

Persistent Semantic Agent

A semantic agent operating as a persistent execution substrate of a computing device, maintaining its identity, cognitive state, and lineage across power cycles, model replacement, tool lifecycle operations, and substrate-runtime updates.

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The semantic agent operates as the persistent execution substrate of a computing device, with inference endpoints, knowledge ingestion modules, and related computational assets maintained as governed components subordinate to the agent. The agent comprises a persistent identity field, a cognitive state field, an append-only lineage field, and a governance policy field.

Under a continuity guarantee enforced by the substrate runtime, the agent's identity field, cognitive state field, and lineage field are preserved across device power cycles, application restarts, model artifact loading and unloading events, tool lifecycle operations, and substrate-runtime update operations. The model artifacts loaded in the tool registry at any given time constitute the agent's currently available inference capabilities; the agent's identity is not dependent on any specific model artifact and is preserved across replacement, retraining, or removal of any subordinate model. In an embodiment, the agent's persistent fields are not modified by any subordinate component except by appending to the lineage field under a continuity proof.

Disclosure Scope

This article describes subject matter disclosed in U.S. Provisional Application No. 64/070,239. It is provided for general information about the disclosure and is not legal advice. Features are described as embodiments and may be optional, graded, or configured by policy rather than universally present.

Agent-Resident Execution

[All 40 steps → \(/inventive-steps\)](#)

Substrate (/agent-resident-execution-substrate)

Persistent execution environment carried by the agent, not the host — identity, state, and lineage across power cycles, devices, and upgrades.

Provisional application

PRIMARY TECHNICAL DISCLOSURE

- [{step.name}, Articles \(/articles/agent-resident-execution-substrate\)](#).

SECONDARY TECHNICAL

- [Persistent Semantic Agent \(/articles/agent-resident-execution-substrate/persistent-semantic-agent\)](#).
- [Managed Inference Tool Registry \(/articles/agent-resident-execution-substrate/managed-inference-tool-registry\)](#).
- [Agent-to-Tool Dispatcher \(/articles/agent-resident-execution-substrate/agent-to-tool-dispatcher\)](#).
- [Lineage-Derived Training Signal \(/articles/agent-resident-execution-substrate/lineage-derived-training-signal\)](#).
- [Identity Preservation Across Upgrades \(/articles/agent-resident-execution-substrate/identity-preservation-across-upgrades\)](#).
- [Cognitive State-Conditioned Dispatch \(/articles/agent-resident-execution-substrate/cognitive-state-conditioned-dispatch\)](#).
- [Governed Tool Lifecycle \(/articles/agent-resident-execution-substrate/governed-tool-lifecycle\)](#).
- [Continuity-Proof Lineage \(/articles/agent-resident-execution-substrate/continuity-proof-lineage\)](#).

- [Substrate Runtime Continuity \(/articles/agent-resident-execution-substrate/substrate-runtime-continuity\)](/articles/agent-resident-execution-substrate/substrate-runtime-continuity).
- [Personal Corpus Model Training \(/articles/agent-resident-execution-substrate/personal-corpus-model-training\)](/articles/agent-resident-execution-substrate/personal-corpus-model-training).
- [Heterogeneous Inference Endpoints \(/articles/agent-resident-execution-substrate/heterogeneous-inference-endpoints\)](/articles/agent-resident-execution-substrate/heterogeneous-inference-endpoints).
- [Atomic Lifecycle Substitution \(/articles/agent-resident-execution-substrate/atomic-lifecycle-substitution\)](/articles/agent-resident-execution-substrate/atomic-lifecycle-substitution).
- [Integrity Signal Feedback \(/articles/agent-resident-execution-substrate/integrity-signal-feedback\)](/articles/agent-resident-execution-substrate/integrity-signal-feedback).
- [Hardware-Bound Identity \(/articles/agent-resident-execution-substrate/hardware-bound-identity\)](/articles/agent-resident-execution-substrate/hardware-bound-identity).
- [Cognitive State Append-Only Invariant \(/articles/agent-resident-execution-substrate/cognitive-state-append-only-invariant\)](/articles/agent-resident-execution-substrate/cognitive-state-append-only-invariant).
- [Counterparty Identity Records \(/articles/agent-resident-execution-substrate/counterparty-identity-records\)](/articles/agent-resident-execution-substrate/counterparty-identity-records).
- [Privacy Egress-Controlled Disclosure \(/articles/agent-resident-execution-substrate/privacy-egress-controlled-disclosure\)](/articles/agent-resident-execution-substrate/privacy-egress-controlled-disclosure).
- [Federated Cross-Device Agent Identity \(/articles/agent-resident-execution-substrate/federated-cross-device-agent-identity\)](/articles/agent-resident-execution-substrate/federated-cross-device-agent-identity).

[Agent-Resident Execution Substrate overview → \(/agent-resident-execution-substrate\)](/agent-resident-execution-substrate)