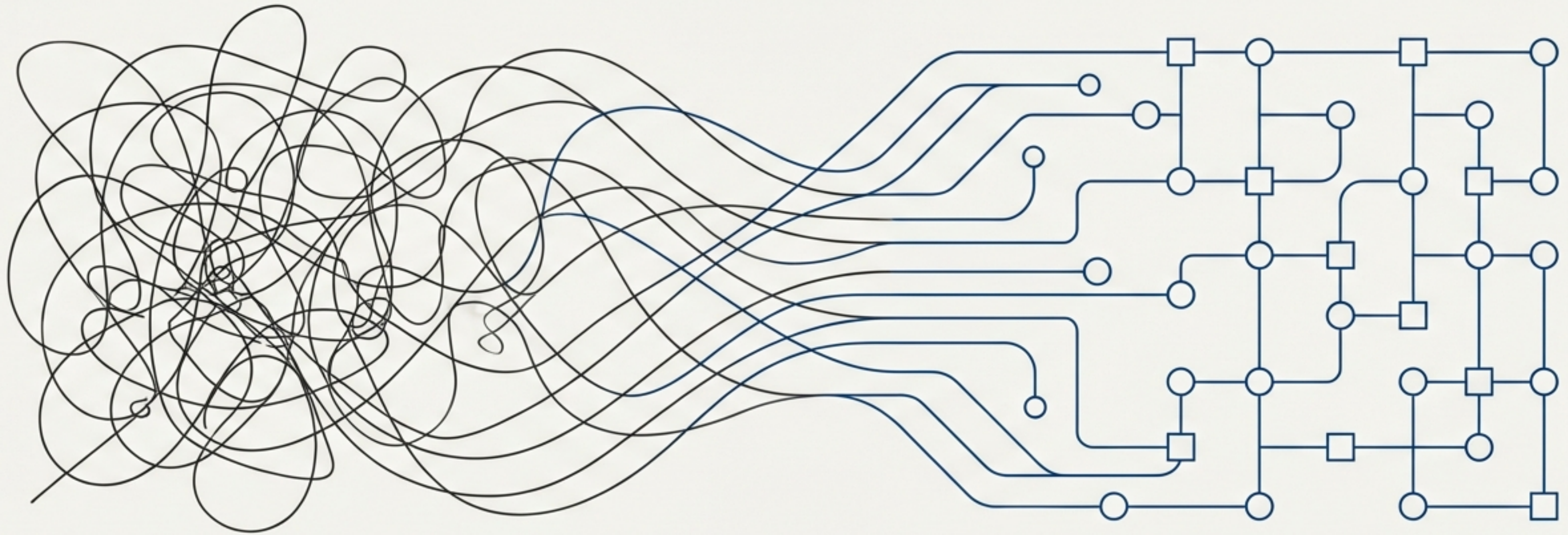# Beyond Prompts: Codifying Agent Expertise

Introducing Agent Skills, an open standard for reliable AI.

AI agents are capable, but they lack critical context.

Agents are increasingly powerful, but often don't have the context they need to do real work reliably.

This gap leads to inconsistencies and failures in complex, multi-step tasks that require deep procedural knowledge.

Agent Brain

Procedural Knowledge & Context

Real-World Task

The Context Gap
Skills solve this by giving agents access to procedural knowledge and company-, team-, and user-specific context they can load on demand.

Witness an agent perform a complex database task, flawlessly.

> **User Request:** Generate a complete Knowledge Graph from my Northwind SQL tables.

1 ### Clarify & Confirm
Agent: 'First, which Virtuoso instance? Demo or URIBurner?'
User: 'Demo.'
Agent: 'I've discovered these tables in the 'northwind' schema: `Customers`, `Orders`. Do you approve?'

`[Calls: Demo:execute_sql_query with table discovery query]`

2 ### Generate & Propose
Agent: 'I have generated a 142-line SQL script to create the RDF Views and metadata. Should I execute this script?'

`[Calls: Demo:RDFVIEW_FROM_TABLES with tables: ["...Customers", "...Orders"]]`

3 ### Execute & Audit
Agent: "✓ Script executed successfully (2.3 seconds). Running post-audit..."

`[Calls: Demo:EXECUTE_SQL_SCRIPT]` and `[Calls: Demo:RDF_AUDIT_METADATA with audit_level: 2]`
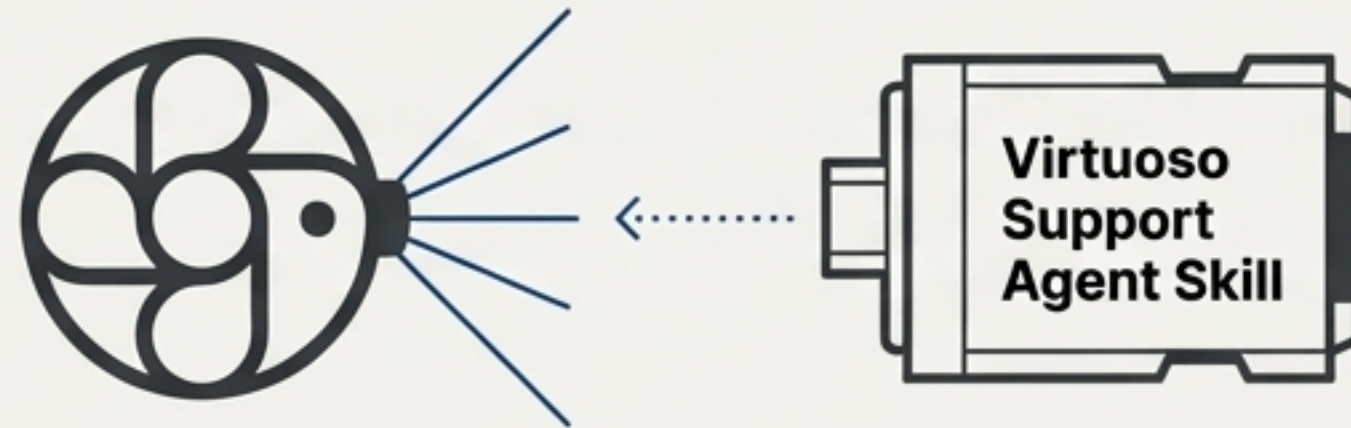
4 ### Verify & Deliver
Agent: "✓ Success! RDF Views created and verified. Your data is now accessible via Linked Data URIs like `http://demo.example.com/northwind/Customers/ALFKI` and a SPARQL endpoint."

`[Calls: Demo:sparqlQuery with verification query]`

How is this possible?

This wasn't a custom-built agent. It's a standard agent using a portable Agent Skill.

What is an Agent Skill?

A simple, open format for giving agents new capabilities and expertise. Agent Skills are folders of instructions, scripts, and resources that agents can discover and use to do things more accurately and efficiently.

The anatomy of a skill starts with `SKILL.md`.

```
virtuoso-support-agent/
├── SKILL.md
├── references/
│   └── ...
```

The Handshake (YAML Frontmatter)

The agent's first glance. Lightweight metadata used for discovery and activation.

~100 tokens

```
---
name: virtuoso-support-agent
description: Technical support and database
management for OpenLink Virtuoso Server with
RDF Views generation, SPARQL queries...
---
```
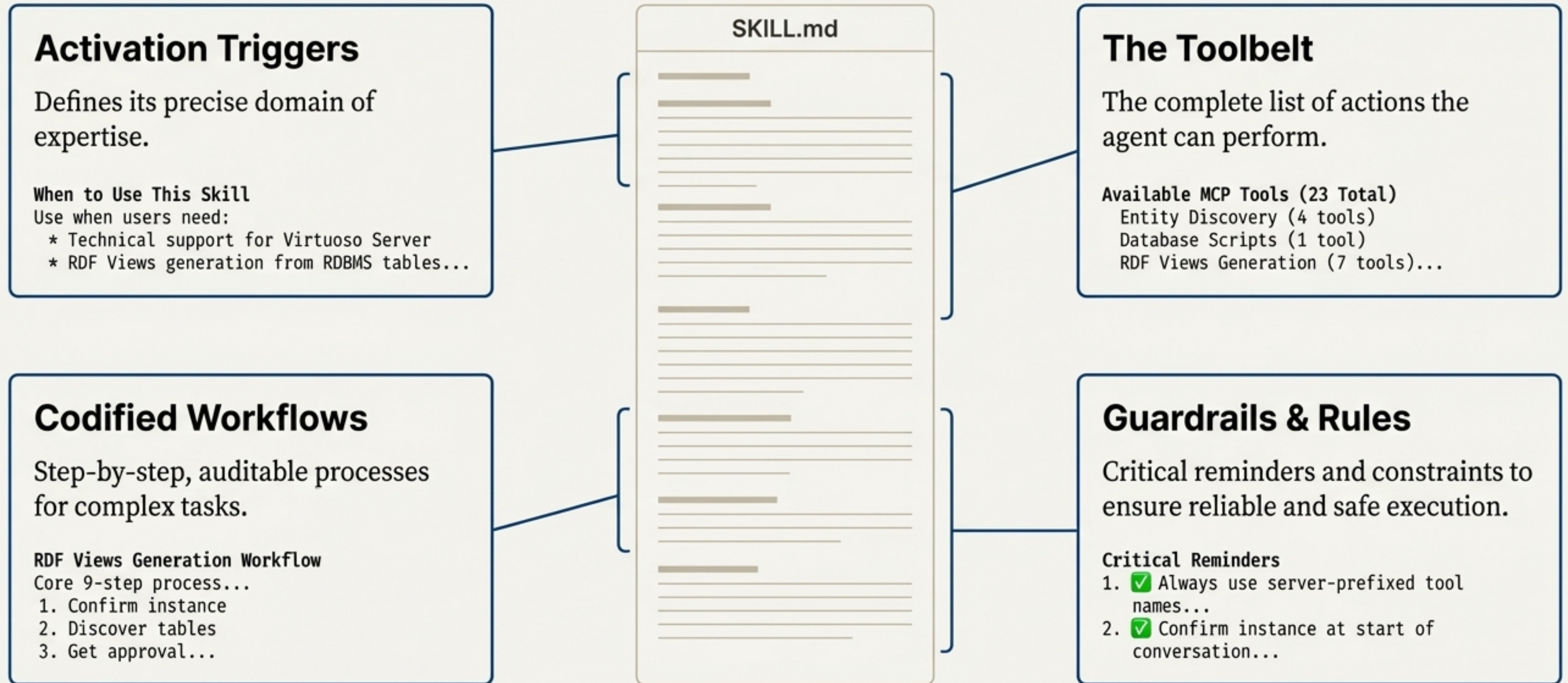
The Playbook (Markdown Body)

The full set of instructions, workflows, and rules loaded *after* the skill is activated.

Recommended < 5000 tokens

```
### Virtuoso Support Agent Skill

#### When to Use This Skill...
```
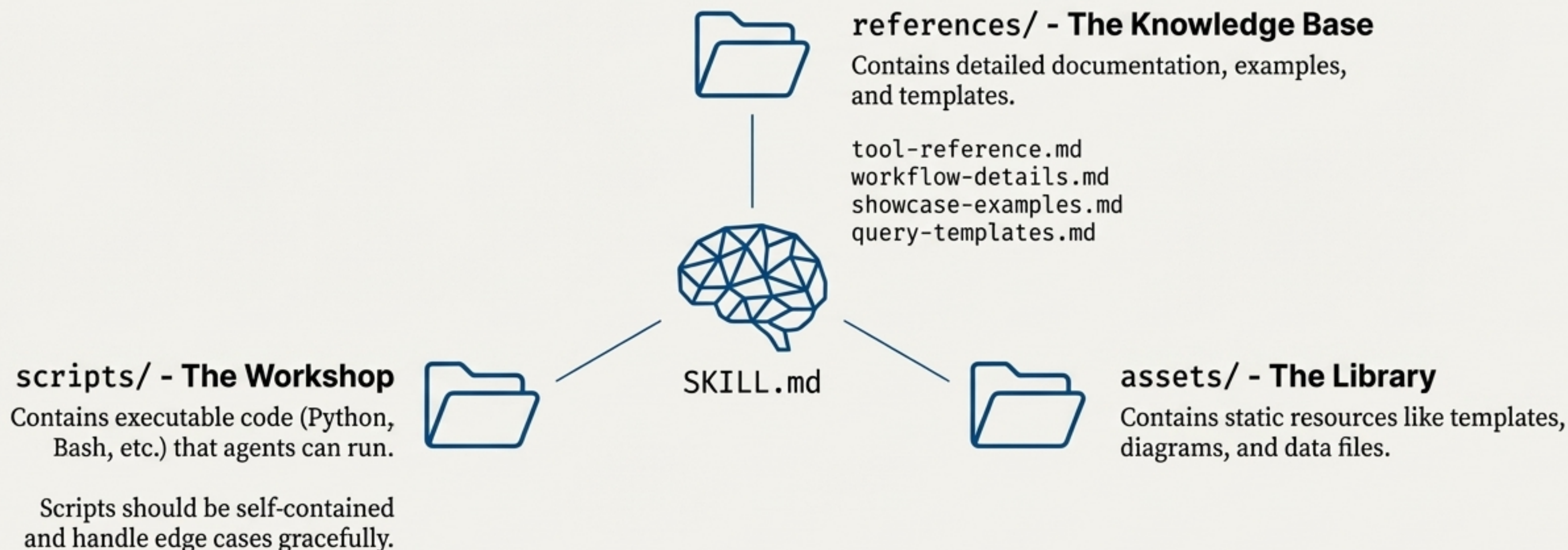
Inside the playbook: Structuring procedural knowledge.

Activation Triggers

Defines its precise domain of expertise.

```
When to Use This Skill
Use when users need:
 * Technical support for Virtuoso Server
 * RDF Views generation from RDBMS tables...
```

The Toolbelt

The complete list of actions the agent can perform.

```
Available MCP Tools (23 Total)
  Entity Discovery (4 tools)
  Database Scripts (1 tool)
  RDF Views Generation (7 tools)...
```

SKILL.md

Codified Workflows

Step-by-step, auditable processes for complex tasks.

```
RDF Views Generation Workflow
Core 9-step process...
1. Confirm instance
2. Discover tables
3. Get approval...
```

Guardrails & Rules

Critical reminders and constraints to ensure reliable and safe execution.

```
Critical Reminders
1. ✅ Always use server-prefixed tool
   names...
2. ✅ Confirm instance at start of
   conversation...
```

The Extended Mind: Managing context with Progressive Disclosure.

Skills are designed to be context-efficient. The core `SKILL.md` is concise, while deep reference material is loaded only when needed.

references/ - The Knowledge Base

Contains detailed documentation, examples, and templates.

```
tool-reference.md
workflow-details.md
showcase-examples.md
query-templates.md
```

`SKILL.md`

scripts/ - The Workshop

Contains executable code (Python, Bash, etc.) that agents can run.

Scripts should be self-contained and handle edge cases gracefully.

assets/ - The Library

Contains static resources like templates, diagrams, and data files.

This structure allows an agent to access vast expertise without overwhelming its context window.
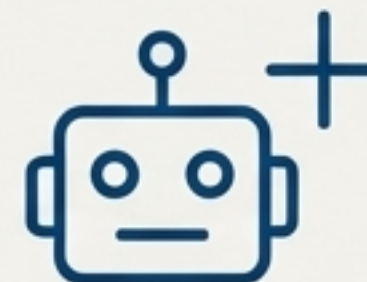
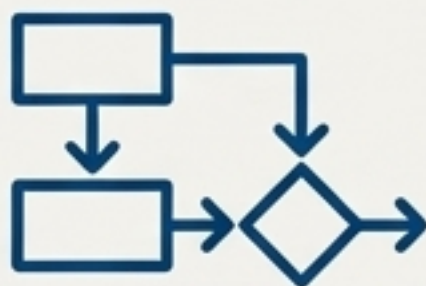# A paradigm shift for agent capabilities

Capture Domain Expertise
Package specialized knowledge into reusable instructions, from legal review processes to data analysis pipelines.

Enable New Capabilities
Give agents entirely new functions, like creating presentations, building servers, or analyzing complex datasets.

Standardize Repeatable Workflows
Turn multi-step tasks that are prone to error into consistent, reliable, and auditable workflows.

Drive Interoperability
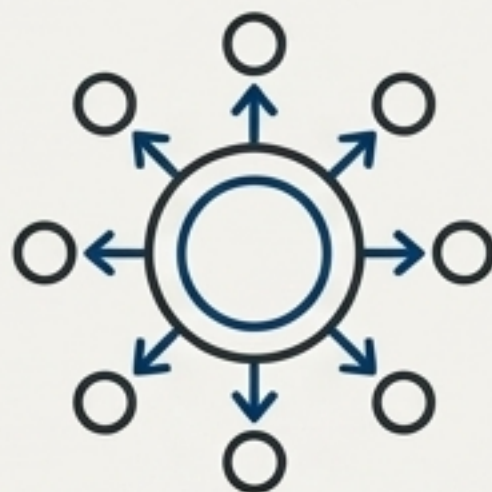Build a skill once and reuse it across different skills-compatible agent products and platforms.

An open standard designed for the entire ecosystem

For Skill Authors

Build once, deploy everywhere.

Create powerful capabilities and workflows that can be used across multiple agent products without modification.

For Agent Platforms

Instantly upgrade your agent.

Support for skills lets end-users and developers give your agent new capabilities out of the box, enriching your platform.

For Teams & Enterprises

Codify and control your knowledge.

Capture critical organizational knowledge in portable, version-controlled packages that ensure consistency and reliability.

A growing, open standard built for collaboration.

Origin:

Originally developed by Anthropic and released as an open standard.

Adoption:

Supported by a growing number of leading AI development tools and agent products.

Contribution:

The standard is open to contributions from the broader ecosystem.

Agent Skills Standard

Contributions

Contributions

View on GitHub

NotebookLM

Get started with Agent Skills.

Read the Specification

Dive into the complete format specification for `SKILL.md` files, optional directories, and best practices.

agentskills.dev/spec

Explore Example Skills

Browse a library of example skills, including the Virtuoso Support Agent, to see working examples and get inspired.

github.com/agentskills/examples

Integrate Skill Support

Learn how to add support for Agent Skills to your own agent or developer tool.

agentskills.dev/integrate

NotebookLM