

M C P S E R V E R

N O C O D E

C L O U D H O S T E D

Altitude Sleep Optimizer MCP

Plan safe ascents and manage sleep quality at elevation.

Altitude Sleep Optimizer MCP uses altitude physiology to help you manage the physical toll of high-altitude environments. Your AI client can predict how hypoxia will disrupt your rest, calculate how long you need to stabilize at a specific height, and check if you are ready for your next climb. It turns physiological data into actionable ascent plans.

A+ Quality Score 100/100

altitude

sleep

physiology

acclimatization

hiking



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.

Altitude Sleep Optimizer MCP

4 tools available

Cloud-hosted on Vinkius

High-altitude environments change how your body functions, specifically regarding oxygen intake and sleep patterns. This MCP gives your AI client the physiological framework to help you navigate those changes. Instead of guessing how much sleep you'll get at 4,000 meters, you can get a specific prediction based on your current acclimatization status.

You can use it to map out a logical ascent timeline that avoids the risks of rapid elevation gain. It helps you determine if you've stayed at a certain altitude long enough to stabilize before you push higher. If you're struggling with rest, the MCP suggests environmental changes to mitigate the effects of hypoxia. It's a tool for anyone who needs to make data-driven decisions about their physical readiness and recovery while climbing or traveling in thin air.

Core Capabilities

01 — Sleep Disruption Prediction

Your agent calculates the impact of hypoxia on your rest cycles.

03 — Readiness Assessment

Your agent evaluates if you can safely move to a higher elevation.

02 — Ascent Planning

Your AI client builds timelines for physiological stabilization at target heights.

04 — Environmental Optimization

Your AI client suggests ways to adjust your surroundings to improve sleep.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/altitude-sleep-optimizer — connect your AI agent in three steps.

- 01
- Connect your AI client to the Vinkius-hosted MCP.
- 02
- Provide your current elevation and acclimatization status to your agent.
- 03
- Ask for specific predictions like sleep disruption or ascent timelines.
- 04
- Receive actionable physiological advice and safety assessments.

You connect the MCP to your AI client and start asking questions about your altitude data.

Built For

This MCP is built for people operating in high-altitude environments where oxygen levels impact physical performance and recovery.

High-altitude climbers

They use the MCP to plan ascent stages and monitor readiness.

Mountain athletes

They rely on it to manage sleep and recovery during training camps.

Adventure travelers

They use it to understand how elevation will affect their rest and comfort.

What Changes When You Connect

- 01
- Reduces guesswork in ascent scheduling through physiological timelines.
- 02
- Predicts sleep quality loss to help manage energy levels.
- 03
- Provides safety checks before moving to higher elevations.

04 Offers practical environmental adjustments to improve rest.

Real-World Applications

Climbing Expedition Planning

Use the MCP to build a day-by-day ascent schedule that accounts for stabilization needs.

Training at Altitude

Determine how long to stay at a base camp to ensure your body is ready for higher training loads.

Traveler Comfort

Get advice on how to adjust your sleeping environment to combat altitude-induced insomnia.

Safety Monitoring

Check your readiness score before attempting a significant elevation jump.

Patterns to Avoid

Ignoring physiological stabilization

❌ AVOID

You decide to push for a higher camp immediately after arriving at base camp because you feel fine. You ignore the need for a gradual ascent.

✓ INSTEAD

Use ``calculate_acclimatization_timeline`` to build a schedule that accounts for the time your body actually needs to adjust.

Guessing sleep quality

❌ AVOID

You assume you'll sleep well at 4,000 meters because you slept well at sea level. You end up exhausted and unprepared for the next day.

✓ INSTEAD

Run ``predict_sleep_disruption`` to get a realistic estimate of how hypoxia will impact your rest cycles.

Blindly ascending

❌ AVOID

You check your gear and weather, then head higher without checking if your body is actually ready for the jump.

✓ INSTEAD

Always use ``assess_acclimatization_readiness`` to verify your status against your target height before moving up.

The Right Fit

Connect this MCP if you are planning high-altitude expeditions or training at elevation. Do not use it if you are staying at low altitudes where oxygen levels are stable. The decision depends entirely on whether your environment is thin enough to trigger hypoxia-related sleep and recovery issues.

Altitude Sleep Optimizer Toolset

These tools provide the physiological data needed to manage acclimatization and sleep quality in thin air.

#	TOOL	DESCRIPTION
01	assess_acclimatization_readiness	This tool checks if you are physically prepared to move to a higher elevation. It evaluates your current status against your target height.
02	calculate_acclimatization_timeline	This tool generates a schedule for physiological stabilization. It tells you how long you need to stay at a certain altitude to adjust.
03	predict_sleep_disruption	This tool estimates how much your sleep quality will drop due to elevation and hypoxia. It uses your current acclimatization level to provide a prediction.
04	recommend_environmental_adjustments	This tool suggests specific changes to your surroundings to help you sleep better at altitude. It focuses on lifestyle and environmental fixes.

See It in Action

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

U How much will my sleep be affected at 3500 meters if I am unacclimatized?



At 3500 meters, you face a high risk of sleep fragmentation and a significant decrease in sleep quality due to hypoxia.

U I am at 2000 meters and want to climb to 4000 meters at 500 meters per day. How long to stabilize?



It will take approximately 4 days to reach physiological stabilization, and you should plan for 2 recommended rest days.

U Am I ready to go from 2500m to 3500m if I am partially acclimatized?



Your readiness score is moderate, and the risk level is low for this specific elevation increase.

Frequently Asked Questions

01 How does this MCP help with sleep?

It predicts sleep disruption caused by hypoxia and recommends environmental adjustments to help you rest better at high altitudes.

02 Can I use this to plan a climb?

Yes, you can use the tool to calculate how long it will take to stabilize at a target elevation and to check if you are ready for the next stage of your ascent.

03 What AI clients can I use with this MCP?

You can connect this MCP to any compatible client like Claude, Cursor, Windsurf, or VS Code.

04 Does this MCP require me to host anything?

No, Vinkius hosts and manages the MCP for you. You just connect your client and start using the tools.

05 How accurate are the sleep predictions?

The predictions are based on altitude physiology principles, factoring in your current elevation and acclimatization status.

06 How can I predict my sleep quality at a specific altitude?

You can use the `predict\_sleep\_disruption` tool by providing your current elevation and your acclimatization status.

07 Can this tool help me plan my mountain ascent?

Yes, the `calculate\_acclimatization\_timeline` tool helps you estimate how many days you need to stabilize and how many rest days are required based on your ascent rate.

08 What if I am already at high altitude and struggling to sleep?

You can use `recommend\_environmental\_adjustments` to receive specific advice on hydration, breathing techniques, and temperature management to improve your sleep.

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>"altitude-sleep-optimizer": { "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

Altitude Sleep Optimizer 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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Endpoint	<code>https://edge.vinkius.com/{token}/mcp</code>

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