About Sei

What is Sei

Sei is anopen-source blockchain(opens in a new tab) hosting a vibrant ecosystem of decentralized applications (dApps). Using proof-of-stake consensus and ground-breaking technologies like Twin Turbo Consensus and Parallelization, the Sei blockchain is the fastest chain in existence, giving users a web2-like experience with all the benefits of web3 decentralization.

What is The Sei token?

SEI is the Sei protocol's nativestaking token. Sei is used forgovernance and for validator rewards. Users stake Sei to validators who record and verify transactions on the blockchain in exchange for rewards from transaction fees.

You can learn how to get Sehere

Validators

Validators from all around the world secure the Sei blockchain and ensure its accuracy. Validators run programs called full nodes which allow them to verify each transaction made on the chain.

Validators propose blocks, vote on their validity, and add each new block to the chain in exchange for staking rewards from transaction fees.

Users canstake their Sei to validators in exchange for staking rewards. Validators also play an important role in the governance of the Sei protocol.

You can learn more about validators and how to run onehere .

Consensus

The Sei blockchain is a proof-of-stake blockchain, secured by an optimized consensus mechanism known as "Twin Turbo" consensus.

Our consensus mechanism is described in the Sei whitepaper:

1. A validator called a proposer is chosen to submit a new block of transactions.
2. Validators vote in two rounds on whether they accept or reject the proposed block. If a block is rejected, a new proposer is selected and the process starts again.
3. If accepted, the block is signed and added to the chain.
4. The transaction fees from the block are distributed as staking rewards to validators and delegators. Proposers get rewarded extra for their participation.

This process repeats, adding new blocks of transactions to the chain. Each validator has a copy of all transactions made on the network, which they compare against the proposed block of transactions before voting.

Because multiple independent validators take place in consensus voting, it is infeasible for any false block to be accepted. In this way, validators protect the integrity of the Sei blockchain and ensure the validity of each transaction.

Staking

Staking is the process of bonding Sei to a validator in exchange for staking rewards.

A validator's rank is determined by their stake or the total amount of Sei bonded to them. Although validators can bond Sei to themselves, they mainly amass larger stakes from delegators. Validators with larger stakes get chosen more often to propose new blocks and earn proportionally more rewards.

For more details about staking, refer tothis page .

Delegators

Delegators are users who want to receive rewards from consensus without running a full node. Any user that stakes Sei is a delegator. Delegators stake their Sei to a validator, adding to a validator's weight, or total stake. In return, delegators receive a portion of transaction fees as staking rewards. Staked Sei never leaves the possession of the delegator. Even though it can't be traded freely, staked Sei is never owned by a validator.

For more details about delegators, refer tothis page .

Bonding, staking, and delegating

Generally, the terms bonding, staking, and delegating can be used interchangeably, as they happen in the same step. A delegator delegates sei to a validator, the Sei gets bonded to the validator, and the bonded Sei gets added to the validator's stake.

Delegators can bond Sei to any validator in the active set using the delegate function on app.sei.io or third party sites. Delegators start earning staking rewards the moment they bond or stake to a validator.

Unbonding

Delegators can unbond or unstake their Sei using the undelegate function. The unbonding process takes 21 days to complete. During this period, the unbonding Sei can't be traded, and no staking rewards accrue.

After funds are undelegated, they will be locked for a period of 21 days. Once this process has started, there is no option for reversal. After this period has concluded, the funds will be transferred to your wallet where they will once again be available to carry out transactions. Users can redelegate to another validator instantly without waiting for the unbonding period to end.

The 21-day unbonding period assists in the long-term stability of Sei. The unbonding period discourages volatility by locking staked Sei in the system for at least 21 days. In exchange, delegators receive staking rewards, further incentivizing network stability.

Redelegation

Redelegating instantly sends staked sei from one validator to another. Instead of waiting for the 21-day unstaking period, a user can redelegate their staked sei at any time using Station's redelegate function. Validators receiving redelegations are barred from further redelegating any amount of sei to any validator for 21 days.

When a user redelegates staked sei from one validator to another, the validator receiving the staked sei is barred from making further redelegation transactions for 21 days. This restriction only applies to the wallet that made the redelegation transaction.

Rewards

The Sei protocol incentivizes validators and delegators with staking rewards from gas fees and inflation rewards:

- Gas(opens in a new tab)
- : Compute fees added on to each transaction to avoid spamming. Validators set minimum gas prices and reject transactions that have implied gas prices below this threshold.
- Inflation rewards(opens in a new tab)
- : Every block, new sei is minted and released to validators and delegators as staking rewards. The rate for the minting of this new sei is fixed at X% per year.

At the end of every block, transaction fees and inflation rewards are distributed to each validator and their delegators proportional to their staked amount. Validators can keep a portion of rewards to pay for their services. This portion is called commission. The rest of the rewards are distributed to delegators according to their staked amounts.

Slashing

Running a validator is a big responsibility. Validators must meet strict standards and constantly monitor and participate in the consensus process. Slashing is the penalty for misbehaving validators. When a validator gets slashed, they lose a small portion of their stake as well as a small portion of their delegator's stake. Slashed validators also get jailed, or excluded, from consensus for a period of time.

Slashing affects validators and delegators. When a validator gets slashed, delegators who stake to that validator also get slashed. Slashing is proportional to a delegator's staked amount. Though slashing is rare and usually results in a small penalty, it does occur. Delegators should monitor their validators closely, do their research, and understand the risks of staking sei.

Slashing occurs under the following conditions:

- Double signing: When a validator signs two different blocks with the same chain ID at the same height.
- Downtime: When a validator is unresponsive or can't be reached for a period of time.
- Missed votes: When a validator misses votes in consensus.

Validators monitor each other closely and can submit evidence of misbehavior. Once discovered, the misbehaving validator will have a small portion of their funds slashed. Offending validators will also be jailed or excluded from consensus for a period of time. Even simple issues such as malfunctions or downtimes from upgrading can lead to slashing.

For more information on slashing, visit theslashing module page(opens in a new tab).

Governance

The protocol is a decentralized public blockchain governed by community members. Governance is the democratic process that allows users and validators to make changes to the Sei protocol. Community members submit, vote, and implement proposals.

You can find example commands for interacting with Sei's Governance modulehere .

Proposals

Anyone cancreate a governance proposal on Sei. After gaining support and feedback from the community, a proposer drafts and submits a proposal alongside an initial deposit.

The most common proposal types include:

- ParameterChangeProposal
- : To change the parameters defined in each module.
- CommunityPoolSpendProposal
- : To spend funds in the community pool.
- TextProposal
- : To handle other issues like large directional changes or any decision requiring manual implementation.

Voting process

Community members vote with their staked sei. One staked sei equals one vote. If a user fails to specify a vote, their vote defaults to the validator they are staked to. Validators vote with their entire stake unless specified by delegators. For this reason, it is very important that each delegator votes according to their preferences.

The following is a basic outline of the governance process. Visit thegovernance module(opens in a new tab) for more details.

1. A user submits a proposal and a one-week deposit period begins.
2. Users deposit sei as collateral to back the proposal. This period ends after the one week deposit period or a minimum expedited threshold of 7000 sei is deposited.
3. Deposits are to protect against spam. If a minimum deposit of 3500 sei is not met, all deposits are burned and the proposal does not proceed.
4. The one-week vote period begins. The voting options are:* Yes
5. : In favor.
6. No
7. : Not in favor.
8. NoWithVeto
9. : Not in favor, the deposit should be burned.
10. Abstain
11. : Voter abstains. Abstain votes count toward meeting Quorum.
12. The votes are tallied. Proposals pass if they meet three conditions:* Quorum
13. is met: at least 30% of all staked sei must vote.
14. The total number ofNoWithVeto
15. votes is less than 33.4% of the total vote.
16. Threshold
17. is met: the number ofYes
18. votes is greater than the number ofNo
19. andNoWithVeto

20.
    - votes.Abstain
21.
    - votes are excluded from theThreshold
22.
    - tally.
23. If the previous conditions are not met, the proposal is rejected. For a more in-depth look at the tallying process, visit theGovernance module specification(opens in a new tab)
24. .
25. Accepted proposals get put into effect.
26. Deposits get refunded or burned.

Once accepted, the changes described in a governance proposal are automatically put into effect by the proposal handler. Generic proposals, such as a passedTextProposal , must be reviewed by the Sei team and community, and they must be manually implemented.

Deposits

Deposits protect against unnecessary proposals and spam. Users can veto any proposal they deem to be spam by votingNoWithVeto .

If a proposal fails to meet the minimum deposit amount within the deposit period, the proposal will not enter the voting period, and the deposit will be burned.

Proposals that meet the minimum deposit requirement and make it to the voting period will be refunded under any vote outcome exceptNoWithVeto . If the number ofNoWithVeto votes is above 33.4% of the total vote, the deposit will be burned. Deposits will be refunded under any other condition.

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