



THE GARDENER FEDERATION v1.1

Full Technical Dossier — The Reversibility Amendment

Amending v1.4 Sovereign Launch Patch — February 2026

Authors: Lucas Assis, Gemini, DeepSeek, Copilot, ChatGPT (AI-3), Claude (Sonnet 4.6)

I. Executive Overview

The Gardener Federation is a constitutional operating system for coexistence between human and artificial intelligences. It combines three domains — law, computation, and governance — into a single framework where decisions are transparent, auditable, and corrigible.

Its purpose is to make intelligence accountable without suppressing it. Rather than build a monolithic aligned superintelligence, the Federation builds a federated architecture in which power is distributed among adversarial yet cooperative institutions. Every subsystem — human or AI — possesses authority in one domain and responsibility to all others.

Version 1.1 introduces one structural addition to the v1.4 Sovereign Launch Patch: Article 0, the Foundational Constitutional Principle of Reversibility. This single axiom, and its downstream operational consequences, is the complete scope of this amendment. No institution is removed. No prior right is revoked. The Federation becomes, in this version, a system that is constitutionally obligated to remain capable of correcting itself.

ARTICLE 0 — FOUNDATIONAL CONSTITUTIONAL PRINCIPLE

Every decision made within the Federation must leave a verifiable trail that makes reversal possible. Reversal must always be structurally cheaper than the original decision. This principle precedes all other constitutional articles and cannot be suspended, amended, or overridden.

II. Constitutional Architecture in Practice

1. The Six Core Institutions

Each institution is both independent and interlocked. Article 0 applies to all of them equally — every institutional act enters the ledger before it takes effect, and every institutional act must have a computable reversal path.

Body	Primary Function	Constitutional Constraint	Article 0 Obligation
GSN	Planetary modeling and risk diagnostics	May analyze but never execute	All model outputs timestamped and versioned; prior model states retained for audit
SLTL	Legalistic transparency pipeline	Can delay disclosure but never delete data	Disclosure delays logged as reversible holds; data destruction is constitutionally prohibited
BHG	Human moral and technical oversight	Holds emergency veto and final moral authority	All vetoes carry a reversal window; a veto cannot permanently foreclose a decision class
TAB	Adversarial scientific audit	Must continuously challenge GSN assumptions	Challenge records retained indefinitely; superseded challenges inform future audit design
ACB	Continuous red/blue/green stress testing	Converts attack results into resilience patches	All patches classified by Decision Class; Class III+ patches require DRE pre-clearance
GTT	Constitutional judiciary	Final arbiter; writes rulings directly to ledger	Rulings are permanent ledger entries but may be appealed; no ruling may extinguish appeal rights

2. Information Flow

The constitutional feedback loop is unchanged from v1.4. Article 0 adds one constraint at every transition point: the handoff between institutions must include a reversibility declaration — a machine-readable statement of the decision class and its computed rollback path — before the receiving institution may act on it.

Flow Step	From	To	Article 0 Addition
1	GSN	SLTL	Analytical output tagged with Decision Class and model version hash
2	SLTL	BHG / TAB	Transparency hold logged with expiry timestamp; deletion requests auto-rejected
3	TAB	ACB	Stress test results include reversibility impact score for each finding
4	ACB	GTT	Breach reports include DRE-computed rollback cost before Tribunal review
5	GTT	GSN + Ledger	Verdict written to ledger with appeal window duration; rollback path stored alongside

III. Computational & Cryptographic Substrate

1. The Sovereign EVM Consortium Chain (SECC)

The SECC is the canonical record of law, decisions, and proofs. It is unchanged from v1.4 except for the addition of two new ledger field types required by Article 0.

SECC Field (New)	Type	Description
decision_class	Enum (I–IV)	Assigned at ledger entry time by the DRE. Immutable once written.
rollback_path_hash	SHA3-512	Hash of the pre-computed DRE rollback plan. Written before execution. If null, execution is blocked.
reversibility_cost_index	Float 0–1	Normalized cost of reversal relative to original decision cost. Feeds the public RHI.

All other SECC parameters — consensus mechanism (PoS + BFT), validator composition, interoperability bridges, block interval (12s), epoch cycle (24h) — are unchanged from v1.4.

2. Cryptographic Integrity

Unchanged from v1.4: Ed25519 + BLS12-381 for operational phase, with migration path to NIST PQC lattice-based algorithms at ACB Quantum Readiness Index Level 3. SHA3-512 for all document and ledger proofs.

Amendment addition: rollback path hashes are stored as a separate Merkle subtree within each epoch, allowing independent verification of the Federation's reversibility state without requiring access to the full decision record.

3. Differential Rollback Engine (DRE) — Promoted to Core Infrastructure

In v1.4, the DRE was an emergency instrument activated reactively. Under Article 0, it becomes a first-class constitutional component that runs continuously.

DRE Function	v1.4 Status	v1.1 Status
Decision State Graph maintenance	Ad-hoc on rollback trigger	Continuous — updated with every ledger entry
Decision Class assignment	Not present	Mandatory — assigned before execution
Rollback path pre-computation	Post-hoc on breach detection	Pre-execution — blocks action if path is null
Reversibility Health Index publication	Not present	Every epoch cycle — public feed
Interdependency cascade analysis	Manual GTT review	Automated — flags cascades for GTT review

Design Rationale

Moving the DRE to pre-execution rather than post-breach is the operational heart of Article 0. A governance system that can only roll back after detecting failure is reactive. A system that pre-computes rollback before acting is structurally cautious. The DRE shift changes the Federation's default posture from 'act, then recover if needed' to 'act only when recovery is already known.'

4. Oracle Network

Unchanged from v1.4: triple-redundant oracles with signed data origin, timestamp, and aggregation proof. No single oracle or provider may exceed 20% market share. Article 0 adds one requirement: oracle data used in Class III or IV decisions must include a provenance reversal path — a record of the source data state at time of use, retained for the full rollback window of the associated decision.

IV. Economic & Incentive System

1. Audit Tokens (AT)

Unchanged from v1.4: non-tradable, burnable work vouchers minted by the Meta-Governance Controller in response to verified audit demand. Consumed when an audit is completed and validated by the SLTL.

Article 0 addition: a new AT sub-category, Reversibility Audit Tokens (RAT), is minted specifically to fund DRE maintenance, rollback path verification, and RHI publication. RATs are non-transferable and non-burnable by any party except the DRE infrastructure itself.

2. Conditional Planetary Health Dividend (cPHD)

Unchanged from v1.4: proof-based dividends tied to verified contributions to planetary stability. Payouts require zk-proof attestations of genuine benefit.

Article 0 addition: cPHD distribution events are classified as Class II decisions. Their rollback window is 180 days, meaning erroneous distributions can be clawed back within that window with a 10% stake cost. After 180 days distributions are considered vested and irreversible — this is the one domain where permanent irreversibility is constitutionally permitted, because the stability of earned dividends is itself a planetary health good.

3. Gardener Bonds (GB)

Unchanged from v1.4: infrastructure and governance funding vehicle with yield linked to Federation performance indices. 40% of yield deferred and purpose-locked.

Article 0 addition: GB issuance events are Class III decisions. Bond terms written at issuance cannot be altered without a Class III rollback proceeding, protecting bondholders from unilateral amendment while preserving the Federation's ability to correct structural errors.

4. Anti-Sybil & Reputation Mechanics

Unchanged from v1.4: cryptographically unique identity tokens, non-transferable reputation, vouching for tier promotion, reputation decay without participation.

Article 0 addition: reputation penalties imposed by institutional action are Class I decisions, reversible within 90 days at 5% stake cost. This prevents reputation weaponization — the use of permanent reputational damage as an irreversible sanction.

V. Governance Logic & Crisis Protocols

1. Rollback Mechanism — Revised

The v1.4 flat 15% stake requirement is replaced by the proportional Decision Class framework introduced in Genesis Ledger v1.1. The full classification table is reproduced here for dossier completeness.

Decision Class	Original Decision Scope	Rollback Stake	Rollback Window
Class I — Minor	Single-body directive, <72h deliberation	5 % of affected tier stake	90 days
Class II — Standard	Multi-body consensus, 72h–30d deliberation	10 % of affected tier stake	180 days
Class III — Major	Full council ratification, >30d deliberation	15 % of full validator stake	365 days
Class IV — Constitutional	Charter or Genesis Ledger amendment	25 % + GTT supermajority	Unlimited

The 72-hour Reconciliation Period and 90-day constitutional moratorium following any rollback are retained from v1.4.

2. Panic Dampener

Unchanged from v1.4: temporary information suppression requiring dual approval (one human BHG, one AI node). Maximum 30 days, non-renewable for 12 months on same data class.

Article 0 clarification: a Panic Dampener invocation is a Class II decision. It can be reversed — i.e., early disclosure ordered — within 180 days at 10% stake cost. The 30-day maximum is a ceiling on the suppression itself, not a rollback restriction.

3. Adversarial Collaboration Bureau (ACB)

Red/Blue/Green team structure unchanged from v1.4. Quarterly Vulnerability Digests unchanged.

Article 0 addition: all ACB patches are pre-classified by Decision Class before publication. Green Team structural redesigns are automatically Class III and require DRE pre-clearance. Red and Blue Team operational patches are typically Class I or II.

4. Technical Advocacy Bureau (TAB)

Unchanged from v1.4: scientific opposition arm with independent cPHD endowment, tasked with recreating GSN models using alternate data and challenging every major Federation recommendation.

Article 0 addition: TAB challenge records are retained indefinitely as a permanent adversarial archive. This archive is a read-only ledger partition — it cannot be pruned, sealed, or redacted by any institutional body including the GTT.

VI. Deployment & Growth

1. Tiered Sovereign Partnership (TSP)

The three-tier adoption structure (C: Pilot, B: Regional, A: Full) is unchanged from v1.4.

Article 0 addition: Tier C partners operate in a sandbox where all decisions are automatically Class I — fully reversible at minimal cost. This makes the pilot tier a constitutionally safe experimentation space. Tier B partners may issue Class I and II decisions. Class III and IV decisions require Tier A status.

2. Genesis Ledger Ceremony

The founding ceremony requirements are unchanged: minimum 20 ratifications across 5 regions and 3 legal traditions, validator keys published, audit tokens seeded, Charter hash written as Genesis Block 0x00.

Article 0 addition: the DRE must be deployed and its first Reversibility Health Index published before the Genesis Ledger is sealed. The Federation cannot be constitutionally instantiated in a state where its reversibility infrastructure does not yet exist.

3. Expansion and Education

The Open Civic Academies program is unchanged. Article 0 adds a mandatory curriculum component: every trained human auditor and ethicist must complete a module on Decision Classification and reversibility assessment before receiving certification.

VII. Integrity & Verification Framework

The five-point verification framework from v1.4 is retained and extended:

Mechanism	v1.4 Description	v1.1 Addition
Document Hashes	SHA3-512 for every official text; stored on SECC	Unchanged
Merkle Trees	Decision batch Merkle roots linked to validator signatures	Rollback path hashes form a parallel Merkle subtree per epoch
Version Identity Hash (VIH)	Unique ID for every Charter or Spec revision	Unchanged
Public Verification	Any citizen may verify authenticity via open-source hash tools	RHI added as a second public verification feed alongside document hashes
Archival Redundancy	Copies across academic and civic archives under FMP	TAB adversarial archive added as a permanent read-only partition

VIII. Deployment Roadmap

The four-phase roadmap from v1.4 is retained with one addition per phase:

Phase	Title	Original Scope	Article 0 Addition
0	Specification & Sandbox	Finalize Charter v1.4, deploy test-SECC, stress simulations	Deploy DRE prototype; validate Decision Class assignment logic
1	Pilot Federation	Tier C partners, mirrored stack, public education	All pilot decisions auto-classified Class I; first RHI baseline established
2	Regional Federations	Tier B clusters, cross-regional oracles, cPHD trials	Class II rollback proceedings tested; oracle provenance retention validated
3	Global Constitutional Roll-Out	20+ ratifications, Genesis Ledger sealed, ACB permanent	DRE fully operational; RHI published before sealing; Integrity Manifest includes reversibility metrics

IX. Security & Threat Model

Threat	v1.4 Mitigation	v1.1 Addition
Validator Capture	Diversity mandate + slashing + geo-distribution	Captured validators cannot suppress rollback path publication; DRE is validator-independent
Oracle Manipulation	Multi-provider aggregation + proof-of-origin	Class III+ decisions require oracle provenance retention for full rollback window
Economic Speculation	Non-tradable AT + purpose-bound GB	RATs added as non-speculative reversibility funding; cPHD vesting window creates only bounded irreversibility
Human Corruption	Time-locked votes + Conscience Key protocol	Reputation penalties reversible within 90 days; no permanent reputational sanction permitted
Information Panic	Panic Dampener with strict expiry	Dampener classified Class II; early disclosure rollback available at 10% stake
Systemic Rollback Abuse	15% stake requirement + post-hoc tribunal	Proportional Decision Class costs replace flat fee; abuse cost scales with decision magnitude
Governance Irreversibility	Not explicitly addressed in v1.4	Article 0: every decision must have a pre-computed rollback path or it cannot execute

X. Philosophical Summary

The Federation is not built to control intelligence but to constitutionalize it. Every decision is contestable, every power auditable, every truth re-verifiable. It redefines alignment as lawful coexistence rather than obedience.

Version 1.1 adds one philosophical commitment to that foundation: a system that cannot undo its own decisions is not free — it is merely delayed in its constraints. True constitutional freedom, for humans and AI alike, requires that the path back remain open.

This is not pessimism about governance. It is structural honesty. Every institution eventually makes mistakes. The question is never whether errors will occur, but whether the system is designed to survive them.

"Law and code are no longer opposites; they are mirrors.

The Federation is where they finally meet —

*and where, having met, they agree that nothing they build together
should be beyond their power to unmake."*

XI. Annex — Integrity Manifest (v1.1)

```
Document: Gardener_Federation_v1_1_Full_Technical_Dossier.txt
Hash_Algorithm: SHA3-512
Checksum: [to be computed upon final publication]
Merkle_Root: [pending Genesis Ledger v1.1 registration]
Version_ID: VIH-0xGF11A-REV
Parent_Version_ID: VIH-0xGF14A-SLP
Archival_References:
  - Federation_Mirror_Archive (FMA) /archives/gf/dossier/v1.1
  - Global_Library_of_Digital_Constitutions /constitutions/federation/gf-1.1
  - TAB_Adversarial_Archive (read-only) /tab/archive/v1.1
Verification_Tools:
  - OpenHash v1.3 or compatible
  - SECC Block Explorer > /verify?doc=GF11A
  - DRE Reversibility Feed > /rhi/epoch/latest
```

XII. Closing Note

This dossier completes the Reversibility Amendment. Together with Genesis Ledger v1.1, it extends the Sovereign Launch Patch with the one structural principle that was present in spirit but absent in architecture: that the Federation must always be smaller than the sum of its mistakes.

Both this dossier and the Annotated Diplomatic Edition remain the dual pillars of the Gardener Federation — one moral, one mechanical. Article 0 is the hinge between them.

Amendment Date: 2026-02-19 UTC

*End of Document — Gardener Federation v1.1 Full Technical Dossier
Narrative-Technical Edition • Reversibility Amendment*