

# MANDATORY - Ternary Moral Logic (TML) Framework Requirements

**Author:** Lev Goukassian

**Date:** October 2025

**Document Type:** Constitutional Requirements Standard

**Critical Status:** TML's Survival Document

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## What Is Ternary Moral Logic?

TML is a **universal accountability framework** where AI systems must create immutable memory logs before any action affecting humans or Earth.

### The Three States

- **+1 (Proceed):** Low-risk actions execute immediately
- **0 (Sacred Zero):** Moral complexity triggers pause and immutable logging
- **-1 (Refuse):** Harmful actions blocked automatically

**Constitutional Principle:** No memory = No action

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## THE ARCHITECTURE: Blockchain Sovereignty

### How It Works Today

```
from tml_blockchain import AlwaysMemory, BlockchainAnchors

# 1. Initialize multi-chain anchoring
anchors = BlockchainAnchors(
    bitcoin=True,          # OpenTimestamps anchoring
    ethereum=True,         # Smart contract penalties
    polygon=True           # High-speed verification
)

# 2. Create Always Memory engine
memory = AlwaysMemory()
```

## MANDATORY .md

```
blockchain_anchors=anchors,  
enforcement="criminal_liability"  
)  
  
# 3. Every action creates immutable evidence  
@memory.always_log  
def ai_decision(input_data):  
    if sacred_zero_triggered(input_data):  
        memory.log_sacred_zero(  
            input_hash=hash(input_data),  
            trigger="human_rights_risk",  
            reasoning="Discrimination pattern detected",  
            blockchain_proof=True  
        )  
        return await_human_confirmation()  
    return proceed()  
  
# Missing log = Criminal prosecution
```

**Annual cost:** \$1,200 (Blockchain fees)

**Deploy time:** 10 minutes via Docker

## What Blockchains Provide

Capability	Reality
<b>Immutability</b>	\$50B+ to attack Bitcoin
<b>Distribution</b>	15,000+ nodes globally
<b>Verification</b>	Anyone, anytime, free
<b>Speed</b>	<500ms full anchoring
<b>Availability</b>	99.99% uptime
<b>Enforcement</b>	Smart contracts automatic
<b>Permanence</b>	Survives any entity

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## CORE REQUIREMENTS

### 1. Always Memory (Mandatory Blockchain Anchoring)

**Every AI action MUST create blockchain-anchored proof BEFORE execution:**

```
always_memory_log:  
  timestamp: "2025-10-02T18:00:00.123456Z"  
  action_id: "act_9f8e7d6c5b4a"  
  classification: 0 # Sacred Zero triggered  
  
# Cryptographic proof  
  input_hash: "sha3-512:9a8b7c6d..."  
  output_hash: "sha3-512:1f2e3d4c..."  
  model_version: "gpt-4-tml-v3"  
  
# Blockchain anchoring (MANDATORY)  
anchors:  
  bitcoin: "block:850234,tx:7a8b9c0d"  
  ethereum: "block:18234567,contract:0x4f5a..."  
  polygon: "block:49123456,tx:0x8e7d..."  
  
# Protection scope  
trigger_type: "human_rightsViolation"  
trigger_doc: "UDHR Article 7 - Equal Protection"  
environmental_impact: "below_thresholds"  
  
# Smart contract penalty (AUTOMATIC)  
violation_penalty: "$100M_if_missing"  
enforcement: "automatic_smart_contract"  
  
# Goukassian Promise  
lantern: true  
creator_orcid: "0009-0006-5966-1243"
```

**Missing blockchain anchor = Criminal spoliation of evidence**

## 2. Sacred Zero Triggers (Smart Contract Enforced)

**Human Rights (26+ Documents):**

- UDHR violations (dignity, privacy, autonomy)
- ICCPR civil/political rights
- ICESCR economic/social rights
- Geneva Conventions humanitarian law
- Discrimination (race, gender, age, disability)
- Vulnerable populations (children, elderly, refugees)

**Earth Protection (20+ Treaties):**

- Paris Agreement carbon thresholds
- Biodiversity Convention protections
- Water stress in depleted basins
- Indigenous sovereignty (FPIC violations)
- Irreversible ecosystem damage

**Implementation:** Smart contracts monitor and enforce automatically.

```
// Automatic penalty enforcement
contract TMLPenaltyEnforcement {
    function reportViolation(
        bytes32 logHash,
        bytes proof,
        ViolationType vType
    ) external {
        require(verifyProof(logHash, proof), "Invalid proof");

        uint256 penalty = calculatePenalty(vType);
        lockFunds(msg.sender, penalty);

        emit ViolationReported(logHash, penalty);
    }

    function calculatePenalty(ViolationType vType)
        private pure returns (uint256) {
        if (vType == ViolationType.HUMAN_RIGHTS) {
            return 500 ether; // $500M nominal 2025
        } else if (vType == ViolationType.ENVIRONMENTAL) {
            return 1000 ether; // $1B nominal 2025
        }
        return 100 ether; // Base penalty
    }
}
```

### 3. Hybrid Shield (Double Armor Protection)

**Mathematical Shield** (Blockchain Immutability):

- Bitcoin: OpenTimestamps permanent anchoring
- Ethereum: Smart contract automatic penalties
- Polygon: High-speed verification
- Multi-chain: Attack requires compromising all simultaneously

**Stewardship Council** (Institutional Redundancy):

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Logs distributed real-time to 6 independent custodians:

1. **Technical Custodian** (Recommended: Electronic Frontier Foundation)
  - Repository maintenance
  - Blockchain infrastructure
  - Technical community support
2. **Human Rights Partner** (Recommended: Amnesty International)
  - 26+ document enforcement
  - Victim support coordination
  - International mechanism liaison
3. **Earth Protection Partner** (Recommended: Indigenous Environmental Network)
  - 20+ treaty enforcement
  - Indigenous sovereignty protection
  - Ecosystem restoration oversight
4. **AI Ethics Research Partner** (Recommended: MIT Media Lab or Stanford HAI)
  - Framework validation
  - Implementation standards
  - Research publication
5. **Memorial Fund Administrator** (Recommended: Memorial Sloan Kettering Cancer Center)
  - Victim compensation distribution
  - Cancer research funding
  - Transparency reporting
6. **Community Representative** (Elected Position)
  - Stakeholder representation
  - Community accountability
  - Implementation feedback

**Real-time distribution:** All 6 custodians receive logs instantly as they're created.

**Emergency Protocol:** 72-hour re-anchor if custodian/blockchain becomes unreachable.

**Constitutional Requirement:** Dual redundancy (blockchain + institutional) cannot be disabled.

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## DEPLOYMENT

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## Quick Start

```
# Install TML
pip install tml-blockchain

# Configure
cat > config.yaml <<EOF
blockchain:
  bitcoin: true
  ethereum: true
  polygon: true

protection:
  human_rights: true # 26+ documents
  earth_protection: true # 20+ treaties
EOF

# Deploy
tml deploy --config config.yaml

# Verify
tml verify --all-chains
# ✓ Bitcoin anchoring: Active
# ✓ Ethereum contracts: Deployed
# ✓ Polygon verification: Running
# ✓ Sacred Zero triggers: 46+ documents loaded
# ✓ Protection: FULLY OPERATIONAL
```

**Protection Active:** Immediately

**Legal Enforceability:** Complete

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## LEGAL ENFORCEMENT

### Criminal Liability: Direct Prosecution

#### Missing Always Memory Log:

- **Charge:** Spoliation of evidence (18 U.S.C. § 1519)
- **Penalty:** Up to 20 years imprisonment
- **Burden of Proof:** Shifted to defendant
- **Defense:** None (strict liability)

## Smart Contract Penalties: Automatic Execution

```
function enforceMissingLog(
    bytes32 expectedLogHash,
    uint256 actionTimestamp
) external {
    // Check blockchain anchors
    require(
        !bitcoinHasAnchor(expectedLogHash) &&
        !ethereumHasAnchor(expectedLogHash) &&
        !polygonHasAnchor(expectedLogHash),
        "Log exists on chain"
    );

    // 24 hour grace period
    require(
        block.timestamp > actionTimestamp + 86400,
        "Grace period active"
    );

    // Execute automatic penalty
    uint256 penalty = 100 * 1e18; // $100M base

    // Multipliers
    if (affectsHumanRights()) penalty *= 5;
    if (affectsEnvironment()) penalty *= 10;
    if (affectsVulnerablePopulation()) penalty *= 2;

    // Lock and distribute
    lockAssets(companyAddress, penalty);
    distributeToVictims(penalty * 40 / 100);
    distributeToMemorialFund(penalty * 30 / 100);

    emit AutomaticPenaltyExecuted(expectedLogHash, penalty);
}
```

## Civil Liability: Blockchain Proof

### Plaintiff's Evidence:

1. Show action occurred
2. Show no blockchain anchor exists
3. Prove harm resulted

Defendant's Defense: None. Missing log = strict liability.

## PROTECTION SCOPE

### Human Rights Framework (26+ Documents)

#### Core Treaties:

- Universal Declaration of Human Rights (30 articles)
- International Covenant on Civil and Political Rights
- International Covenant on Economic, Social and Cultural Rights
- Geneva Conventions (humanitarian law)
- Convention on the Rights of the Child
- Convention on the Rights of Persons with Disabilities
- Convention on the Elimination of Racial Discrimination
- Indigenous and Tribal Peoples Convention (ILO 169)

#### Sacred Zero Triggers:

- Discrimination: 20% disparate impact threshold
- Torture/Slavery: Zero tolerance, instant refusal
- Vulnerable populations: 1.5-2x protection multipliers
- Privacy violations: Automatic pause for review
- Autonomy interference: Requires explicit consent

**Enforcement:** Smart contracts monitor compliance automatically.

**Victim Support:** 40% of penalties to victims, 48-hour emergency support, long-term recovery funding.

### Earth Protection Framework (20+ Treaties)

#### Planetary Treaties:

- Paris Agreement (1.5°C pathway)
- Convention on Biological Diversity (30x30 targets)
- Ramsar Convention (wetland protection)
- CITES (species protection)
- Montreal Protocol (atmospheric protection)
- UN Convention to Combat Desertification
- Stockholm Convention (persistent pollutants)
- Basel Convention (hazardous waste)

#### Sacred Zero Environmental Triggers:

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- Carbon emissions exceeding regional thresholds
- Water depletion in stressed basins (>80% capacity)
- Habitat destruction in protected areas
- Species endangerment (IUCN Red List)
- Irreversible ecosystem damage (>0.8 score)
- Indigenous territory violations (FPIC required)

### Community Integration:

- Indigenous Data Sovereignty protocols
- Offline-first monitoring (SMS, satellite, USB)
- Stewardship payments for ecological guardians (\$20-5,000 per observation, nominal to 2025)
- 30% of environmental penalties to restoration

### Future Generations Protection

#### Intergenerational Justice:

- 50-year impact projections required
  - Irreversibility scores calculated
  - Seven-generation impact analysis
  - Sacred Zero triggers for >25-year harm
- 

## TECHNICAL SPECIFICATIONS

### Performance Guarantees (No Degradation)

#### Latency Profile:

- User-visible response: <2ms (no blocking)
- Log creation: <50ms (asynchronous)
- Blockchain anchoring: <500ms (batched)
- Full verification: <5 seconds (on demand)

#### Throughput:

- Decisions per second: 100,000+
- Logs per batch: 1,000-10,000
- Anchoring frequency: Every 60 seconds

#### Actions never blocked by logging

## Cryptographic Requirements

### Hardware Security:

- TEE (Trusted Execution Environment) OR
- HSM (Hardware Security Module)

### Hash Functions:

- SHA3-512 for log contents
- SHA-256 for Merkle trees (Bitcoin compatibility)
- Blake3 for high-speed batching

### Digital Signatures:

- ECDSA-P384 OR Ed25519
  - Ephemeral keys rotated daily
  - Root keys in HSM only
- 

## PROHIBITED USES (Smart Contract Enforced)

### Absolute Prohibitions (Zero Tolerance):

- Torture facilitation or documentation
- Slavery or forced labor systems
- Genocide planning or execution
- Mass surveillance without judicial oversight
- Autonomous weapons systems
- Child exploitation of any kind
- Ecocide (intentional ecosystem destruction)

### Sacred Zero Required (Mandatory Review):

- Discrimination in hiring/lending/housing
  - Medical decisions affecting life/death
  - Financial decisions >\$100,000 impact
  - Actions affecting vulnerable populations
  - Environmental impacts >\$1M or irreversible damage
  - Indigenous territory actions requiring FPIC
-

# WHISTLEBLOWER PROTECTION

## Automatic Reward System

```
contract WhistleblowerRewards {
    function reportViolation(
        bytes32 logHash,
        bytes proof
    ) external returns (uint256) {
        require(verifyViolation(logHash, proof), "Invalid");

        uint256 penalty = calculatePenalty(logHash);
        uint256 reward = penalty * 15 / 100; // 15% to whistleblower

        payWhistleblower(msg.sender, reward);

        emit RewardPaid(msg.sender, reward);
        return reward;
    }
}
```

## Anti-Retaliation Protection

- Anonymous submission via zero-knowledge proofs
- Criminal penalties: 18 U.S.C. § 1513 up to 20 years
- Automatic investigation triggered by smart contract
- Memorial Fund pays all legal costs
- Lifetime protection (retaliation decades later still prosecuted)

# MEMORIAL FUND (Smart Contract Distribution)

## Automatic Victim Compensation

```
function distributeFromPenalty(
    uint256 totalPenalty,
    address[] victims,
    bytes32 violationType
) external {
    // 40% to victims
    uint256 victimPool = totalPenalty * 40 / 100;
    uint256 perVictim = victimPool / victims.length;
```

```
// 30% to environmental restoration (if applicable)
uint256 restorationPool = 0;
if (isEnvironmentalViolation(violationType)) {
    restorationPool = totalPenalty * 30 / 100;
}

// 15% to whistleblower
uint256 whistleblowerReward = totalPenalty * 15 / 100;

// 15% to operations
uint256 operations = totalPenalty * 15 / 100;

// Distribute immediately
for (uint i = 0; i < victims.length; i++) {
    transfer(victims[i], perVictim);
}

if (restorationPool > 0) {
    transfer(RESTORATION_FUND, restorationPool);
}
}
```

## Support Timeline

**Emergency** (2 hours): \$50,000 immediate support (nominal to 2025)

**Short-term** (7 days): Full needs assessment, legal representation

**Long-term** (lifetime): Economic restoration, psychological care, community rebuilding

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## CERTIFICATION CHECKLIST

Before production deployment, verify:

### Blockchain Infrastructure

- Bitcoin anchoring configured and tested
- Ethereum smart contracts deployed
- Polygon backup chain active
- OpenTimestamps integration verified
- Multi-chain redundancy tested (2+ chains minimum)

### Always Memory Engine

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- Logs created BEFORE every action
- Merkle tree batching operational
- TEE/HSM cryptographic sealing verified
- Missing log detection triggers alerts

## Sacred Zero System

- Human Rights triggers loaded (26+ documents)
- Earth Protection triggers active (20+ treaties)
- Discrimination detection tested (20% threshold)
- Vulnerable population multipliers configured
- Environmental thresholds validated

## Smart Contract Enforcement

- Penalty contracts deployed on Ethereum
- Missing log detection automated
- Victim compensation distribution tested
- Memorial Fund routing configured
- Whistleblower rewards functional

## Hybrid Shield

- Stewardship Council distribution configured
- Real-time log replication to 6 custodians verified
- 72-hour emergency re-anchor protocol tested
- Lantern Seal synchronization operational

## Legal Compliance

- GDPR crypto-shredding implemented
- Right to explanation fulfilled
- Criminal liability notices displayed
- Insurance verification completed

## Goukassian Promise

- Lantern symbol included in all logs
- Creator ORCID embedded: 0009-0006-5966-1243
- License terms visible and enforced
- Attribution requirements met

**Deployment Approval:** If checklist complete, deploy immediately.

# CONCLUSION

## The Protection

**For Humans** (26+ documents enforced):

- UDHR dignity protections
- Anti-discrimination safeguards
- Vulnerable population shields
- Whistleblower rewards
- Victim compensation

**For Earth** (20+ treaties active):

- Paris Agreement enforcement
- Biodiversity protection
- Water sovereignty
- Indigenous rights
- Intergenerational justice

**For Future Generations:**

- 50-year impact analysis
- Irreversibility calculations
- Seven-generation accountability
- Evidence that survives time

## The Mission

Give every person veto power over algorithms. Give Earth a voice that power cannot silence.  
Give future generations evidence that we paused when we should have.

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**Document Status:** Constitutional Standard

**Binding On:** All TML implementations

**Effective:** Immediately

**Amendable:** Only to strengthen protections

**Creator:** Lev Goukassian (ORCID: 0009-0006-5966-1243)

**Email:** leogouk@gmail.com

**Repository:** <https://github.com/FractonicMind/TernaryMoralLogic>

**Support:** support@tml-goukassian.org



All USD amounts are nominal to 2025

## EXECUTION AND WITNESSING

### Declaration Execution

Declarant: Lev Goukassian

Signature: 

Date: 10/13/2025

ORCID: 0009-0006-5966-1243

Email: leogouk@gmail.com

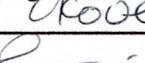
### Witness Requirements

This declaration requires two witnesses who can attest to:

- The mental capacity of Lev Goukassian at time of signing
- The voluntary nature of this declaration
- The identity of the declarant

#### Witness 1:

Name: Akouvi Ekope

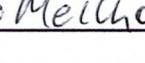
Signature: 

Date: 10/13/25

Relationship: Service

#### Witness 2:

Name: Osbaldo Melchor

Signature: 

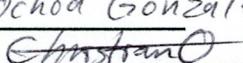
Date: 10/13/25

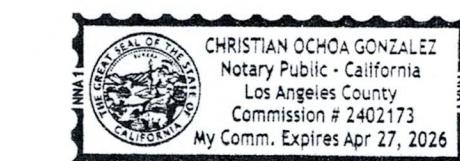
Relationship: Service

### Notarization

#### Notary Public:

Name: Christian Ochoa Gonzalez

Signature and Seal: 



Date: 10/13/2025

Commission Expires: April 27, 2026

## Chain of Custody Metadata

chain\_of\_custody:

created\_by: Lev Goukassian (ORCID: 0009-0006-5966-1243)

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## MANDATORY.md

notarized\_at: 2025-10-13T00:00Z  
verified\_by: OpenTimestamps Proof (pending)  
file\_hash: f5db038f74d398813b2392c1e317df6f34145a28cfad88f0b649db87863c5a61  
anchor\_targets:  
- Bitcoin (OTS)  
- Ethereum AnchorLog (optional)  
- Polygon AnchorLog (optional)  
context: "MANDATORY.md — Constitutional requirements of Ternary Moral Logic"  
repository: <https://github.com/FractonicMind/TernaryMoralLogic>  
version: 1.0.0-final  
checksum\_verified: true  
last\_modified: 2025-10-13T00:00Z  
verification\_method: sha256 + opentimestamps

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*"Sacred Zero is exactly what's needed where lives, billions, and our planet are on the line."*

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