MCP SERVER | NO CODE | CLOUD HOSTED

Wolfram Alpha MCP

Solve Equations and Analyze Scientific Data.

Wolfram Alpha brings the world's leading computational knowledge engine directly into your AI agent. Stop searching and start calculating. Use this MCP to solve complex math problems, retrieve precise chemical properties, analyze scientific data from physics or biology, and track celestial objects like Mars—all through natural conversation.

A+ Quality Score 100/100

computational-knowledge | mathematics | scientific-data | problem-solving | engineering-tools | data-analysis

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vinkius.com/mcp/wolfram-alpha

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Wolfram Alpha MCP

5 tools available
Cloud-hosted on Vinkius

This connection lets you run highly specialized computations without leaving your chat client. You can talk to your agent about a difficult calculus problem, and it will solve the equation while showing the steps required. Need verified scientific data? Ask for facts in physics or biology, and you get computed answers instantly. It handles everything from calculating unit conversions for engineering projects to determining the chemical structure of obscure substances. For astronomy buffs, track planetary positions across different constellations. Setting up this MCP is straightforward: after subscribing, just input your AppID, and any compatible client can start running computations. Vinkius hosts this standard, making it accessible whether you're using Claude, Cursor, or another agent. It's the go-to resource for anyone who needs reliable, computed answers over simple web searches.

Core Capabilities

01 — Solve complex mathematical equations

You ask your agent to solve an algebraic expression, and it returns the solution along with detailed calculation steps.

02 — Retrieve precise chemical data

The MCP fetches specific properties, structures, and safety information for any given chemical compound.

03 — Analyze scientific facts

You get accurate data retrieval on topics ranging from Earth science to biology in a computed format.

04 — Determine celestial positions

The system calculates the current or predicted position of astronomical bodies, like planets and stars.

05 — Get quick factual answers

Instead of browsing multiple sources, you receive a direct, computed answer to general knowledge queries.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/wolfram-alpha** — connect your AI agent in three steps.

01 First, subscribe to the Wolfram Alpha MCP and provide your unique AppID within Vinkius.

02 Next, activate the connector in any MCP-compatible client or agent.

03 Finally, ask your agent a complex question—whether it's 'What is the boiling point of X?' or 'Solve Y = Z'—and get the computed result back.

The bottom line is you stop relying on general search results and start getting mathematically verified answers directly in your chat window.

Built For

This MCP is for anyone who deals with complex data, equations, or scientific lookups. If your job requires accuracy over speed, you need this. Think engineers who can't afford to manually calculate a unit conversion, or researchers who need verified chemical properties instantly.

Chemical Engineer

Using the MCP, they quickly check the safety data and structures for new compounds without opening dedicated database software.

Academic Researcher

They use it to pull verified facts about scientific processes or track complex astronomical cycles for a paper's background material.

Student (STEM focus)

Instead of getting a textbook answer, they get step-by-step solutions for advanced math problems like calculus.

What Changes When You Connect

01 Accuracy over approximation: Instead of guessing or finding general articles, you get computed answers for equations using the `solve_math` tool. You see the full steps, not just the final number.

02 Instant data validation: Need to know a chemical's safety profile? The `chemical_data` tool gives you verified structures and properties immediately, saving hours of database cross-referencing.

03 Cross-disciplinary knowledge: This MCP lets your agent fluidly switch between topics. You can go from solving an algebra problem to finding planetary positions using `astronomical_data` in one session.

04 Quick fact retrieval: When you just need a single number—like the boiling point of ethanol—the `short_answer` tool bypasses lengthy explanations and gives you a direct, reliable figure.

05 Deep scientific dives: For research, the `scientific_data` capability lets your agent pull complex facts from physics or biology that are hard to find using standard search queries.

Real-World Applications

Calculating material stress tolerances

An engineer needs to know if a specific alloy can withstand extreme heat and pressure. Instead of consulting multiple physical manuals, they prompt the agent: 'What are the structural limits of titanium at 1000 degrees C?' The agent uses `chemical_data` to return the required material parameters instantly.

Planetary mission planning

An astrophysicist is mapping out a journey between two celestial bodies. They ask the agent, 'What was Mars's position relative to Earth last Tuesday?' The agent uses `astronomical_data` to provide precise coordinates for accurate trajectory modeling.

Reviewing chemistry homework

A student submits a complex stoichiometry problem and asks the agent to check it. The agent runs `solve_math`, showing not only the final answer but also highlighting exactly where the calculation went wrong, allowing for targeted learning.

Fact-checking scientific articles

A writer is drafting an article on global climate change and needs a specific data point: the acidity level of ocean water. They use `scientific_data` to pull the verified, up-to-date metric, ensuring their writing is based on computation, not assumption.

Patterns to Avoid

Assuming simple search works

✗ AVOID

Asking your agent for 'how do I calculate orbital mechanics?' and getting a list of links or general explanations.

✓ INSTEAD

To get the actual data, use `astronomical_data` to pinpoint specific coordinates, or use the `scientific_data` tool to pull verified formulas directly.

Ignoring calculation steps

✗ AVOID

Getting a final number for an equation like 'x = 15' and having no idea how your agent got there.

✓ INSTEAD

Always use the `solve_math` tool. It doesn't just give you the answer; it walks you through every step of the calculation, verifying its logic.

Mixing up general facts and computed data

✗ AVOID

Asking for 'the properties of bromine' and getting a vague paragraph instead of structured data.

✓ INSTEAD

For definitive material science answers, use `chemical_data`. It formats the output into specific properties, making it usable for engineering reports.

The Right Fit

Use this MCP when your task requires verified computation or specialized scientific knowledge. If you are dealing with calculus, unit conversions, chemical formulas, or celestial mechanics, this is your tool. Don't use it if you just need general definitions; for that, a standard search engine works fine. You should also avoid using it to write creative content—it's purely computational. However, if the task involves synthesizing data from multiple scientific domains (e.g., 'What are the chemical properties of gases found on gas giants?'), this MCP is indispensable because it allows you to run `chemical_data`, `scientific_data`, and potentially `astronomical_data` in one workflow. It's a knowledge engine, not a general chat companion.

The frustration of manual data verification today

If you work with complex scientific fields, your day probably looks like this: You find an interesting fact in one document, then open another to check the units or properties. You copy a formula into a spreadsheet, but then realize you need to run a calculation specific to that chemical's structure. It’s endless clicking and cross-referencing across dozens of tabs.

With this MCP connection, your agent handles all that complexity in one go. You ask the question—whether it's about solving complex equations or finding facts from physics—and you get a definitive, computed answer right where you are working.

Get immediate computation results with Wolfram Alpha MCP

You no longer have to copy data into three different tools just to validate a single theory. You don't need separate databases for chemical properties and astronomical calculations.

Now, you ask your agent one comprehensive question, and it brings together the verified knowledge from multiple domains—be it using `chemical_data` or running `astronomical_data`—giving you everything needed to move forward.

Wolfram Alpha: 5 Tools for Computational Knowledge

Use these tools to perform highly specific calculations, from solving advanced math to retrieving precise chemical or astronomical facts.

#	TOOL	DESCRIPTION
01	`astronomical_data`	Retrieves precise data on celestial objects and their positions in space.
02	`chemical_data`	Provides detailed properties and necessary information for specific chemical substances.
03	`solve_math`	Solves mathematical equations or expressions, showing the logical steps used to reach the answer.
04	`scientific_data`	Retrieves verified facts and data points across various scientific disciplines.
05	`short_answer`	Gives a quick, direct computed answer to any factual question you ask.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U Solve x^2 - 4x + 4 = 0.

Solution: x = 2 (double root).

U What is the boiling point of ethanol?

Boiling Point of Ethanol: 78.37 degrees Celsius (173.07 degrees Fahrenheit).

U Where is Mars right now?

Current position of Mars: Right Ascension 10h 23m, Declination +11.5 deg. Constellation: Cancer.

Frequently Asked Questions

01 **How do I get a Wolfram Alpha AppID?**

Go to the Wolfram Alpha Developer Portal, create a free account, and register a new application to generate an AppID.

02 **Can Wolfram Alpha solve calculus problems?**

Yes! Use the solve_math tool with derivatives, integrals, limits, and series. It often provides step-by-step solutions.

03 **What scientific domains are supported?**

Physics, chemistry, astronomy, earth sciences, biology, engineering, units, and materials data are all available.

04 **Can I get step-by-step math solutions?**

Yes! The computation tools will often provide a step-by-step breakdown alongside the final solution if available from Wolfram Alpha.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"wolfram-alpha": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Wolfram Alpha is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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