MCP SERVER | NO CODE | CLOUD HOSTED

EOSDA MCP

Translate Satellite Data into Field Action.

EOSDA connects advanced satellite imagery, weather data, and soil moisture readings directly into your AI agent. Monitor crop health trends across entire growing seasons by calculating key vegetation indices, generating visual zoning maps, and forecasting field conditions—all from a natural conversation.

A+ Quality Score 100/100

satellite-imagery | crop-monitoring | precision-agriculture | vegetation-indices | soil-moisture | remote-sensing

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vinkius.com/mcp/eosda

SCAN TO VIEW

The infrastructure that powers AI agents in the real world.

Vinkius connects AI to the world's software through secure, enterprise-grade infrastructure — enabling real-world execution at scale, built on the Model Context Protocol (MCP).

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the cloud infrastructure where AI agents connect 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.

EOSDA MCP

12 tools available
Cloud-hosted on Vinkius

Need to analyze what's really happening in the fields? This MCP lets you bypass complex GIS software and massive datasets. You connect your agent through Vinkius, and suddenly, satellite data becomes conversational. You can ask your AI client things like, 'How has the moisture content changed since last month?' or 'Show me a map of where the productivity is lowest.' It handles everything: retrieving raw imagery from multiple sources, calculating advanced vegetation indices (like NDVI and EVI) over time, pulling historical weather records spanning decades, and even generating precise zoning maps for targeted treatments. Forget manual data pulls and spreadsheet cross-referencing. Your AI agent acts as a dedicated precision ag analyst, giving you actionable insights on everything from irrigation needs to yield predictions.

Core Capabilities

01 — Analyze field metrics

Calculates core vegetation health indices (NDVI, EVI) and tracks trends across the entire growing season.

02 — Monitor water stress

Retrieves current soil moisture levels and generates drought impact assessments using specialized indices like NDMI.

03 — Forecast weather impacts

Accesses long-range weather forecasts (up to 7 months) and historical climate data for risk assessment.

04 — Visualize field zones

Generates color-coded zoning maps that segment fields by productivity or vegetation health for variable rate application planning.

05 — Manage farm inventory

List, register, and manage multiple agricultural fields with their specific boundaries, crop types, and planting dates.

One Click on Vinkius — From Prompt to Execution

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

01 Subscribe to this MCP and enter your API key in the Vinkius platform.

02 Tell your AI agent what you need—for example, 'Show me the NDVI trend for my corn field.'

03 The agent runs the necessary tool calls, fetches raw satellite data, calculates indices, and returns a plain language summary with actionable results.

The bottom line is that your AI client uses this MCP to turn massive, siloed scientific datasets into simple instructions for farm managers.

Built For

This is for the agronomist who spends hours cross-referencing weather reports with satellite imagery. It's for the farm manager tired of guessing about irrigation needs and the consultant needing instant, verifiable field productivity data.

Agronomist

Analyzes vegetation indices (like NDRE or EVI) to detect early signs of crop stress across different growth stages.

Farm Manager

Uses the MCP to schedule irrigation cycles by monitoring soil moisture levels and checking multi-month weather forecasts for a specific field.

Agricultural Consultant

Generates detailed productivity zoning maps and historical trend reports to advise clients on variable rate fertilization or planting strategies.

What Changes When You Connect

01 You stop guessing about crop health. By using get_ndvi_timeseries or get_evi_timeseries, your agent shows the exact progression of vegetation vigor across seasons.

02 Irrigation planning gets precise. The get_soil_moisture tool gives you depth-specific readings and tells you if rain is necessary before you waste water or money.

03 Forecasting risk used to mean checking five different websites. Now, get_weather_forecast pulls multi-month predictions (up to 7 months) directly into your workflow for planning planting schedules.

04 Mapping complex data points is simple. Instead of exporting raw raster files, render_index_map generates polished, color-coded visualizations ready for stakeholder reports.

05 The ability to create a new field record using create_field means you never have to manually set up monitoring boundaries again; just define the area and monitor.

Real-World Applications

Detecting hidden water stress

A farm manager noticed poor yield estimates. They ask their agent, 'What is happening with moisture?' The agent uses get_soil_moisture and get_ndmi_timeseries to pinpoint that the root zone has been critically dry since last week, allowing immediate scheduling of targeted irrigation.

Optimizing variable rate application

An agricultural consultant needs a fertilization plan. They ask for 'productivity zones.' The agent runs get_zoning_map using current NDVI data, generating four distinct zones that tell the client exactly where to increase or decrease fertilizer use.

Planning for seasonal risks

A farmer needs to decide when to plant a high-risk crop. They ask their agent for 'weather outlook.' The agent pulls get_weather_forecast, showing a 60% chance of frost in the next three weeks, letting the farmer delay planting until conditions stabilize.

Comparing year-over-year growth

An agronomist wants to check if this season's crop is doing better than last. They ask for 'NDVI trend comparison.' The agent uses get_ndvi_timeseries and compares the current curve against historical data, highlighting where growth peaked or stalled.

Patterns to Avoid

Using generic APIs

✗ AVOID

Calling a general weather API just to check rainfall. You get raw numbers but no context on soil saturation or crop stage.

✓ INSTEAD

Use the specific get_weather_data tool, which provides over 1800 parameters and correlates historical climate data with your registered field boundaries.

Manual GIS software

✗ AVOID

Having to open QGIS, load multiple band layers (Sentinel-2, Landsat), calculate NDVI manually, and then export a map.

✓ INSTEAD

Use render_index_map. Your agent handles the multi-band calculation and renders the finished, color-coded visualization instantly.

Ignoring field boundaries

✗ AVOID

Running an index calculation that covers multiple properties or areas you don't manage, leading to useless data.

✓ INSTEAD

Always start by using get_fields to list your monitored plots, and then specify the target area when running any analysis tool like get_vegetation_index.

The Right Fit

Use this MCP if you need a deep, multi-layered analysis that combines geospatial data (satellite imagery), time-series trends, and long-term climate modeling into one conversational output. Don't use it if you just need to check today's temperature—use a simple weather widget instead. If your goal is simply tracking market prices or managing payroll, this isn't for you; stick to finance tools. However, if you are analyzing the *physical* health of crops and land, especially when comparing different indices like NDVI vs EVI, this MCP provides the necessary depth and breadth that simple data dashboards miss. It's your single point of truth for field metrics.

The Daily Grind of Field Analysis

Today, assessing a farm's health means jumping between at least five different platforms: the weather service dashboard, the satellite imagery portal, the soil mapping database, and your internal spreadsheet. You download raw band files, calculate an index in Excel, then upload that to another system just to generate a final map. It’s tedious, slow, and you lose time cross-referencing data sets.

With this MCP connected through Vinkius, those steps disappear. You just tell your agent what you want—say, 'How is the crop doing right now?' The AI handles the sequence: it pulls raw imagery, runs multiple calculations like get_vegetation_index, compares historical trends using get_ndvi_timeseries, and spits out a clear summary without you touching a single dashboard.

Generating Productivity Zoning Maps

Before, creating management zones required specialized GIS software and deep knowledge of variable rate application (VRA) protocols. You had to manually define thresholds and run complex spatial queries across different layers.

Now, you simply ask for a zoning map using get_zoning_map. The MCP processes the data, defines productivity levels based on your chosen index, and returns a ready-to-use map that tells you exactly where to focus resources.

EOSDA: 12 Advanced Agriculture Tools

These tools allow you to manage the entire data lifecycle for precision agriculture—from registering fields to generating final, actionable productivity maps.

#	TOOL	DESCRIPTION
01	`get_ndmi_timeseries`	Retrieves time series data for NDMI, which helps track crop water stress and optimize irrigation timing.
02	`create_field`	Registers new agricultural fields into the monitoring system using GeoJSON boundaries, name, and crop type.
03	`get_evi_timeseries`	Calculates time series data for EVI, ideal for tracking canopy development in high-biomass or tropical crops.
04	`get_fields`	Lists all registered monitored fields, providing boundaries, area sizes, crop types, and current growth stage info.
05	`get_ndvi_timeseries`	Provides time series data for NDVI, which tracks overall vegetation health trends throughout a growing season.
06	`render_index_map`	Creates shareable visual maps that overlay color-coded vegetation index values onto specific field boundaries.
07	`get_satellite_imagery`	Retrieves raw satellite images from sources like Sentinel-2 and Landsat, including metadata and cloud cover percentages.
08	`get_soil_moisture`	Gathers soil moisture readings at multiple depths, along with recommendations for irrigation scheduling.
09	`get_vegetation_index`	Calculates various vegetation indices (NDVI, EVI, NDRE, etc.) for a field and date range to assess crop health.
10	`get_weather_data`	Accesses extensive historical weather data, including temperature, rainfall, and wind speed, dating back decades.
11	`get_weather_forecast`	Provides forward-looking weather forecasts for the field, covering everything from 15 days up to seven months out.
12	`get_zoning_map`	Generates detailed zone boundaries and average index values needed for precise fertilization or targeted irrigation plans.

See It in Action

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

U Show me the NDVI trend for my corn field over the 2025 growing season.

Fetching NDVI time series for corn field (field ID: 12345)... Found 28 satellite observations from April to October 2025. NDVI progression: April (0.25) — early growth, May (0.42) — vegetative development, June (0.61) — canopy closure, July (0.78) — peak vegetation, August (0.74) — grain fill, September (0.58) — senescence begins, October (0.35) — harvest ready. Peak NDVI of 0.78 was reached on July 15. Would you like a visual NDVI map or comparison with last season?

U What is the 15-day weather forecast and current soil moisture for my soybean field?

Fetching 15-day forecast and soil moisture for soybean field (field ID: 67890)... Weather forecast: Next 3 days sunny, 28-32°C, no rain. Days 4-7: 60% chance of 15mm rainfall. Days 8-15: variable clouds, 25-30°C, 5-10mm scattered showers. Current soil moisture (root zone): 42% — adequate for current growth stage. With 15mm rain expected in 4-7 days, irrigation can be delayed. Next recommended irrigation check: 10 days from now.

U Generate a productivity zoning map for my wheat field with 4 zones.

Generating zoning map for wheat field (field ID: 11223)... Using NDVI from 2025-06-15 with 4 management zones. Zone 1 (Very High): 22% of field, avg NDVI 0.82 — excellent productivity. Zone 2 (High): 31% of field, avg NDVI 0.71 — good productivity. Zone 3 (Medium): 28% of field, avg NDVI 0.58 — moderate productivity. Zone 4 (Low): 19% of field, avg NDVI 0.41 — below average, may need soil amendment. Zoning map rendered and ready for variable rate application planning. Download: https://api.eos.com/zoning/wheat_field_zoning_map.png

Frequently Asked Questions

01 **How do I start monitoring my fields with EOSDA? Using get_fields?**

You first use the get_fields tool to list your existing monitored plots. This gives you a baseline inventory, including boundaries and current crop types, so your agent knows what data to pull for analysis.

02 **Can I compare different vegetation indices with EOSDA? Using get_vegetation_index?**

Yes, this MCP supports over 17 indices. You can ask the agent to calculate NDVI alongside EVI and NDRE simultaneously to get a multi-faceted view of crop health.

03 **What if I need historical weather data? Does EOSDA support it?**

The get_weather_data tool accesses records spanning back decades. You can analyze temperature, precipitation, and other parameters from 1979 onward for deep seasonal comparisons.

04 **Is the soil moisture data real-time? Can I use get_soil_moisture?**

The get_soil_moisture tool provides readings at various depths, helping you schedule irrigation. It gives you specific data points for root zone monitoring rather than just a general estimate.

05 **How far in advance can I plan with this MCP? Using get_weather_forecast?**

The system is robust enough to provide forecasts ranging from 15 days out all the way up to seven months. This helps optimize seasonal planting and harvesting windows.

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 `"eosda": { "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

EOSDA 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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