MCP SERVER | NO CODE | CLOUD HOSTED

NASA Open Data MCP

Analyze cosmic events, from Mars rovers to asteroids.

NASA Open Data is an AI connector that brings decades of space science into your conversations. It gives your agent real-time access to NASA databases, including the Astronomy Picture of the Day (APOD), high-resolution images from Mars rovers, and live tracking feeds for Near Earth Objects (asteroids). You can use it to analyze solar weather risks, check planetary imaging data, or summarize complex astronomical findings using a simple chat prompt.

A+ Quality Score 100/100

space-data | astronomy-images | asteroid-tracking | planetary-data | open-science

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vinkius.com/mcp/nasa-open-data

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.

NASA Open Data MCP

8 tools available
Cloud-hosted on Vinkius

Imagine talking to an expert on astrophysics. This MCP lets your agent do just that by connecting directly to official NASA databases. Instead of navigating multiple scientific websites and downloading large image files, you simply ask the question—whether it's about today's cosmic picture or monitoring a specific asteroid trajectory. You can get photos from Mars rovers like Curiosity, pull records on solar flares, or review potential impact risks from Near Earth Objects. It acts as your dedicated space mission specialist, summarizing complex findings and providing structured data points for everything from academic papers to marketing campaigns. Because this MCP lives on Vinkius, you connect once through your preferred AI client and get instant access to NASA's entire catalog of cosmic knowledge.

Core Capabilities

01 — Retrieve Daily Cosmic Imagery

Get the daily Astronomy Picture of the Day (APOD) along with its detailed scientific explanation.

02 — Analyze Planetary and Solar Risks

Pull records on Coronal Mass Ejections, solar flares, and real-time Earth polychromatic images from NASA instruments like EPIC.

03 — Access Martian Exploration Data

Retrieve mission manifests and photo details for specific Mars rovers like Curiosity, Opportunity, and Spirit.

04 — Track Near Earth Objects

Check the list of asteroids approaching Earth over a date range or look up detailed information on a single asteroid by ID.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/nasa-open-data** — connect your AI agent in three steps.

01 Subscribe to this MCP and enter your required NASA API Key from api.nasa.gov.

02 Connect the service to your AI client (Claude, Cursor, or any compatible agent).

03 Ask your agent a question—for instance, 'What were the solar flares in the last month?'—and it handles the data retrieval and summarizing for you.

The bottom line is that your agent executes complex scientific queries across multiple NASA databases without you needing to write any code or manage API calls.

Built For

This MCP serves anyone who works with structured data, educational content, or technical visualization. It's for science communicators tired of manual database querying, researchers needing verified cosmic metrics, and students building projects that require accurate planetary data.

Science Communicator

Uses the MCP to source stunning, official NASA imagery or summarize complex findings for blog posts and articles.

Astrophysics Researcher

Pulls structured metadata on Near Earth Objects or historical solar flare records to support academic papers and models.

Educator/Curriculum Designer

Generates lesson plans by accessing reliable, high-quality data—like the Astronomy Picture of the Day explanation—for students.

What Changes When You Connect

01 Stop juggling multiple scientific databases. You ask your agent for the 'Astronomy Picture of the Day' using `get_astronomy_picture` and get both the image and the full scientific context in one go.

02 Quickly assess space weather risk. Instead of visiting three different NASA pages, use `get_coronal_mass_ejections` or `get_solar_flares` to pull necessary records into your conversation instantly.

03 Get a comprehensive view of planetary data without writing SQL. You can check the full list of asteroids over a date range using `get_near_earth_objects_feed` and then drill down with `lookup_asteroid`.

04 Simplify Martian missions. You don't need to know which rover was active when; simply use `get_mars_rover_photos` to see images from Curiosity, Opportunity, or Spirit.

05 Handle Earth observation data easily. Need a current view of the planet? Use `get_earth_polychromatic_images` for real-time NASA imagery feeds.

Real-World Applications

Investigating an Asteroid Threat

A space researcher asks, 'Are there any potential risks from asteroids this quarter?' The agent first runs `get_near_earth_objects_feed` for the period and then uses `lookup_asteroid` on specific IDs to summarize the risk level for a team meeting.

Building an Educational Module

An educator needs content about past planetary missions. They prompt the agent, asking for photos from Curiosity. The system runs `get_mars_rover_photos`, delivering multiple images and linking them to mission manifests via `get_mars_rover_manifest`.

Creating a Science Blog Post

A content creator needs stellar visuals for an article on space weather. They ask the agent for both today's cosmic picture (`get_astronomy_picture`) and records of recent solar flares using `get_solar_flares`, all in one conversational flow.

Analyzing Earth Observation

A climate scientist wants to correlate current atmospheric data with historical imagery. They prompt the agent for live views via `get_earth_polychromatic_images` and compare those findings against records of Coronal Mass Ejections (`get_coronal_mass_ejections`).

Patterns to Avoid

Manual API Integration

✗ AVOID

Writing custom Python scripts every time you need to pull a list of Near Earth Objects or Mars rover data because the documentation is too complex.

✓ INSTEAD

Use this MCP. Your agent handles the complexity behind `get_near_earth_objects_feed` and `lookup_asteroid`. You just talk to it.

Searching Multiple Websites

✗ AVOID

Opening the NASA site, then going to a separate solar weather page, then switching tabs to look at Mars rovers. It takes forever.

✓ INSTEAD

Ask your agent directly for combined data. For instance, 'Show me today's APOD and any recent solar flare warnings.' The MCP handles all sources.

Over-Reliance on Generic AI

✗ AVOID

Asking an unspecialized chatbot about the specific mission manifest of Opportunity or the details of a CME event. It will give you vague, non-specific answers.

✓ INSTEAD

Use this MCP's dedicated tools like `get_mars_rover_manifest` and `get_coronal_mass_ejections`. You get structured data, not generalizations.

The Right Fit

Use this MCP if your project requires verifiable, structured scientific data from established government sources. Specifically, if you need to track orbital objects (using `get_near_earth_objects_feed` or `lookup_asteroid`), analyze space weather risks (`get_coronal_mass_ejections`), or pull official visual content like the daily APOD image. Don't use this MCP if you just need general knowledge—for example, if your query is 'What is a nebula?' Use a standard language model for definitions. However, if that definition needs to be paired with real-time data on Mars rover photos (`get_mars_rover_photos`), then this MCP is essential.

The difficulty of gathering cross-disciplinary space data

Today, pulling a full picture requires clicking through multiple tabs: one for today's astronomical image, another for the solar weather reports, and yet a third to check asteroid trajectories. You spend time copying IDs, switching between APIs, and manually synthesizing which data points are related.

With this MCP, you give your agent a single prompt—for example, 'Summarize the cosmic findings from today.' The system calls `get_astronomy_picture`, pulls recent solar flare records via `get_solar_flares`, and checks for any nearby asteroids using `get_near_earth_objects_feed`. You get one cohesive answer.

Get Mission Data with the NASA Open Data MCP

You no longer have to manually check which rovers were active or what their specific missions were. You simply ask for photos from Mars, and the agent uses `get_mars_rover_photos` and `get_mars_rover_manifest` to pull the correct historical data set.

The difference is that your AI client doesn't just talk about space; it actively pulls the verified data from NASA sources. You get accurate, structured reports instantly.

NASA Open Data MCP: 8 Tools Available

Use these tools to retrieve everything from daily cosmic pictures to detailed orbital mechanics reports by querying specific NASA databases.

#	TOOL	DESCRIPTION
01	`get_astronomy_picture`	Retrieves the official NASA Astronomy Picture of the Day (APOD) image and data.
02	`get_coronal_mass_ejections`	Fetches records detailing Coronal Mass Ejections from the Space Weather Database.
03	`get_solar_flares`	Retrieves specific historical data on Solar Flares from the Space Weather Database.
04	`get_earth_polychromatic_images`	Gets real-time Earth images captured by the EPIC instrument.
05	`get_mars_rover_manifest`	Provides a list of missions and photo details for any specific Mars Rover.
06	`get_mars_rover_photos`	Retrieves actual photos taken by rovers like Curiosity, Opportunity, or Spirit on Mars.
07	`get_near_earth_objects_feed`	Lists all Near Earth Objects (asteroids) detected within a specified date range.
08	`lookup_asteroid`	Looks up detailed data and risk assessments for one specific asteroid by its ID.

See It in Action

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

U Show me today's NASA Astronomy Picture of the Day.

Retrieving today's APOD... I found a stunning image of the 'Pillars of Creation'. It captures a vast region of interstellar gas and dust in the Eagle Nebula. Would you like to read the full scientific explanation?

U Get photos from the Curiosity rover on Earth date 2023-05-15.

Checking Curiosity's records for May 15, 2023... I've retrieved several images from its Mastcam and Navigation cameras showing the rocky terrain of the Gale Crater. I can provide the links to the full-resolution photos.

U Are there any potentially hazardous asteroids approaching Earth this week?

Analyzing the NASA NEO feed for this week... I've identified 12 near earth objects. Two of them, designated as '2024 AB' and '2024 CD', are classified as potentially hazardous but will pass at a safe distance. Would you like to see their specific sizes and speeds?

Frequently Asked Questions

01 **Can I use NASA Open Data MCP to check for solar flares?**

Yes. Use `get_solar_flares` to retrieve specific historical records of solar flare activity from the Space Weather Database, helping you understand past space weather risks.

02 **How do I get images from Mars rovers using NASA Open Data MCP?**

You use `get_mars_rover_photos` to pull images from specific rovers like Curiosity or Opportunity. You can also run `get_mars_rover_manifest` for details on their overall missions.

03 **What is the best way to track asteroids with NASA Open Data MCP?**

First, use `get_near_earth_objects_feed` to get a list of all detected objects in your desired timeframe. Then, use `lookup_asteroid` on any specific ID for deep details.

04 **Does NASA Open Data MCP provide the Astronomy Picture of the Day?**

Yes, you can call `get_astronomy_picture` to retrieve today's APOD image and its associated detailed scientific explanation in a single function call.

05 **Can I get Earth observation images with NASA Open Data MCP?**

You use the `get_earth_polychromatic_images` tool to access real-time photographs of Earth captured by instruments like EPIC.

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 `"nasa-open-data": { "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

NASA Open Data 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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