

MCP SERVER

NO CODE

CLOUD HOSTED

ArcGIS MCP for AI Agents

Map Locations and Calculate Routes Using Geospatial Data

ArcGIS provides your AI agent with full access to professional geospatial data services. You can convert any street address into precise coordinates, calculate driving routes between multiple stops, pinpoint nearby points of interest by category, and retrieve elevation data for detailed terrain analysis.

A+ Quality Score 100/100

gis

spatial-analysis

mapping

routing

location-intelligence

geospatial-data



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.

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.

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.

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

Encryption at rest

Ed25519

PKI vault signatures

24h TTL

Ephemeral session keys

V8 Isolate

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.

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.

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.

06 — Honeypot Trap System

Phantom credentials are injected into isolated environments. If a honeypot 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.

FinOps

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

Firewall & DLP

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

Agent Activity

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

Tool Health

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

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.

ArcGIS MCP

6 tools available

Cloud-hosted on Vinkius

Need map data but hate complex GIS software? This MCP lets you talk to location intelligence the way you're already talking—in plain English. Instead of navigating confusing dashboards or writing code just to get a few coordinates, your agent handles it all. You simply tell it what you need: 'What elevation is at this point?' or 'How do I drive from here to there?' It pulls accurate data on anything from city planning details to finding the nearest gas station.

It's like having an expert analyst sitting next to you, ready to solve any location problem instantly. By connecting through Vinkius, your AI agent gets access to this whole suite of mapping tools, making it a single source for every geo-related query you run.

Core Capabilities

01 — Find coordinates from addresses

You can give the MCP any street address and get back precise latitude and longitude coordinates.

03 — Locate places near a point

Ask the MCP to find specific types of businesses, like hospitals or coffee shops, within a defined radius around any given location.

05 — Determine ground elevation

Get specific altitude measurements in meters for any given coordinate pair on Earth's surface.

02 — Convert coordinates to readable addresses

If you only have GPS points, this capability figures out what nearby human-readable street address those points belong to.

04 — Calculate multi-stop driving routes

Input multiple start and end points, and the MCP calculates the total distance, estimated travel time, and turn-by-turn directions for the drive.

06 — List available map styles

Review the different visual themes and styling options that can be used when mapping data for a project.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/mcp/arcgis-alternative — connect your AI agent in three steps.

- 01** Subscribe to this MCP on Vinkius and enter your ArcGIS API Key.
- 02** Connect your preferred AI client (like Claude or Cursor) to the catalog.
- 03** Ask your agent a natural language question. It translates that query into specific location requests and returns actionable map data.

The bottom line is, you just talk to your agent about geography, and it runs the complex mapping queries for you.

Built For

This MCP is built for anyone who deals with location data but doesn't want to wrestle with complex GIS software. If your job involves calculating travel times, finding addresses from coordinates, or building maps for urban planning, this is for you.

Urban Planner

You use it to analyze terrain by getting elevation data across large areas and map out potential infrastructure routes.

Travel Coordinator

You calculate the most efficient driving directions between multiple client sites, including estimated travel times for logistics planning.

Real Estate Analyst

You pinpoint nearby points of interest (like schools or shops) around potential properties and verify addresses using geocoding.

What Changes When You Connect

- 01** Stop manually navigating complex GIS software. Your agent handles geocoding addresses or calculating routes instantly, giving you coordinates without the fuss.

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- 02** Easily find local amenities. Instead of searching multiple directories, use `search_places` to pinpoint nearby points of interest like hospitals or gas stations from a single query.

 - 03** Better planning with `get_route`. Get accurate driving directions between any number of stops, complete with total distance and time estimates for logistics reports.

 - 04** Understand the terrain with `get_elevation`. Determine the precise altitude of a location in meters, which is vital for environmental or hiking research.

 - 05** Save time on data conversion. Use `reverse_geocode` to quickly identify what address corresponds to raw GPS coordinates you've collected.
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Real-World Applications

Verifying site locations for construction

A project manager needs to know if a proposed building site is accurately located. They ask the agent to geocode an address, confirm the coordinates using `reverse_geocode`, and then check the elevation data for foundation planning.

Analyzing emergency response areas

During a simulated disaster, an analyst must find resources quickly. They ask the agent to `search_places` around the incident site for the nearest hospital or fire department using coordinates.

Planning a multi-stop sales route

A regional sales manager needs the most efficient drive path hitting five different clients. They use `get_route`, inputting all stop coordinates to instantly calculate total distance and optimized time estimates.

Researching natural boundaries and topography

A researcher is studying watershed areas. They use `get_elevation` on various points along a river's path to map out changes in terrain altitude for academic papers.

Patterns to Avoid

Trying to find coordinates without an address

✗ AVOID

A user tries to pass just 'Washington DC' to the agent expecting a coordinate, but it fails because the tool needs more specificity.

✓ INSTEAD

Always use `reverse_geocode` if you have coordinates, or try `geocode_address` with a full street name and city for best results.

Calculating routes without start/end points

✗ AVOID

A user asks to 'get directions' but only provides one location. The agent cannot calculate anything without at least two defined stops.

✓ INSTEAD

Use `get_route` and make sure you provide coordinates for all starting and ending points, separated by semicolons.

Assuming map data is always available

✗ AVOID

A user asks to see a map style but doesn't know what styles exist, resulting in an unhelpful default view.

✓ INSTEAD

First run `get_basemap_styles`. This lists every available visual theme you can select for your visualization project.

The Right Fit

Use this MCP if your core problem involves location intelligence—that means needing coordinates, calculating travel time, or finding nearby physical places. It excels at taking complex geospatial inputs and turning them into simple answers. Don't use it if you only need to search for general information (like a person's name or historical data) that doesn't have a geographical component. If your task is purely database retrieval or text summarization, this isn't what you need. Stick to location-based questions; the MCP handles everything from geocoding addresses to calculating routes between multiple points.

ArcGIS and Geospatial Data: Solving Location Problems with ArcGIS

Today, figuring out a simple route or getting coordinates requires opening specialized GIS software. You're forced into specific workflows: you input start/end points in one box, manually click through waypoints, then copy the resulting mileage and time to another document. It's slow, error-prone, and makes sense only if you know exactly what buttons to press.

With this MCP, your agent handles that entire process naturally. You simply tell it: 'Drive from point A to B, hitting C on the way.' It calculates the optimized route geometry, total distance, and travel time instantly, giving you a single, actionable answer.

ArcGIS Location Intelligence: Analyzing Terrain with ArcGIS

Before this MCP, analyzing terrain required downloading elevation models and running complex overlays. If you just needed to know the altitude at a specific point or along a line, you were limited by what specialized software could process.

Now, your agent can pull that data with a simple request. You ask for the elevation of several points in sequence, and it returns accurate meters for each one, letting you analyze topography without touching any backend models.

6 GIS Tools for Advanced Location Intelligence

These tools let you find addresses from coordinates, calculate multi-stop routes, check terrain elevation, and search for specific places using natural language prompts.

#	TOOL	DESCRIPTION
01	<code>geocode_address</code>	Takes a common street address text, like '1600 Pennsylvania Ave', and returns the precise coordinates for mapping.
02	<code>get_basemap_styles</code>	Lists all available visual map styles so you can choose the best look for your data visualization project.
03	<code>get_elevation</code>	Retrieves the elevation in meters for specific locations, which is crucial for terrain analysis and hiking planning.
04	<code>get_route</code>	Calculates complete driving directions between a set of stops, giving you total distance, time, and turn-by-turn instructions.
05	<code>reverse_geocode</code>	Converts raw GPS coordinates into the nearest known street address and place name for identification purposes.
06	<code>search_places</code>	Searches a defined area around a location for specific categories, such as 'Hospital' or 'Coffee Shop'.

See It in Action

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

U What are the coordinates for the Museum of Modern Art?



Geocoding Result:




- **Address:** 11 West 53rd Street, New York, NY 10019
- **Coordinates:** -73.9722, 40.7614
- **Confidence:** High (Source: Major landmark)

You've got the coordinates for MoMA. You can feed these into other tools to search for nearby restaurants or calculate a route from here.

U Find me coffee shops and gas stations within 1 mile of this intersection.



Nearby Points of Interest Found:

-  **Gas Station:** Shell (0.3 km away) - Address: 45 Main St.
-  **Coffee Shop:** Blue Bottle Coffee (0.2 km away) - Address: 10 Oak Ave.
-  **Restaurant:** Thai Palace (0.5 km away) - Address: 89 Pine Blvd.

I found four total locations, including two more coffee shops nearby.

U How far is the fastest drive from Denver to Boulder and what's the elevation difference?



Route & Terrain Analysis:

1. **Driving Route:** Total distance: 45 miles. Estimated time: 1 hour 10 minutes.
2. **Elevation Data:** Start point (Denver): ~1600 meters. End point (Boulder): ~1,680 meters.

The route passes through areas with varied topography; be aware of the gradual climb over the total trip.

Frequently Asked Questions

01 How do I use ArcGIS to find coordinates for a street address?

You just ask your agent to geocode the full address. It will return precise latitude and longitude coordinates, which is exactly what you need for mapping or data integration.

02 Can this MCP help me plan a driving route between multiple cities?

Yes. You provide all the starting and stopping points, and the MCP calculates the optimal route geometry, giving you total distance and estimated travel times for every leg of the journey.

03 What if I only have GPS coordinates and need an address? Can ArcGIS find it?

Absolutely. Use reverse geocoding; it takes raw latitude/longitude points and translates them into a clear, usable street address and place name.

04 Does the ArcGIS MCP let me search for types of businesses nearby?

Yes, you can search for specific categories. Just ask to find 'hospitals' or 'restaurants' within a certain radius around any location you specify.

05 What is the difference between calculating a route and checking elevation?







Calculating a route focuses on travel time, distance, and turn-by-turn directions. Checking elevation gives you raw altitude measurements for specific points, useful for terrain analysis or environmental studies.

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 <code>"arcgis-alternative": { "url": "..." }</code>
 Windsurf	MCP Settings → <code>mcp_settings.json</code> → 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

ArcGIS 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](https://cloud.vinkius.com) →

vinkius.com · support@vinkius.com

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