## R.E.T.N.A Protocol

# Reference Adoption Package v0.1

*Real-Time Execution Trust and Notarization Architecture*

Decision Governance and Authorization Infrastructure

**Status:**

Draft for Adoption

**Intended Audience:**

Platform Builders, Enterprises, Regulators, Standards Bodies, Integrators

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# Document Metadata

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## Document Classification

- Type: Implementation and Adoption Specification
- Scope: Protocol Adoption and Integration
- Audience: Technical, Enterprise, Regulatory

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## Normative Language

This document uses the terms MUST, MUST NOT, SHOULD, and MAY in accordance with:

- RFC 2119
- RFC 8174

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## Relationship to Other Documents

This document complements:

- R.E.T.N.A Protocol Specification
- R.E.T.N.A Regulatory Addendum

## Intellectual Property Notice

R.E.T.N.A is a protocol specification developed by Value Intelligence Solutions Inc.

This document may be used for implementation, research, and evaluation purposes.

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# Table of Contents

# 0. Notice and Scope (Normative)

This Reference Adoption Package defines the implementation requirements, integration patterns, validation mechanisms, and conformance criteria necessary to adopt the R.E.T.N.A Protocol.

This document is intended to enable independent implementation without reliance on any specific platform or vendor.

All normative requirements in this document use the terms MUST, MUST NOT, SHOULD, and MAY as defined in RFC 2119 and RFC 8174.

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# 1. Purpose and Positioning (Informative)

The R.E.T.N.A Protocol defines a governance layer for decision authorization in AI systems.

This Adoption Package provides a deterministic pathway for organizations to:

- implement governance prior to execution
- generate verifiable Decision Receipts
- establish auditability and traceability
- achieve enterprise and regulatory readiness

R.E.T.N.A is designed to be adopted independently of any reference implementation.

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# 2. Conformance Profiles (Normative)

Implementations MUST conform to one of the following profiles:

## RETNA-A (Baseline)

- Governance boundary enforcement
- Decision Receipt generation
- Outcome enforcement

### RETNA-B (Enterprise)

- All RETNA-A requirements
- Evidence referencing (hash or immutable reference)
- Tamper-evident receipt storage
- Policy version traceability

### RETNA-C (Regulated)

- All RETNA-B requirements
- Cryptographic signing or attestation
- Human override traceability
- Data minimization and retention controls

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## 3. Reference Implementation Model (Normative)

A conformant implementation MUST include:

- **Decision Producer**
  Constructs structured Decision Proposals
- **Governor**
  Evaluates proposals against policies and constraints
- **Executor**
  Executes actions only when authorized
- **Receipt Store**
  Persists Decision Receipts for audit and retrieval

Optional components MAY include:

- Evidence Store
- Policy Authority Service
- Attestation Service

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# 4. Governance Boundary Enforcement (Normative)

A Governance Boundary MUST be enforced such that:

No governed decision is executed without an explicit authorization outcome from the Governor.

Implementations MUST ensure that:

- bypass of the governance boundary is impossible
- unauthorized execution cannot occur
- enforcement applies to all governed decision classes

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# 5. Integration Interfaces (Normative)

Implementations MUST support at least one of the following:

## API-based Governor

POST /retna/v0.1/evaluate

Returns:

- governance outcome
- Decision Receipt (or reference)
- triggered constraints
- next actions

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## Library-based Governor

evaluate_decision(proposal, policy_context)

Returns:

- governance outcome
- Decision Receipt

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## 6. Decision Proposal Requirements (Normative)

Each Decision Proposal MUST include:

- decision_id (stable identifier)
- risk_class
- action_type
- decision_mode
- proposed_action (structured)
- state_delta summary
- participants
- evidence references
- execution target

A Decision Proposal represents a candidate action, not a prompt.

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## 7. Governance Outcomes (Normative)

The Governor MUST produce one of the following outcomes:

- **ALLOW**
- **DENY**
- **ESCALATE**
- **DEFER**
- **DEGRADE**

Outcomes MUST be enforceable and MUST directly control execution behavior.

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## 8. Decision Receipt Requirements (Normative)

A Decision Receipt MUST be generated for every governed proposal.

Receipts MUST include:

- identity block
- decision envelope

- participants
- evidence references
- policy evaluation results
- governance outcome
- reason codes
- timestamps

Receipts MUST be stored durably and retrievable.

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## 9. Deployment Patterns (Informative)

Supported patterns include:

### Inline Executor Gate

### Central Governance Gateway

### Event-driven Authorization Model

Each pattern MUST preserve Governance Boundary integrity.

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## 10. Receipt Validator Specification (Normative)

A compliant system MUST support validation through:

### Structural Validation

### Semantic Validation

### Integrity Validation (RETNA-B/C)

Validator output MUST include:

- compliance profile
- pass/fail result
- violations
- warnings


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- integrity status

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## 11. Conformance Test Matrix (Normative)

Implementations MUST pass:

### RETNA-A Tests:

- boundary enforcement
- receipt emission
- outcome enforcement

### RETNA-B Tests:

- evidence integrity
- tamper detection
- policy traceability

### RETNA-C Tests:

- signature verification
- audit readiness
- data governance

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## 12. Adoption Roadmap (Informative)

### Phase 0: Receipt-Only

### Phase 1: Boundary Enforcement

### Phase 2: Enterprise Controls

### Phase 3: Regulated Readiness

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## 13. Compliance Claims and Badging (Normative)

Systems MAY claim:

- RETNA-A compliant
- RETNA-B compliant
- RETNA-C compliant

Claims MUST be supported by conformance testing.

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## 14. Adoption FAQ (Informative)

R.E.T.N.A is:

- model-agnostic
- platform-independent
- incrementally adoptable

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## 15. Deliverables Checklist (Normative)

A compliant implementation MUST include:

- Decision Proposal format
- Governor interface
- Executor enforcement
- Receipt generation and storage
- Conformance validation

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## Closing Statement (Informative)

R.E.T.N.A defines a governance layer for AI decision-making, enabling enforceable authorization, auditability, and deterministic control over autonomous systems.

Adoption begins with observability and matures into enforceable, auditable, and regulated decision infrastructure.