Reward System

Introduction

The Logos Reward System is designed to create and distribute rewards on the Logos Network - it incentivizes nodes to actively validate requests by rewarding them in proportion to the number of requests validated. Rewards are Logos currency that are accumulated during the Epoch in the form of transaction fees, and generated at the end of an Epoch in the form of inflation, then subsequently distributed to eligible participants. Transaction fees are distributed amongst delegates according to personal stake and new Logos are distributed to representatives according to total stake. Furthermore, rounding is used to ensure invariants such as total token supply are not broken.

Representatives that fail to vote during an epoch lose their claim to the inflation and penalty distributions. Unclaimed rewards are added to the subsequent pool. Provided that epoch length is several orders of magnitude greater than transaction processing time (by construction), these reward requests will only represent a de minimis portion of overall network transactions.

Claiming Rewards

All Logos Network participants, with the exception of delegates, must submit valid reward claim requests before receiving any rewards that they've accumulated during their lifetime. If the request is approved, the full balance of rewards available for that account will be deposited to its balance. As with a native send request, this deposit will result in a receive appended to the account's receive chain.
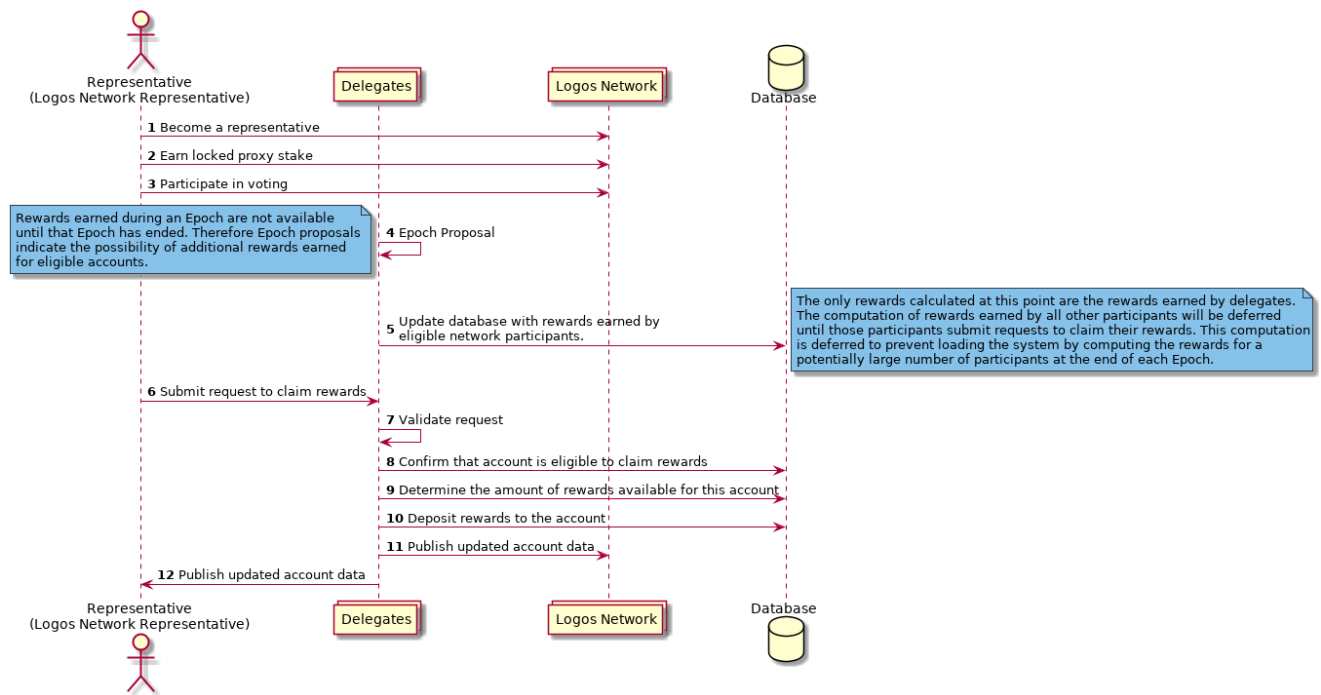
Algorithm

Participant	Reward Calculation
Delegate	The previous epoch block will be retrieved to determine each delegate's relative staking power and thus the percentage of the transaction fees it earns as a reward.
Representative	The *epoch_rewards_db* will be used to determine each representative's relative staking power for a particular epoch, and thus the percentage of transaction fees it earns as a reward.

Participant	Reward Calculation
Basic User	These accounts only earn rewards via levies placed on representatives.

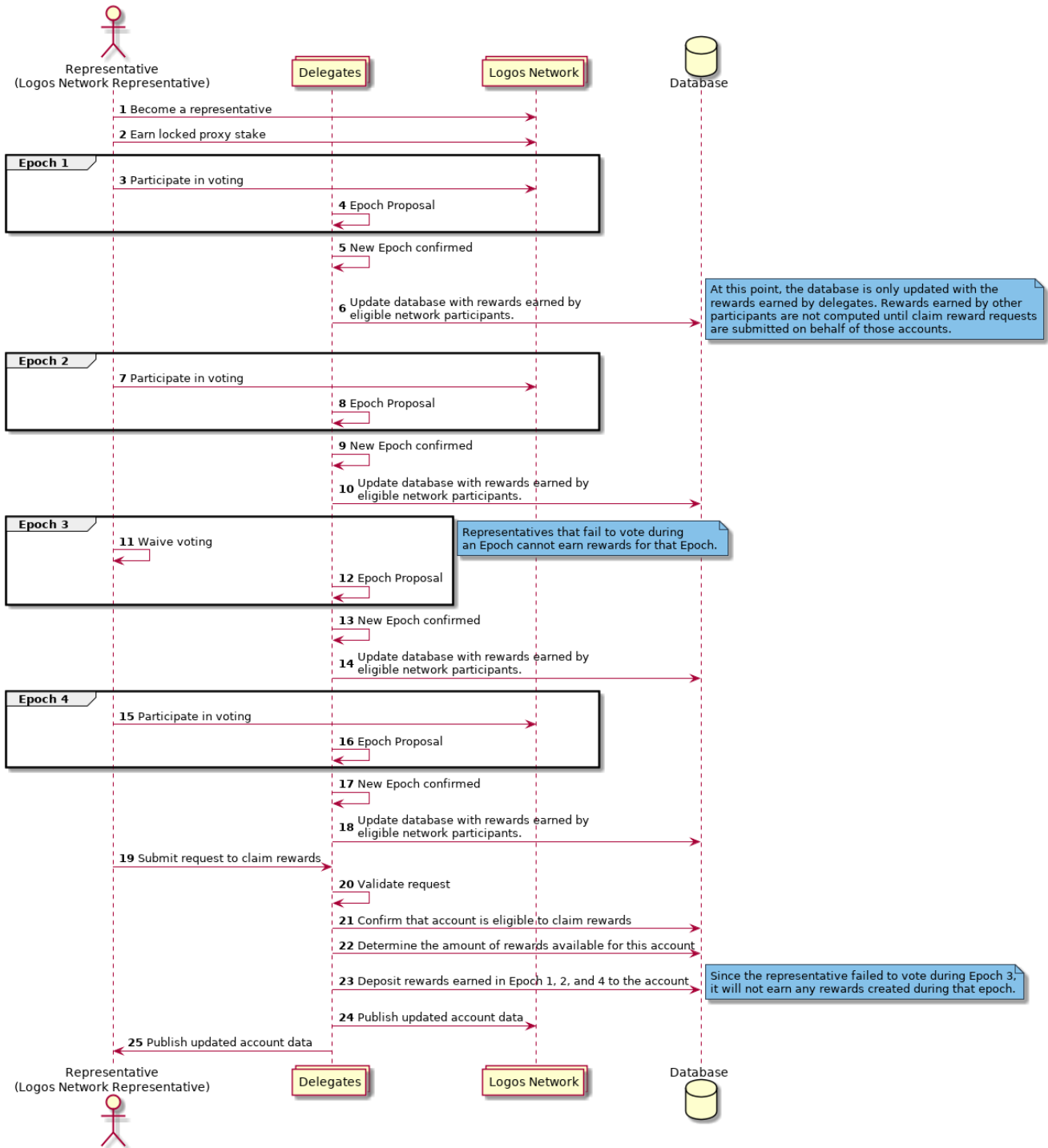### Reward Claim Sequence

This demonstrates the process for earning and claiming rewards.

Voting's Impact on Rewards

Representatives can only earn rewards for Epochs during which they successfully participated in voting. Failure to vote during an Epoch excludes representatives from earning rewards for that particular Epoch.
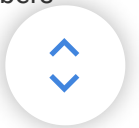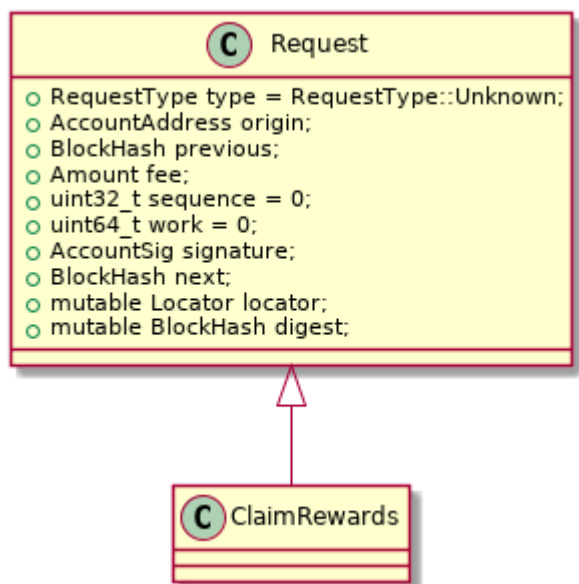
Claim Reward Request

The reward system introduces a distinct request type to the Logos Network implementation that will be used to claim any rewards available for a particular account. If no rewards are available but the request is otherwise valid, it will still be post-committed and the corresponding account will be updated.

As with all other requests, the claim reward request will simply extend the Request base class. Members of this derived class will be determined at a later time.

Request

C

- ○ RequestType type = RequestType::Unknown;
- ○ AccountAddress origin;
- ○ BlockHash previous;
- ○ Amount fee;
- ○ uint32_t sequence = 0;
- ○ uint64_t work = 0;
- ○ AccountSig signature;
- ○ BlockHash next;
- ○ mutable Locator locator;
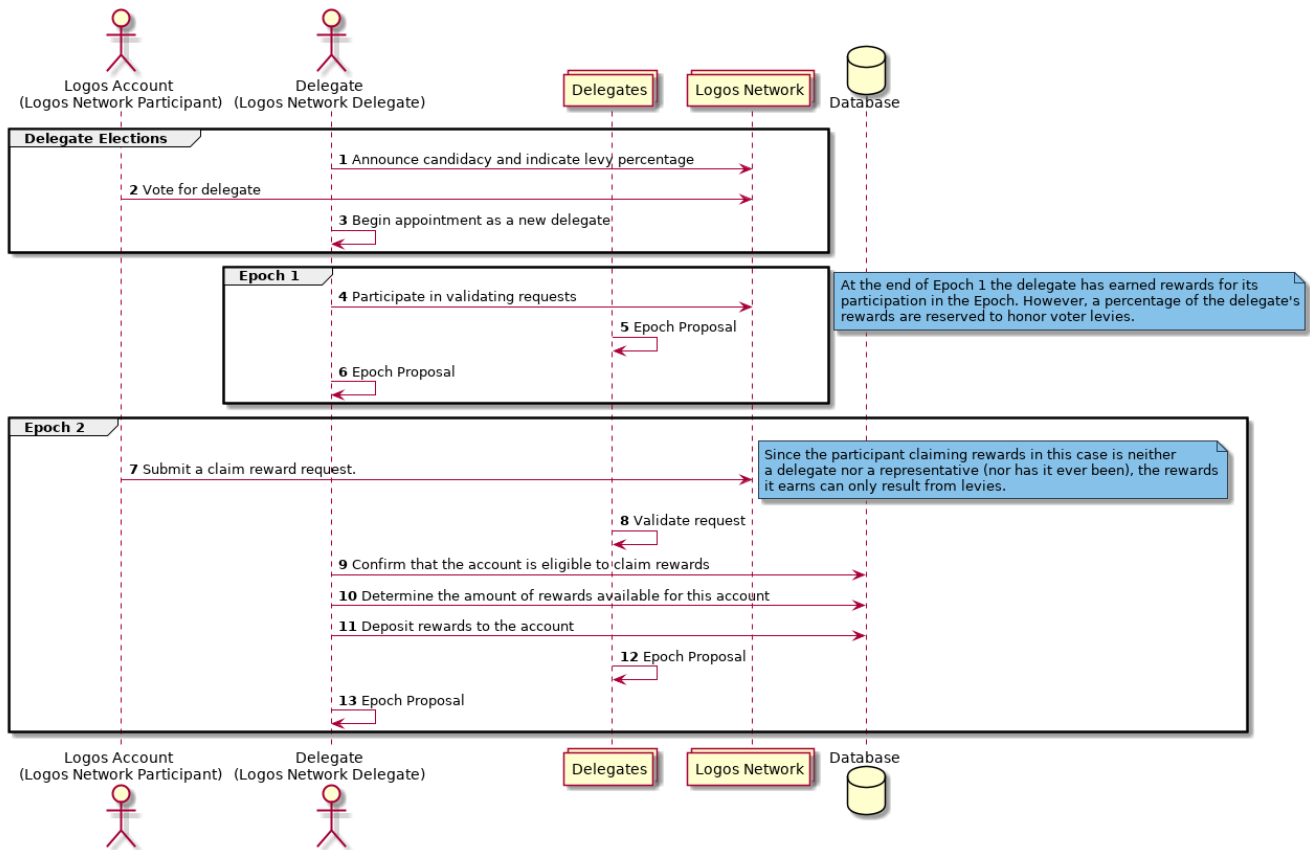- ○ mutable BlockHash digest;

C ClaimRewards

Levy Percentage

Delegates and representatives may choose to allow other participants to place levies on the rewards they've earned, whereby a percentage of a delegate's rewards will be deposited into the accounts of supporting voters, or in the case of representatives, a percentage of the rewards earned will be deposited into the accounts of locked-proxy staked participants.
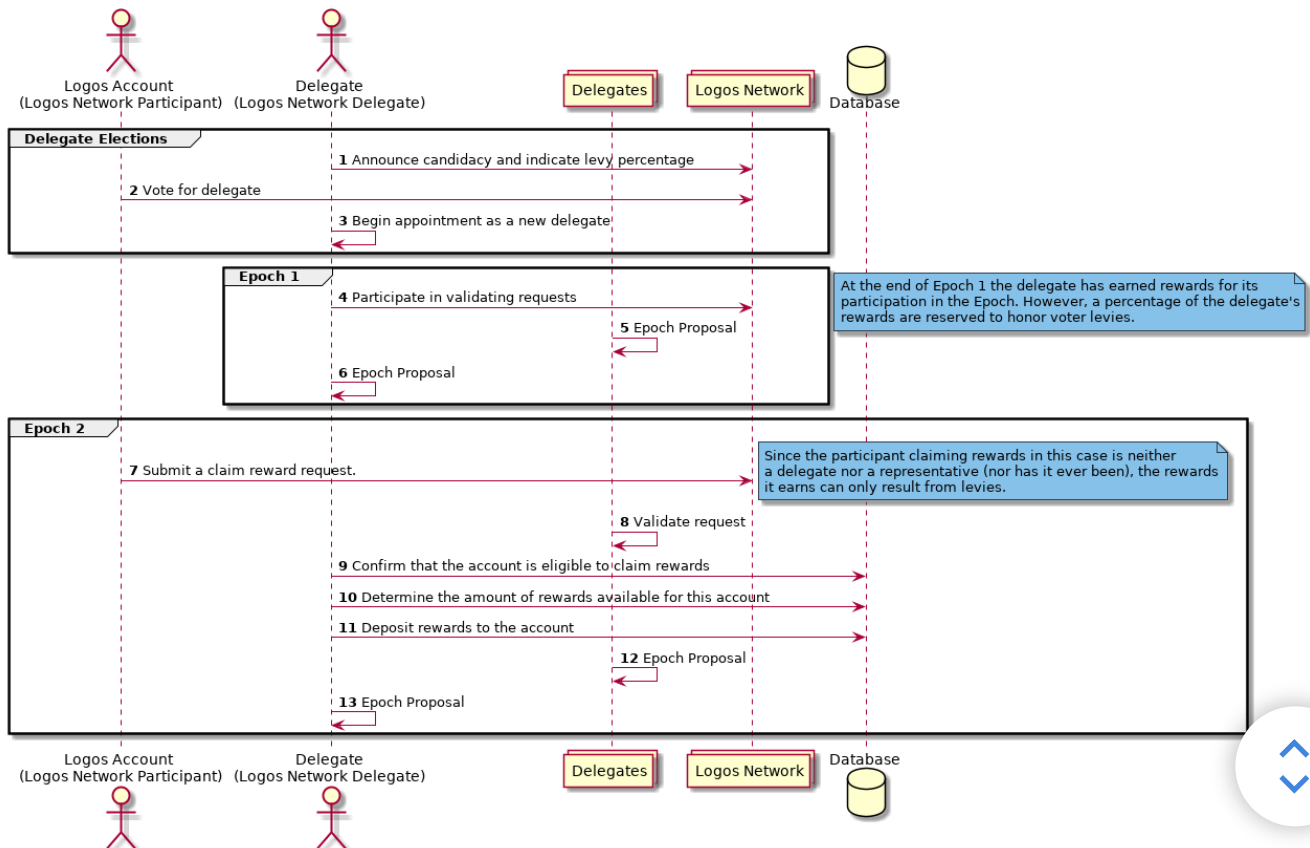
Delegate Levies

Logos Network participants may be entitled to levies placed on elected delegates.

Delegate Elections

1 Announce candidacy and indicate levy percentage

2 Vote for delegate

3 Begin appointment as a new delegate

Epoch 1

4 Participate in validating requests

5 Epoch Proposal

6 Epoch Proposal

At the end of Epoch 1 the delegate has earned rewards for its participation in the Epoch. However, a percentage of the delegate's rewards are reserved to honor voter levies.

Epoch 2

7 Submit a claim reward request.

Since the participant claiming rewards in this case is neither a delegate nor a representative (nor has it ever been), the rewards it earns can only result from levies.

8 Validate request

9 Confirm that the account is eligible to claim rewards

10 Determine the amount of rewards available for this account

11 Deposit rewards to the account

12 Epoch Proposal

13 Epoch Proposal

Representative Levies

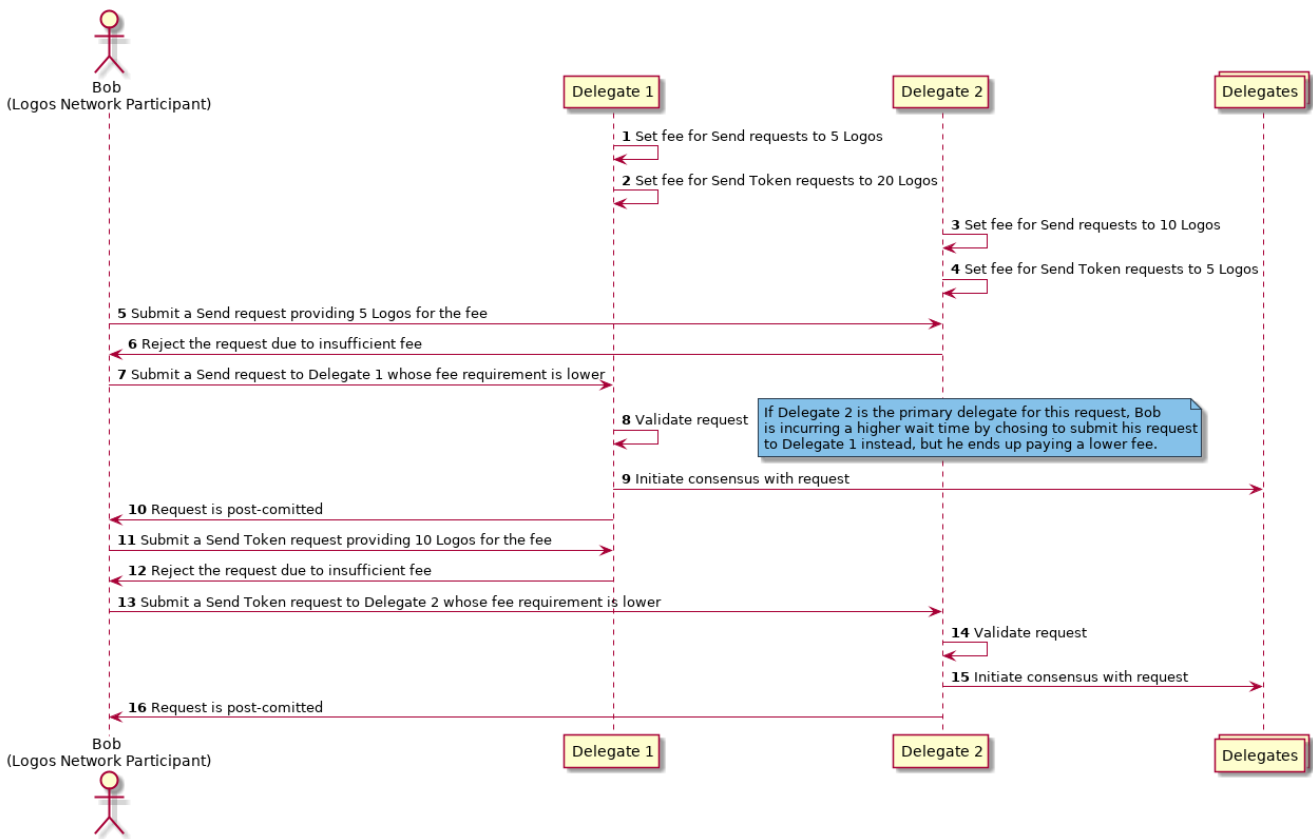Logos Network participants may be entitles to levies placed on locked-stake representatives.

Fees

Fees are are imposed on requests sent on the Logos Network and are amassed at the end of each Epoch to be disbursed amongst the delegates. Additionally, each delegate can specify precisely how many Logos are required for each request type. Different request types may have different fee requirements, and different delegates may well disagree on the fees they impose for each request.

Fee Requirement Discrepancies

Lowering fee requirements may incentivize network participants to choose delegates with lower fees.

Databases

Database	Description

Database	Description
epoch_db	When computing the transaction fee rewards earned by the delegates, this database is used to determine each delegate's relative weight and thus the percentage of transaction fees it will earn.
epoch_rewards_db	When computing the inflation rewards earned by representatives, this database will be used to determine a rep's total locked stake for a particular epoch.
rep_rewards_db	This is a new database that will be used to temporarily store rewards earned by all stakers for a particular rep for a particular epoch, as well as the rep's rewards for that epoch.

➜ Next to **Echo**