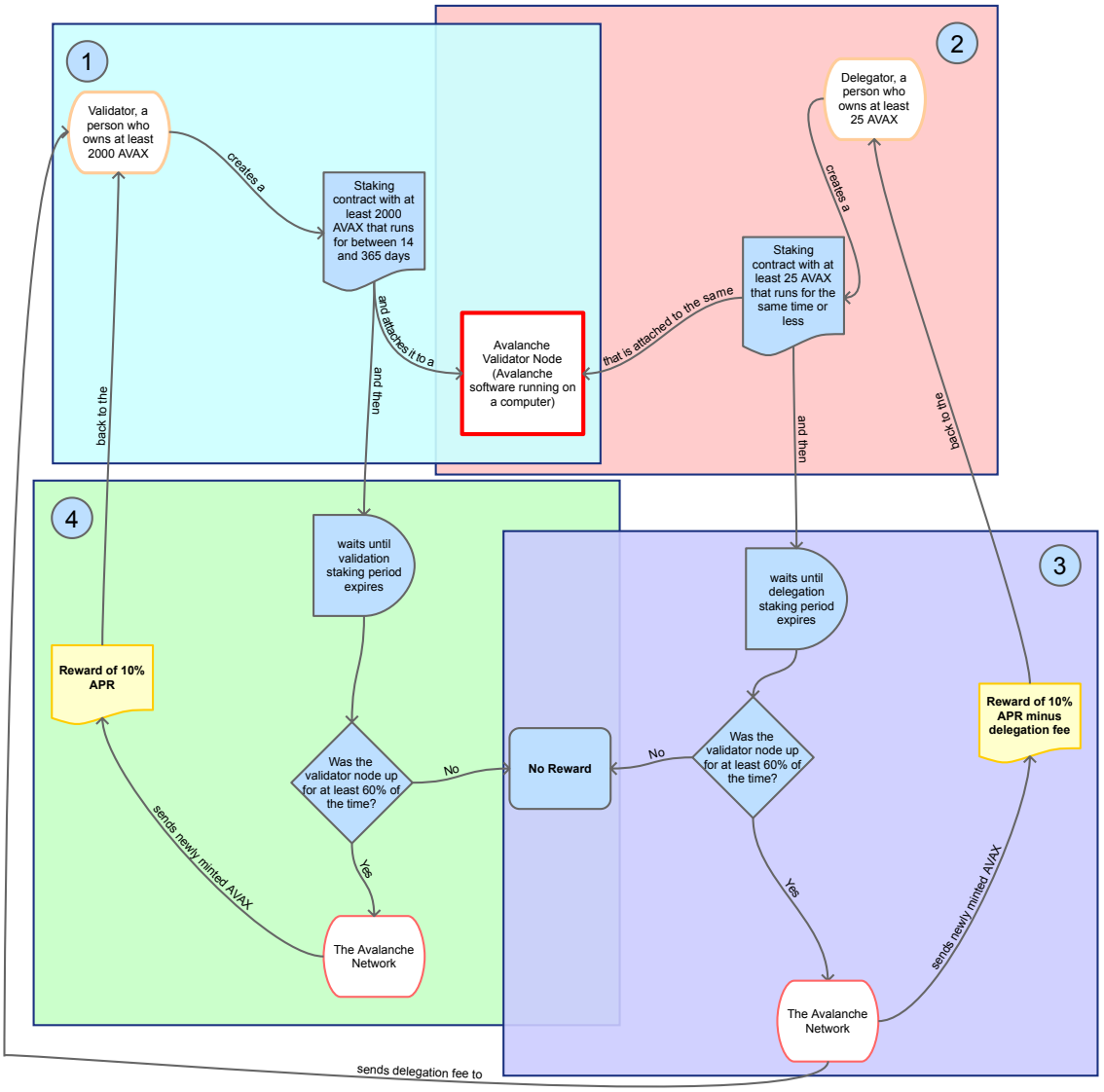
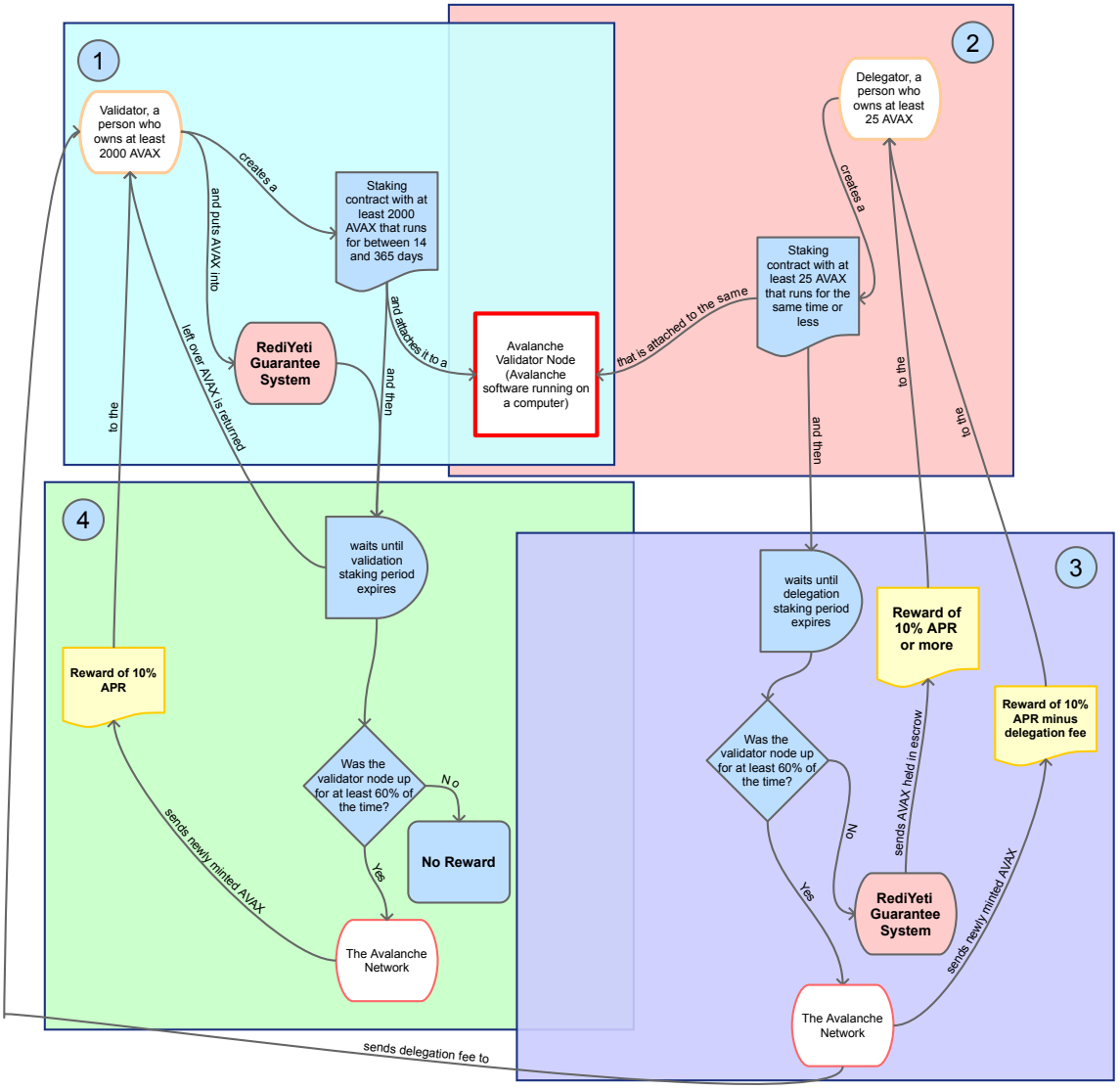
How Normal Avalanche Staking Works



The RediYeti Difference - Protection for Delegators when a Validator Node Malfunctions

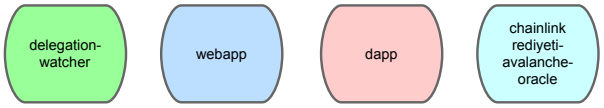


Overview

RediYeti from red·dev enables Avalanche validator node operators to guarantee to those who delegate AVAX to their node that they will receive their staking reward no matter what.

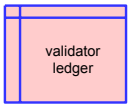
This strengthens the Avalanche network by encouraging delegation to more distributed but perhaps less reliable nodes that do not reside on centralized cloud-based virtual servers. With the RediYeti guarantee, now a node with 90% uptime looks just as good to a potential delegator as one with 99.9% uptime.

The RediYeti guarantee system consists of four interlocking parts:

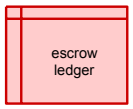


RediYeti system interacts with four types of external actors:

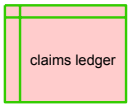
And within the dapp part of RediYeti, there are six important data structures:



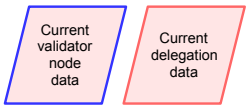
Contains a list of all P-Chain accounts currently tracked by rediyeti with balances of funds not in escrow.
- Validator funds only.
- P-Chain Address.
- Associated C-Chain Address.
- Node-ID.



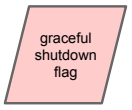
Contains a list of all validator funds currently held in escrow, one record per delegation.
- Delegation ID.



Contains a list of all P-Chain accounts of delegators where the Avalanche network has not given a reward and thus a claim can be made by the delegator.
- Delegator funds only.
- P-Chain Address.
- Associated C-Chain Address.
- Node-ID.



Data gathered by the Chainlink rediyeti-avalanche-oracle regarding validators and delegators on the p-chain (since the c-chain is otherwise unaware of the p-chain).



Boolean initially true and stays true until contract shifts into Graceful Shutdown mode when signaled by red·dev.

Use Cases

Validator lists node as guaranteed.
- Using the webapp, the validator sends funds to rediyeti smart contract from c-chain address.
- Smart contract verifies amount will cover all potential claims for validator's staking period.
- Funds are stored in contract's *validator ledger* for later use.

Validator delists node as guaranteed.
- Done using the webapp.
- 5 min delay.
- Funds not in the *escrow ledger* are returned to validator.
- Funds later released from the *escrow ledger* back to the *validator ledger* are returned to validator.

Validator's staking period expires.
- Unused balance in the *validator ledger* is returned to validator's c-chain address.

Delegation-watcher software prompts dapp to provide guarantee for new delegations.
- Done during housekeeping: *Provide gurantee for any new delegations, for validator nodes that are insured by rediyeti.*

Delegation-watcher software prompts dapp to move funds back from escrow to rediyeti account.
- Done during housekeeping: *Well-behaved node, after expiration, funds are returned from the escrow ledger to the validator ledger.*

Potential Delegator looks for a rediyeti-guaranteed validator node.
- Look at list in the rediyeti webapp.
- Copy the node-id.

Delegator stakes on guaranteed node, and staking is now guaranteed.
- Delegator staking is done using the wallet at https://wallet.avax.network as usual.

Delegation period expires with misbehaving node (<60% uptime).
- Funds are moved from the *escrow ledger* to the *claims ledger* where they can be claimed by the delegator.

Delegation period expires with well-behaving node (>=60% uptime).
- Funds are moved from the *escrow ledger* back to the *validator ledger* where they can then be used to cover future delegations.

Delegator makes claim.
- This is done using the webapp.
- Verify claim is valid.
- Verify delegator's identity.
- If both verifications pass, funds are removed from the *claims ledger* and sent to delegator's c-chain address.

Curious person wants to see list of currently guaranteed delegations.
- Look at list in the rediyeti webapp.

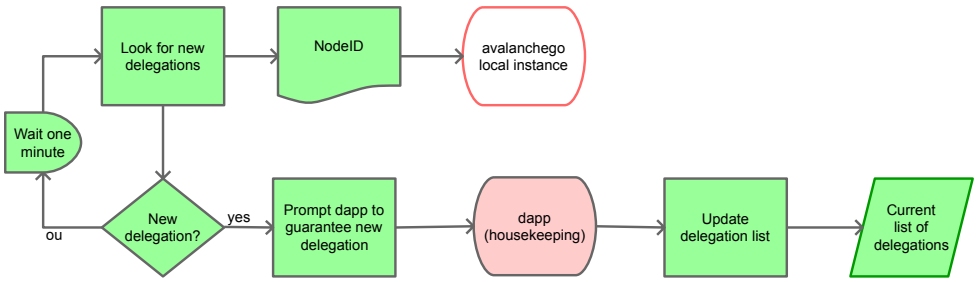
Gracefully shutdown rediyeti by red·dev.
- Our company, red·dev, with signed tranaction can block all further listing of nodes as guaranteed.
- All other dapp operations are not affected.
- After current validators staking period ends, and a year after final delegation insurance is paid, rediyeti contract will be empty.

DApp Housekeeping:
- Gather Avalanche validator and delegator data through the Chainlink adapter.
- If delegator claims are > 1 year old, return them to *validator ledger*.
- Move funds from *escrow ledger* after delegation expires, according to node behavior, to either *claims* or *validator ledger*.
- If validator is expired or has requested delisting and has funds in *validator ledger*, return funds to validator.

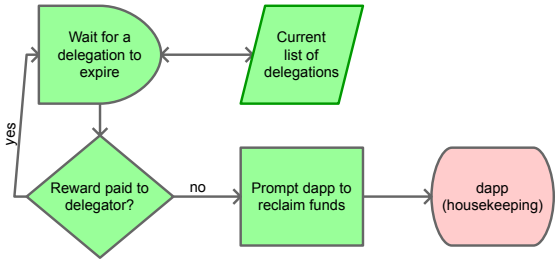
delegation-watcher

Runs on avalanchego validator node.

RY001 Validator prompts dapp to guarantee new delegations to their node
- watches for new delegations and prompts dapp to guarantee them
- responsible for keeping Current list of delegations up-to-the-minute.

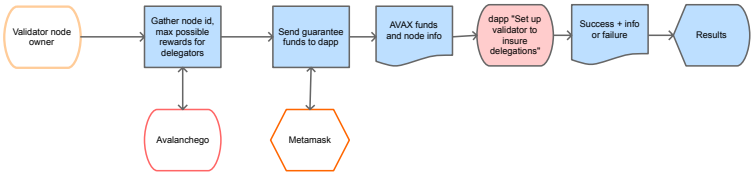


RY002 Validator prompts dapp to move funds back from escrow to rediyeti account
- watches for expired delegations and prompts dapp to reclaim funds from escrow

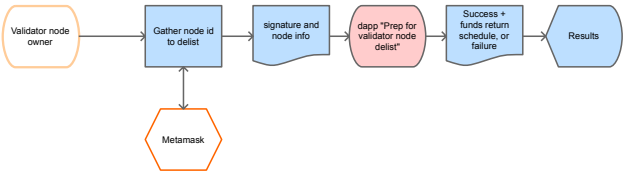


webapp

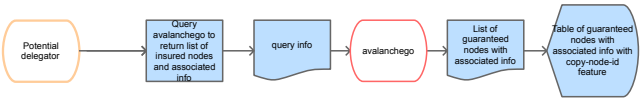
RY004 Validator lists node as guaranteed



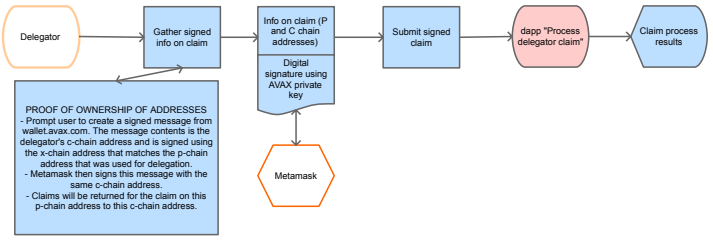
RY005 Validator delists node from the rediyeti system



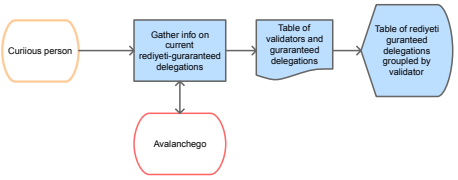
RY006 Potential Delegator looks for a rediyeti-guaranteed validator node



RY007 Delegator makes claim

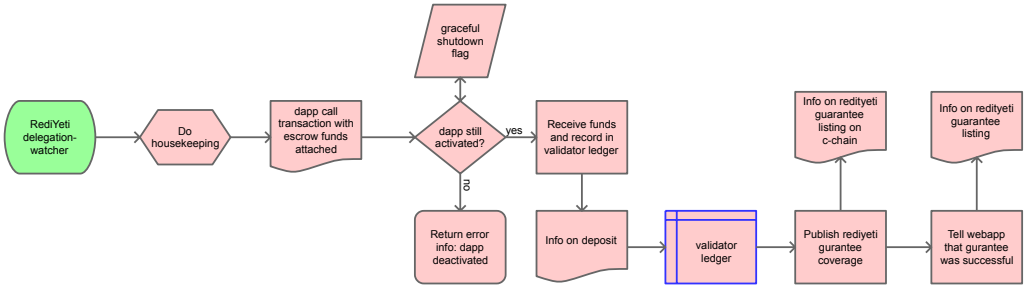


RY008 Curious person wants to see list of currently guaranteed delegations

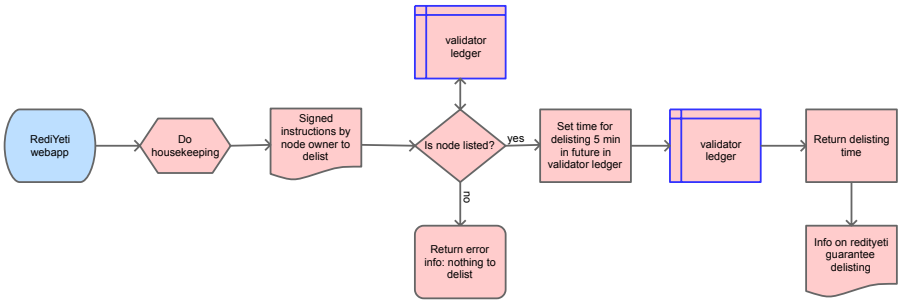


rediyeti-guarantor-dapp

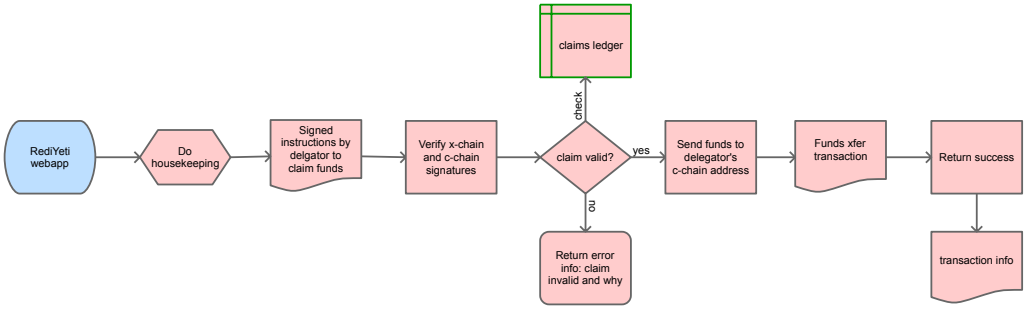
RY009 Set up validator to guarantee delegations



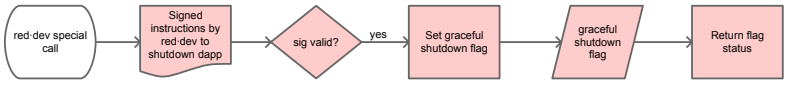
RY010 Prep for validator node delist



RY011 Process delegator claim



RY012 Gracefully shutdown dapp

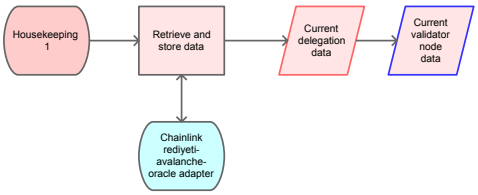


rediyeti houskeeping dapp tasks

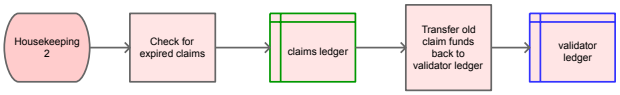
These are processed in order each time

is encountered.

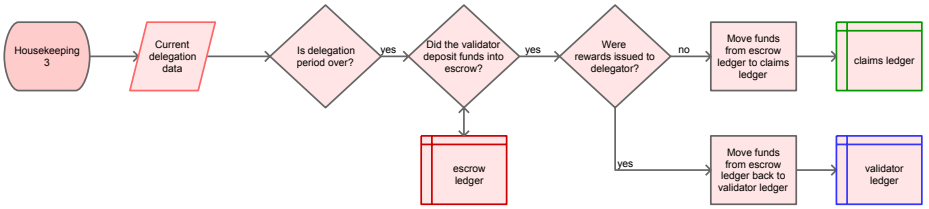
RY013 Gather Chainlink/Avalanche oracle data for housekeeping



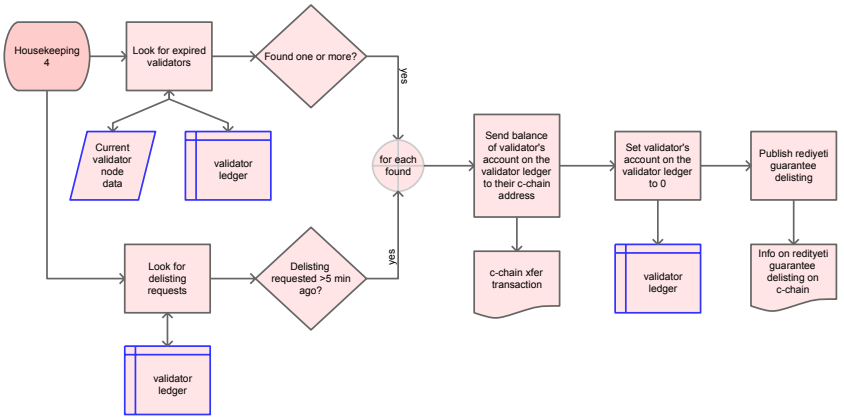
RY014 If delegator claims are >1 year old, return them to validator ledger



RY015 Move funds from escrow ledger after delegation expires, according to node behavior, to either claims or validator ledger

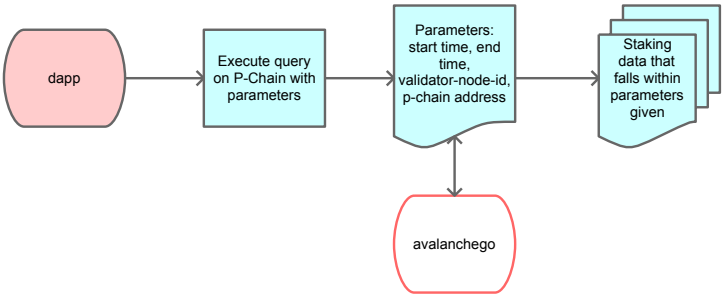
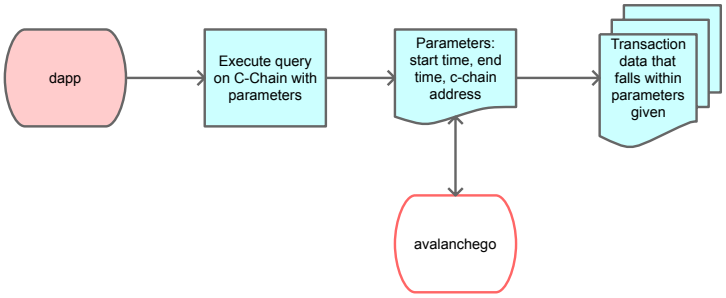


RY016 If validator is expired or has requested delisting and has funds in validator ledger, return funds to validator



Chainlink adapter: rediyeti-avalanche-oracle

RY017 Query Avalanche p-chain and return results



RY018 Query Avalanche c-chain and return results