Governance Module

Canto's on-chain governance system leverages the Cosmos SDKx/gov module. In this system, CANTO stakers can vote on proposals with votes weighted proportionally to their stake.

The module supports the following basic features:

- Proposal submission:
- Users submit governance proposals with a deposit. Once the minimum deposit is reached, the proposal enters voting.
- Voting:
- Participants can vote on proposals that reached MinDeposit.
- Inheritance and penalties:
- Delegators inherit their validator's vote if they don't vote themselves.
- Claiming deposit:
- Users that deposited on proposals can recover their deposits if the proposal was accepted OR if the proposal never entered the voting period.
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Proposal submission

Every account can submit proposals by sending aMsgSubmitProposal transaction through aCanto node . Once a proposal is submitted, it is identified by its uniqueproposalID .

Proposal Messages

A proposal includes ansdk.Msg array, which is executed automatically if the proposal passes. Messages are executed by the governanceModuleAccount itself. Modules such asx/upgrade , that want to allow certain messages to be executed by governance only should add a whitelist within the respective msg server, granting the governance module the right to execute the message once a quorum has been reached. The governance module uses theMsgServiceRouter to check that these messages are correctly constructed and have a respective path to execute on but does not perform a full validity check.

Deposit

To prevent spam, proposals must be submitted with a deposit in the cryptocurrency defined by theMinDeposit param.

When a proposal is submitted, it has to be accompanied with a deposit that must be strictly positive, but can be inferior toMinDeposit . The submitter doesn't need to pay for the entire deposit on their own. The newly created proposal is stored in aninactive proposal queue and stays there until its deposit passes theMinDeposit . Other token holders can increase the proposal's deposit by sending aDeposit transaction. If a proposal doesn't pass theMinDeposit before the deposit end time (the time when deposits are no longer accepted), the proposal will be destroyed: the proposal will be removed from state and the deposit will be burned (see x/govEndBlocker). When a proposal deposit passes theMinDeposit threshold (even during the proposal submission) before the deposit end time, the proposal will be moved into theactive proposal queue and the voting period will begin.

The deposit is kept in escrow and held by the governanceModuleAccount until the proposal is finalized (passed or rejected).

Deposit refund and burn

When a proposal is finalized, the coins from the deposit are either refunded or burned according to the final tally of the proposal:

- If the proposal is approved or rejected butnot
- vetoed, each deposit will be automatically refunded to its respective depositor (transferred from the governanceModuleAccount
-).
- When the proposal is vetoed with greater than 33.4% of the votes, deposits will be burned from the governanceModuleAccount
- and the proposal information along with its deposit information will be removed from state.
- All refunded or burned deposits are removed from the state. Events are issued when burning or refunding a deposit.
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Voting

Participants

Participants are users that have the right to vote on proposals. On Canto, participants are bonded CANTO holders. Unbonded CANTO holders and other users do not get the right to participate in governance. However, they can submit and deposit on proposals.

Note that someparticipants can be forbidden to vote on a proposal under a certain validator if:

- Theparticipant
- bonded or unbonded CANTO to said validator after the proposal entered voting period.
- Theparticipant
- became a validator after the proposal entered voting period.
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This does not preventparticipants from voting with CANTO bonded to other validators. For example, if aparticipant bonds some CANTO to Validator A before a proposal entered voting period, and bonds more CANTO to Validator B after a proposal entered voting period, only the vote bonded to Validator B will be forbidden.

Voting period

Once a proposal reachesMinDeposit , it immediately entersVoting period . We defineVoting period as the interval between the moment the vote opens and the moment the vote closes.Voting period should always be shorter thanUnbonding period to prevent double voting. The initial value ofVoting period is 1 hour.

Option set

The option set of a proposal refers to the set of choices participants can choose from when casting their votes.

The initial option set includes the following options:

- Yes
- No
- NoWithVeto
- Abstain
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NoWithVeto counts asNo but also adds aVeto vote. TheAbstain option allows voters to signal that they do not intend to vote for or against the proposal but will accept the result of the vote.

Quorum

Quorum is defined as the minimum percentage of voting power that needs to be cast on a proposal for the result to be valid. At launch, quorum is set to 33.4%.

Threshold

Threshold is the minimum proportion ofYes votes to total votes (excludingAbstain votes) required for a proposal to be accepted.

Initially, the threshold is set at 50%. A possibility to veto exists if more than 33.4% of all votes areNoWithVeto votes. Both of these values are derived from theTallyParams on-chain parameter, which is modifiable by governance. This means that proposals are accepted if:

- There exist bonded tokens.
- Quorum has been achieved.
- The proportion ofAbstain
- votes is inferior to 100%, i.e. at least oneYes
- ,No
- , orNoWithVeto
- vote was submitted one.
- The proportion ofNoWithVeto
- votes to total votes (includingAbstain
- votes) is inferior to 33.4%.
- The threshold is met.
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Inheritance

If a delegator does not vote, they will inherit their validator's vote.

- If a delegator votes before their validator, they will not inherit their validator's vote.
- If a delegator votes after thei validator, they will override their validator's vote with their own. If the proposal is urgent, it is possible that the vote will close before delegators have a chance to react and override their validator's vote. This is not a problem, as proposals require more than 66.6% of the total voting power to pass before the end of the voting period. Because as little as 33.4% + 1 validation power could collude to censor transactions, non-collusion is already assumed for ranges exceeding this threshold.
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Validator’s punishment for non-voting

At present, validators are not punished for failing to vote.

Governance address

Later, the Canto network may introduce permissioned keys that can only sign txs from certain modules. For the MVP, theGovernance address will be the main validator address generated at account creation. This address corresponds to a different PrivKey than the Tendermint PrivKey which is responsible for signing consensus messages. Validators thus do not have to sign governance transactions with the sensitive Tendermint PrivKey.

Software Upgrades

If proposals are of typeSoftwareUpgradeProposal , then nodes need to upgrade their software to the new version that was voted for. This process is divided into two steps, signal and switch.

Signal

After aSoftwareUpgradeProposal is accepted, validators are expected to download and install the new version of the software while continuing to run the previous version. Once a validator has downloaded and installed the upgrade, it will start signaling to the network that it is ready to switch by including the proposal'sproposalID in itsprecommits .

Note: There is only one signal slot perprecommit . If severalSoftwareUpgradeProposals are accepted in a short timeframe, a pipeline will form and they will be implemented one after the other in the order that they were accepted.

Switch

Once a block contains more than 66.6%precommits where a commonSoftwareUpgradeProposal is signaled, all the nodes (including validator nodes, non-validating full nodes and light-nodes) are expected to switch to the new version of the software.

More information can be found in theCosmos SDK documentation.

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