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Managed Inference Tool Registry

Local data structure supporting atomic registration, deregistration, and substitution of inference tool endpoints within the agent's execution environment.

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Local data structure supporting atomic registration, deregistration, and substitution of inference tool endpoints within the agent's execution environment. Tools are managed assets with governed lifecycles, not ad-hoc integrations.

The managed inference tool registry is a data structure local to the substrate device that records the managed inference endpoints currently installed within the substrate. Each registered endpoint comprises a model artifact, an interface specification, and an associated governance scope. The model artifact comprises a sequence of model parameters and an associated model architecture sufficient to instantiate the endpoint for execution. The interface specification defines the input format, output format, and dispatch protocol. The governance scope specifies the policy objects governing the endpoint's installation, retraining, replacement, archival, and removal.

The registry stores endpoints of one or more types, including general-purpose language models, task-specific fine-tuned language models, image classifiers, speech recognition models, embedding models, retrieval models, and personal corpus models. Multiple endpoints of distinct types and distinct sizes may be co-resident concurrently, subject to local memory and storage constraints. In an embodiment, the registry includes

adapter-based endpoint variants in which a base model artifact is shared across multiple endpoints and per-endpoint adapter weights specialize the base model for distinct tasks or corpora.

The registry is configured for atomic registration, deregistration, and substitution of endpoints under governed lifecycle operations. Each lifecycle operation is recorded in the agent's lineage field as a deterministic event, such that the sequence of endpoint registrations across the device's lifetime is reproducible from the lineage.

Disclosure Scope

This article describes subject matter disclosed in U.S. Provisional Application No. 64/070,239. As a provisional disclosure, the described mechanisms are illustrative embodiments and are not exhaustive of the claimed subject matter.

Agent-Resident Execution Substrate (/agent-resident-execution-substrate)

All 40 steps → (/inventive-steps)

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)
- Personal Corpus Model Training (/articles/agent-resident-execution-substrate/personal-corpus-model-training)
- Heterogeneous Inference Endpoints (/articles/agent-resident-execution-substrate/heterogeneous-inference-endpoints)
- Atomic Lifecycle Substitution (/articles/agent-resident-execution-substrate/atomic-lifecycle-substitution)
- Integrity Signal Feedback (/articles/agent-resident-execution-substrate/integrity-signal-feedback)
- 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)
- Counterparty Identity Records (/articles/agent-resident-execution-substrate/counterparty-identity-records)
- 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)

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