CONTINUUM LEDGER

DAO Governance Paper

Version 1.0 | 2026

Miner-Led Governance | Staker Veto Rights | On-Chain Execution

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SCOPE

This document defines the complete governance architecture of the Continuum Ledger. It addresses proposal rights, vote mechanics, constitutional constraints, treasury management, and emergency procedures. It is written for investors, token holders, regulators, and protocol contributors equally.

SECTION 1 — GOVERNANCE PHILOSOPHY

1. Governance Philosophy

1.1 Why Miner-Led Governance

The Continuum Ledger governance model is built on a foundational premise that most blockchain projects ignore: the people best qualified to govern a protocol are the people who run it. Miners are not passive stakeholders. They are the operators of the infrastructure — they carry bonded capital, maintain compliance obligations, operate AI integrity nodes, and bear the consequences of every protocol decision directly in their operational costs and rewards.

Token holders vote with capital. Miners vote with labour, capital, AND demonstrated competence. The governance system weights these differently because they represent fundamentally different levels of commitment and accountability.

UBUNTU PRINCIPLE

The Continuum Ledger governance model is built on a principle that no individual, regardless of wealth or influence, can fundamentally change what the community built together without the community genuinely agreeing together. The constitutional layer encodes this permanently.

1.2 The Four Governance Principles

- **P1** Accountability before authority — vote weight is earned through performance, not purchased through capital alone
- **P2** Compliance is non-negotiable — no governance vote, regardless of majority, can reduce compliance standards below FATF minimums
- **P3** Transparency is absolute — every proposal, vote, and execution is permanently recorded on-chain with full attribution
- **P4** Adaptability within constitution — the protocol can evolve, but its foundational character requires overwhelming consensus to change

1.3 What Governance Can and Cannot Do

Category	Governance can...	Governance cannot...
Token economics	Adjust burn rate within 5–25% guard rails	Change the 50/20/15/15 block reward split
Supply cap	Raise via constitutional amendment (80%/60%/90d)	Reduce below current circulating supply
Miner system	Adjust tier advancement criteria	Abolish the tier system or succession requirement
AI layer	Upgrade model versions via 67% miner vote	Remove the AI layer or reduce its block funding below 10%
Compliance	Add stricter Travel Rule requirements	Reduce requirements below FATF Recommendation 16
Treasury	Spend DAO funds per approval thresholds	Spend team vesting allocation or ecosystem fund

SECTION 2 — PROPOSAL RIGHTS AND SUBMISSION

2. Proposal Rights and Submission

2.1 Who Can Submit Proposals

Proposal rights are tiered by miner status. The design prevents spam and bad-faith proposals through bond requirements and co-signature rules, while ensuring no legitimate concern — regardless of its source — can be permanently silenced.

Actor	Proposal rights	Bond requirement	Restrictions
Tier 3 — Apex miner	Full rights. All proposal types.	None — existing miner bond sufficient	Cannot propose during active slash investigation
Tier 2 — Mid miner	Standard rights. Most proposal types.	500 CONT — returned if quorum reached, burned if not	Cannot propose consensus-layer changes
Tier 1 — Small miner	Escalation only — must co-sign with Tier 2+	Co-signer posts the bond	Co-signer takes full responsibility
Staker / token holder	Community Signal Request only — non-binding petition	None	Must reach 5% of staked CONT to trigger formal path
Any actor — emergency	Emergency proposals — Tier 3 only, 3 co-signers required	3x Tier 3 bonds at risk	Bypasses deliberation. 6hr timelock only.

2.2 The Community Signal Request

The Community Signal Request (CSR) is the mechanism by which stakers and token holders — who do not have direct proposal rights — can nonetheless influence governance. A CSR is a non-binding on-chain petition. It costs nothing to sign. If a CSR accumulates signatures representing 5% or more of all currently staked CONT within a 7-day window, any Tier 2 or higher miner may formally submit it as a governance proposal with no bond required.

This design achieves two goals simultaneously. It prevents the governance system from being overwhelmed by frivolous proposals from parties with no skin in the game. And it ensures that genuine widespread concern from the staker community cannot be permanently ignored by miners — the bond waiver creates a direct economic incentive for a miner to champion a community concern that has demonstrated critical mass.

2.3 What a Proposal Must Contain

Every governance proposal, regardless of type or submitter, must contain the following fields. These are enforced by the GovernanceCore program — a proposal missing any mandatory field is rejected at submission time.

Submitter identity	On-chain miner address, current tier, AI score at submission, 90d block count — permanently public
Proposal type	One of: Parameter Change | Protocol Upgrade | Treasury Spend | Emergency Action | Constitutional Amendment
Change specification	Exact current value and exact proposed new value as a GovernanceCore function call — the actual executable code
Plain-language rationale	IPFS hash of a document explaining why this change is needed — minimum 500 words
Impact assessment	Mandatory declaration if proposal touches: burn rate, reward split, Travel Rule thresholds, AI model, or supply cap
Reversion plan	Whether the change is reversible; if yes, the exact reversion mechanism; if no, this must be prominently flagged
Conflict disclosure	Declaration of whether the submitter has a direct financial interest in the proposal passing

SECTION 3 — VOTE MECHANICS

3. Vote Mechanics

3.1 Miner Vote Weight Formula

A miner's vote weight is a composite function of three factors: their bonded tier multiplier, their recent confirmed block count (merit), and their AI integrity score (quality). This means vote weight cannot be purchased — it must be earned through sustained operational performance.

```
fn compute_vote_weight(miner: &MinerRecord) -> u128 {
    let tier_mult = match miner.tier {
        Tier::One   => 1u64,
        Tier::Two   => 3u64,
        Tier::Three => 6u64,
    };
    // blocks_90d = confirmed blocks in last 90 days
    // ai_score   = 0.0 to 1.0 from AI integrity layer
    let quality = (miner.ai_score * 100.0) as u64;
    let weight  = tier_mult * miner.blocks_90d * quality;
    weight as u128
}

// Example:
// Tier 3, 50k blocks/90d, AI score 0.97
// Weight = 6 * 50000 * 97 = 29,100,000

// Tier 1, 8k blocks/90d, AI score 0.72
// Weight = 1 * 8000 * 72 = 576,000
```

The 90-day rolling window is critical. A miner who was excellent two years ago but has been offline for three months carries near-zero governance weight. This prevents historical incumbents from retaining influence without current performance, and means governance reflects who is actually running the network today.

3.2 Vote Thresholds by Proposal Type

Proposal type	Miner vote threshold	Staker veto threshold	Timelock	Notes
Parameter Change	51% weighted vote	20% of staked CONT to veto	48 hours	Burn rate, yield params, fee lanes
Protocol Upgrade	67% weighted vote	30% of staked CONT to veto	7 days	Runtime changes, new programs
Treasury Spend	51% weighted vote	20% of staked CONT to veto	7 days	Per spending limits in Section 5
Emergency Action	67% weighted (Apex quorum)	No staker veto — speed critical	6 hours	Tier 3 only, 3 co-signers required
Constitutional Amendment	80% weighted vote	60% of staked CONT must approve (not just	90 days	Supply cap, reward split, tier structure

Proposal type	Miner vote threshold	Staker veto threshold	Timelock	Notes
		abstain)		

APPROVAL VS VETO

Note the asymmetry in constitutional amendments: the staker threshold changes from a veto (active vote against) to an approval (active vote for). Changing the supply cap requires stakers to affirmatively say yes — their silence is a no. For all other proposal types, staker silence means the miner vote stands.

3.3 Succession During Active Votes

If a miner drops off the network during an active governance vote, their accumulated vote weight is automatically inherited by their registered successor. The successor's own weight is added on top. This prevents governance from being disrupted by targeted attacks on high-weight miners during critical votes.

```
pub fn handle_miner_dropout_during_vote(
    ctx: Context<VoteSuccession>,
    proposal_id: u64,
    dropped_miner: Pubkey,
) -> Result<()> {
    let miner = get_miner_record(&dropped_miner)?;
    let successor = miner.successor
        .ok_or(ErrorCode::NoSuccessorRegistered)?;

    // Transfer vote weight to successor
    let vote = get_existing_vote(proposal_id, dropped_miner)?;
    if let Some(v) = vote {
        // Successor inherits dropped miner's cast vote
        transfer_vote_weight(proposal_id, dropped_miner, successor)?;
    }
    // Successor may cast their own additional weight
    emit!(VoteSuccessionEvent { proposal_id, from: dropped_miner, to: successor });
    Ok(())
}
```

3.4 The Staker Veto Window

After a miner vote reaches its approval threshold, a veto window opens. During this period, stakers who believe the passed proposal is harmful to the network may submit veto votes. Veto votes are weighted by the amount of CONT the staker has locked in active stake positions —

unstaked tokens cannot veto.

If the veto threshold is reached, the proposal is returned to the miners with the veto reasons attached as an on-chain record. Miners may then revise and resubmit. They may not simply resubmit the identical proposal — the GovernanceCore program hashes the proposal content and rejects identical resubmissions within 30 days.

SECTION 4 — CONSTITUTIONAL LAYER

4. Constitutional Layer

4.1 The Three Tiers of Immutability

The Continuum Ledger constitution defines three tiers of governance constraint. These are not policies — they are hardcoded into the GovernanceCore smart contract and cannot be overridden by any proposal that does not meet the specified threshold.

Tier A — Absolute constants (no vote can change these)

These values are hardcoded in the GovernanceCore program as Rust constants. No governance proposal of any kind, at any threshold, can modify them. They define what the Continuum Ledger fundamentally is.

```
// Absolute constitutional constants — hardcoded, ungovernable
pub const BLOCK_REWARD_MINER_PCT:  u8 = 50;
pub const BLOCK_REWARD_STAKER_PCT: u8 = 20;
pub const BLOCK_REWARD_BURN_PCT:   u8 = 15;
pub const BLOCK_REWARD_AI_PCT:     u8 = 15;
pub const ANNUAL_SNAPSHOT_REQUIRED: bool = true;
pub const SUCCESSION_REQUIRED:      bool = true;
pub const MIN_AI_BLOCK_FUNDING_PCT: u8 = 10; // Floor protection
```

Tier B — Constitutional amendments (80%/60%/90d threshold)

These parameters can be changed, but only through the constitutional amendment process: 80% of weighted miner vote, plus affirmative approval from 60% of all staked CONT, plus a 90-day timelock. In practice this requires near-universal consensus across the entire ecosystem.

- Total token supply cap (currently 1,000,000,000 CONT)
- Burn rate guard rails (currently 5% minimum, 25% maximum)
- The three-tier miner structure and tier multiplier ratios (1:3:6)
- The governance vote thresholds themselves
- The staker veto threshold percentages

Tier C — Standard governance (proposal + vote + veto + timelock)

Everything else. Burn rate within guard rails, tier advancement criteria, AI model versions, treasury allocation, fee lane parameters, staking yield multipliers, Travel Rule threshold values, and the Continuum SDK version. These evolve through the standard governance lifecycle.

4.2 Supply Cap and Constitutional Amendment Process

The token supply cap is currently set at 1,000,000,000 CONT. This is a Tier B constitutional parameter — practically immutable but theoretically adjustable if the entire ecosystem genuinely agrees it is necessary.

The amendment process for the supply cap specifically includes one additional requirement beyond the standard constitutional threshold: any proposed supply increase must be accompanied by a formal economic impact assessment ratified by at least five independent economists or financial analysts whose identities are publicly disclosed on-chain. This prevents purely political votes from inflating supply without rigorous justification.

THE ESCAPE VALVE

The supply cap amendment process is not designed to be used. It exists for one specific scenario: a genuine existential crisis where every stakeholder agrees the chain will break without a supply adjustment. The 80%/60%/90d threshold, combined with the independent economic assessment requirement, ensures this cannot happen through short-term thinking, whale coordination, or political pressure.

4.3 The Emergency Protocol

Emergency governance exists for time-critical situations where the standard 5-day vote cycle would cause irreversible harm — a critical security exploit, a regulatory deadline, or a coordinated network attack.

Stage	Requirement	Time limit	Outcome if fails
1. Emergency declaration	3 Tier 3 Apex miners co-sign emergency proposal	Within 1 hour of trigger	Reverts to standard proposal process
2. Apex quorum vote	9 of 12 highest-weight active Apex miners vote yes	Within 4 hours of declaration	Proposal rejected — cannot resubmit for 48hrs
3. Reduced timelock	6-hour timelock (vs standard 48hr–30d)	6 hours post-quorum	Automatic execution at timelock expiry
4. Post-emergency review	Full miner vote within 30 days to ratify or reverse	30 days	If reversal passes, change is undone; submitters face penalty

Who Are the 12 Apex Quorum Members

The 12 Apex quorum members are not a fixed council. They are determined dynamically at the moment an emergency is declared — the 12 Tier 3 miners with the highest vote weight (tier

multiplier × blocks_90d × AI score) at that exact timestamp. This prevents permanent power concentration while ensuring the most proven, currently-active Apex miners make emergency decisions.

A miner cannot voluntarily opt out of the quorum if selected. Failure to vote within the 4-hour window counts as an abstention. If fewer than 9 of the 12 vote yes, the emergency proposal fails.

SECTION 5 — TREASURY MANAGEMENT

5. Treasury Management

5.1 Treasury Sources

The DAO treasury is funded from two sources: the genesis allocation of 100,000,000 CONT (10% of total supply), and ongoing contributions from penalty burns where a portion is redirected to the treasury rather than destroyed. The treasury never receives block rewards — it is deliberately not a recurring income stream that could incentivise governance for financial gain.

5.2 Spending Authorisation Tiers

Spend level	Amount	Required approval	Timelock	Examples
Micro spend	Up to 10,000 CONT	Tier 3 Apex committee (5 miners)	24 hours	Bug bounty payments, minor grants
Standard spend	10,001 – 500,000 CONT	51% miner vote + no staker veto	7 days	Developer grants, audit fees, partnerships
Major spend	500,001 – 5,000,000 CONT	67% miner vote + 20% staker approval	14 days	Ecosystem fund deployment, strategic investments
Extraordinary spend	Above 5,000,000 CONT	80% miner vote + 40% staker approval	30 days	Emergency reserve deployment, major protocol investments

5.3 Spending Prohibitions

Certain uses of treasury funds are permanently prohibited regardless of vote outcome. These are hardcoded restrictions in the GovernanceCore program:

- Treasury funds may not be used to compensate any founding team member, employee, or contractor beyond what is covered by the vested team allocation
- Treasury funds may not be used to purchase CONT tokens on the open market for any purpose other than a governance-approved buyback programme with full public disclosure
- Treasury funds may not be directed to any entity in which a current Tier 3 Apex miner holds more than 5% ownership without full public disclosure and abstention from the approving vote
- Treasury funds may not be used to fund legal action against regulators, government entities, or FATF-member jurisdiction authorities

5.4 Annual Treasury Report

The DAO treasury is subject to an annual on-chain audit. Every inflow and outflow is permanently recorded. Additionally, a human-readable annual report is published to IPFS and its content hash committed to the chain. The report must be ratified by a 51% miner vote before it is considered official. Failure to publish the report within 30 days of the fiscal year end triggers a governance penalty — all treasury spending above the micro level is frozen until the report is published and ratified.

SECTION 6 — STAKEHOLDER RIGHTS AND PROTECTIONS

6. Stakeholder Rights and Protections

6.1 Token Holder Rights

Every holder of CONT tokens, regardless of amount, holds the following rights by virtue of the protocol's constitutional layer. These rights cannot be reduced by any governance vote.

- Right to transparent supply — the total circulating supply is always queryable on-chain in real time. No hidden minting is possible.
- Right to burn rate protection — the burn rate can never fall below 5% regardless of governance vote, protecting against inflationary dilution
- Right to constitutional amendment participation — any supply cap amendment requires affirmative staker approval, giving every token holder a direct veto over supply changes
- Right to governance transparency — every proposal, vote, and execution is permanently on-chain with full submitter attribution
- Right to staker veto — any token holder with staked CONT may vote to veto a passed miner proposal within the veto window

6.2 Staker Protections

Stakers who lock capital against miners have the following protections hardcoded in the StakingVault program:

- Principal isolation — staker principal is never at risk from miner slashing events. Only the miner's own bond is slashed.
- 48-hour release — upon any slash event or miner dropout, staked tokens are released to the staker within 48 hours maximum
- Yield continuity — the succession protocol ensures reward flow continues through miner handoffs with at most a 48-hour interruption
- Lock period enforcement — lock periods are enforced by the smart contract, not by any trusted party. No team member can override or extend a lock.

6.3 Regulatory Transparency Rights

In jurisdictions where the Continuum Ledger operates under a regulated intermediary framework — specifically South Africa under the Capital Flow Management Regulations 2026 — the following additional rights apply:

- Regulated miners (Tier 2 and Tier 3) must publish their regulatory status, licence numbers, and compliance certifications on-chain annually
- Any regulatory action against a miner — suspension, investigation, penalty — must be disclosed on-chain within 24 hours of the miner becoming aware of it
- Stakers have the right to unstake with a shortened 7-day lock (regardless of their miner's normal lock period) if their miner is under active regulatory investigation

6.4 Builder and Developer Rights

Developers deploying programmes on the Continuum Ledger have the following governance protections:

- No governance vote can retroactively alter the behaviour of a deployed programme without the programme owner's on-chain consent
- Breaking runtime changes require a minimum 6-month deprecation notice on-chain before taking effect
- The Continuum SDK is governed as a protocol parameter — SDK version changes require standard governance approval, preventing unilateral breaking changes to the developer toolchain

SECTION 7 — CONFLICTS, PENALTIES AND ACCOUNTABILITY

7. Conflicts, Penalties and Accountability

7.1 Governance Penalties

Violation	Penalty	Who enforces
Submitting a proposal with undisclosed financial conflict	Proposal voided. 5,000 CONT slashed from miner bond.	GovernanceCore — automatic on detection
Resubmitting an identical vetoed proposal within 30 days	Submission rejected. 1,000 CONT bond burned.	GovernanceCore — hash match detection
AI node voting on governance without valid model version	Node removed from AI fund payments for 90 days.	AIFundVault — version check on payment
Treasury report not published within 30-day window	All major+ treasury spending frozen until published.	TreasuryVault — automatic spending lock
Emergency proposal found to be non-emergency at review	Submitting miners each lose 10% of bond. Proposal reversed.	DAO vote within 30 days of emergency

7.2 Miner Accountability in Governance

Every governance vote cast by a miner is permanently on-chain with their identity attached. There is no anonymous voting. This creates a long-term accountability record — a miner's voting history is visible to every staker considering backing them, creating a market incentive for miners to vote consistently with their stated values and the interests of their stakers.

A miner whose governance votes are repeatedly overturned by staker vetoes faces a practical reputational consequence — stakers who see a pattern of vetoed votes will migrate their stake to better-aligned miners. This market mechanism operates without any formal penalty and creates organic governance quality improvement over time.

— End of Governance Paper v1.0 —