISOL: <https://elsol.app/>

3. Tokenomics

A Token Generation Event (TGE) is planned for Q4 2024. The community token, VLD, can be staked for a specified period to obtain Vote Escrowed Tokens (veVLD). veVLD serves as voting rights, allowing holders to vote on liquidity management of eISOL and VLD token LP pools, as well as on the delegation of SOL staking within eISOL pools.



3.1 Community Token - VLD

The community token is VLD. Of the total supply, 15% will be airdropped, and the remaining 85% will be mined over eight years, primarily as incentives for eSOL holders. VLD tokens are designed to support the long-term prosperity and sustainable innovation of Solana.

3.1.1 VLD Airdrop (15% of Total Token Supply)

VLD will be airdropped to the following contributors who have supported "solv" and "Validators Solutions" from the early stages. 90% of the airdropped tokens will go to these contributors, while the remaining 10% will be allocated to liquidity pools.

- Open-source "solv" contributors
- \$eSOL holders
- Validators Solutions Validators
- Validators Solutions points holders
- \$EPCT holders (excluding core team and large holding addresses)
- Buidlers Collective NFT holders
- Epics Beta tester ticket NFT holders
- Buidlers Guild card pack NFT holders



3.1.2 VLD Mining (85% of Total Token Supply)

85% of VLD tokens will be mined as incentives for eSOL holders. By holding eSOL long-term, users can continuously mine VLD tokens, supporting Solana's sustained growth. This mining period is planned for eight years.

80%: Mining as incentives for holding eSOL

10%: Liquidity provision to LPs (determined by veVLD voting)

10%: Set aside for DAO operations, bug bounties for open-source software "solv," and stored in the Validators DAO treasury

3.2 Vote Escrowed Token - veVLD

3.2.1 What is a Vote Escrowed Token (veToken)?

A Vote Escrowed Token (veToken) is a special token obtained by locking tokens for a certain period. The primary purpose of veToken is to provide incentives for users to commit to the project long-term. This promotes the sustainable development of the project, encouraging participation from a long-term perspective rather than short-term profit-seeking.



Reference (CoinGecko: What are veTokens and Understanding veTokenomics):

<https://www.coingecko.com/learn/vetokens-and-vetokenomics>

veTokens are generated based on the duration of the token lock by the holder. The longer the lock period, the more veTokens are generated, and the greater the influence on the project. As the lock period progresses, the number of veTokens decreases, but locking the tokens again can acquire new veTokens. This provides users with incentives to remain engaged with the project continuously.

3.2.2 Features of veTokens

1. Rewards Based on Lock Period:

Users can acquire veVLD by locking their VLD tokens for a specified period. The longer the lock period, the more veVLD is obtained, increasing users' voting rights. As the lock period progresses, veVLD decreases, but users can lock their tokens again to acquire new veVLD, recovering or increasing their voting rights.

2. Function as Voting Rights:

veVLD serves as voting rights within the project. This allows users to participate in voting on eSOL pool staking delegation decisions and the selection of liquidity providers for eSOL and VLD. The more veVLD a user holds, the more influence they have in voting.

3. Fair and Sustainable Governance:

The veToken mechanism is designed to ensure fair and sustainable governance in DAOs and community-driven projects. By giving more voting rights to users who contribute to the project's success over a long period, rather than pursuing short-term gains, the overall benefit of the community is maximized.

4. Enhanced Incentives:

veVLD functions as an incentive to promote long-term participation in the DAO. By locking VLD tokens for a more extended period, users can acquire more veVLD and play a vital role in project decision-making. This strengthens DAO governance and enhances the project's long-term stability.

3.2.3 Role of veVLD

veVLD plays a crucial role in the governance of Validators DAO. Specifically, by holding veVLD, users can participate in important decisions through the Validators DAO dApp (planned for release in Q4 2024).



Decision on eSOL Pool Staking Delegation:

Users holding veVLD can participate in voting to decide on the delegation destinations for SOL staking in the eSOL pool. This allows users to select trusted validators that support network security and decentralization.

Selection of Liquidity Providers:

veVLD is also used in voting to select liquidity providers for eSOL and VLD tokens. Through voting, users influence the selection of liquidity pools, playing a role in maintaining token liquidity and market health.

Governance and Project Decision-Making:

veVLD is used in significant governance decisions within the DAO. This includes funding allocation, project direction, and partnership approvals, allowing community participants to directly contribute to shaping the project's future.

3.2.4 Fair and Sustainable DAO Governance

veVLD is an essential element in ensuring fair and sustainable DAO governance.

Introducing veVLD is expected to yield the following effects:

Promotion of Long-Term Commitment:

By locking VLD tokens for an extended period, users can acquire more veVLD. This favors users committed to the project's long-term success over short-term profits.

Allocation of Voting Rights Based on Contribution:

veVLD allocates voting rights according to users' contributions. This allows for the opinions of users seriously engaged with the project to be more easily reflected, achieving healthier and more democratic governance.

Sustainable Governance:

The veVLD mechanism serves as the foundation for the long-term operation of the DAO. Since voting rights are distributed based on long-term commitment, it suppresses short-term speculative behavior and supports the sustainable development of the project.

Details on the TGE schedule, token allocation, mining schedule, and various snapshots will be announced in the forthcoming white paper.



4. Conclusion

Validators DAO was established to achieve further decentralization and enhance the security of the Solana network. We offer innovative tools and services to lower validator entry barriers and maintain the overall health of the network. This includes the development of the open-source tool "solv," the automated validator management service "Validators Solutions," and the introduction of the LST "eISOL" to strengthen decentralized staking.

Aiming for long-term success, we encourage community participation through the VLD and veVLD token ecosystem, realizing democratic and sustainable governance. This allows all DAO members to partake in decision-making and collectively build the future of the Solana network.

Our efforts contribute not only to the growth and development of the Solana network but also make blockchain technology more accessible and user-friendly for a broader audience. As a part of the Solana ecosystem, Validators DAO is committed to jointly creating a sustainable and secure blockchain future.

We invite everyone who resonates with our vision to join us in building the infrastructure of the future. As a member of Validators DAO, contribute to the decentralization and strengthening of the Solana network and support sustainable innovation.

NFA / DYOR / LFG

Discord: <https://discord.gg/C7ZQsrCkYR>

