Standard Protocol-1 (SP-1): Execution Integrity Standard

Foundation for Proof-Before-Action Systems (PBAS)

Version 1.0 (Dec 2025)

The Paradigm Shift

The Old Way

"Execute-then-Audit"

Action happens first. Errors are found later (or never). Logs can be deleted.

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NOVAK SP-1

"Proof-Before-Action"

Action is BLOCKED unless a cryptographic proof of correctness exists first.

Purpose & Scope

SP-1 establishes the requirement that **no automated system may execute an action unless mathematical proof of correctness is provided first.**

It acts as the root standard for the entire NOVAK ecosystem.

Applies To:

- 🤖 AI & Robotic Control Systems
- 🪙 Financial Transaction Engines
- 🏛 Government Benefit Systems
- 💓 Healthcare Automation

The 5 Pillars of Integrity

A system has Execution Integrity (EI) if and only if **ALL FIVE** of these conditions are true:

1. Input

Known & Attested

2. Rule

Fixed & Versioned

3. Output

Deterministic

4. Identity

Bound to Actor

5. Time

Timestamped

Core Requirements (R1-R14)

R-1: Proof-Before-Action

The single most important rule: **No action may occur until a valid EIR (Execution Identity Receipt) exists.**

R-3: Immutability

No component (rule, input, or system state) may change during the evaluation process.

Other Key Mandates

R-2: Cryptographic Binding (IBF)
R-4: Deterministic Output (Pure)
R-7: Zero Consensus Requirement
R-8: No Blockchains Required
R-12: Rejection on Failure

Correctness Checklist

Under SP-1, a system is only considered "Correct" if it passes this strict validation logic before every single action.

- ✓ Components are present & unmodified.

- ✓ The IBF Hash matches the Receipt (EIR).

- ✓ The Audit Chain (RGAC) extension is valid.

- ✓ No Anomaly Detected (PL-X / PS-X).

- ✓ **Safety Gate Approves Execution.**

The Safety Gate

The **Safety Gate** is the enforcement mechanism defined in SP-3, but mandated by SP-1.

IF (Integrity == False) OR
IF (PL-X Anomaly == True) OR
IF (PS-X Manipulation == True)

THEN **BLOCK EXECUTION**

NOVAK-compliant systems must target **CL-5** for full certification.

Level	Definition	Requirement
CL-1	Basic Binding	Inputs/Outputs linked.
CL-2	HVET Core	Full Hash-Verified Trace (SP-2).
CL-3	EIR Compliance	Identity Receipts generated.
CL-4	RGAC Chain	Full Audit Chain history.
		SP-1 + SP-2 +

Security Guarantees

Pre-Execution

Tamper detection happens *before* the damage is done, not after.

Anti-Corruption

Prevents silent memory corruption or hidden state changes.

Anti-Fraud

Defends against malicious automation and benefit fraud.

Standard Summary

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Mandatory Requirements

The Foundation

SP-1 is the root of the NOVAK Protocol. It changes the fundamental question of automation from "Did it work?" to "Can you prove it should have worked?"

Status: Effective Dec 2025

Questions?

NOVAK Protocol Standards Series

Category: PBAS-01 (Proof-Before-Action Systems)