

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

Crack Spread Analysis MCP

Calculate refinery margins and manage price risk with your AI agent.

Crack Spread Analysis MCP gives your AI client the math needed for refinery economics. It handles everything from calculating immediate profitability via `get_current_spread` to determining risk mitigation through `calculate_hedge_ratio`. You can also track market cycles with `get_historical_trend` and adjust for crude characteristics using `get_quality_impact_adjustment`.

A+

Quality Score 100/100

refinery

crude-oil

crack-spread

hedging

oil-market



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.

Crack Spread Analysis MCP

4 tools available

Cloud-hosted on Vinkius

You can now bring refinery economics directly into your AI workflow. Instead of manually calculating margins or checking historical spreads, you let your AI agent handle the heavy lifting. This MCP provides the specific mathematical tools required to evaluate how crude oil prices and product yields impact your bottom line.

You can use it to check real-time profitability for specific refinery configurations or look back at historical trends to spot market cycles. If you need to manage volatility, the MCP calculates the necessary hedge ratios to protect your margins. It even accounts for the physical reality of refining by adjusting for crude oil quality. It turns your AI client into a specialized analyst that understands the relationship between crude feedstock, product yields, and market spreads.

Core Capabilities

01 — Margin Calculation

Your agent calculates real-time profitability for specific refinery configurations.

02 — Risk Management

The AI determines optimal hedge ratios to mitigate price volatility.

03 — Trend Analysis

Your agent reviews historical spread movements to identify market cycles.

04 — Crude Quality Adjustment

The AI adjusts yield expectations based on the specific characteristics of a crude oil.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/crack-spread-analysis — connect your AI agent in three steps.

- 01 Connect your AI client to Vinkius.
- 02 Select the Crack Spread Analysis MCP from the catalog.
- 03 Ask your AI agent to perform a specific calculation or trend analysis.
- 04 The agent uses the MCP tools to pull data and run the math.
- 05 Receive the calculated results directly in your chat interface.

Connect the MCP to your AI client and start running calculations immediately.

Built For

This MCP is built for professionals managing oil refining margins and energy market risk.

Refinery Analysts

They hand off complex margin calculations and trend analysis to their AI agent.

Energy Traders

They use the tool to quickly determine hedge ratios and current market spreads.

Supply Chain Managers

They rely on quality impact adjustments to plan feedstock procurement.

What Changes When You Connect

- 01 Automates the math for complex crack spread configurations.
- 02 Provides data-driven hedge ratios to manage price exposure.
- 03 Connects crude oil quality directly to profitability adjustments.

- 04** Reduces manual data entry by feeding market prices into your AI client.
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Real-World Applications

Real-time Margin Monitoring

Check how a change in crude or product prices affects your current refinery profitability.

Hedging Strategy Planning

Calculate the right amount of financial hedging needed to protect against market swings.

Market Cycle Research

Analyze how specific spreads have behaved over months or years to inform future strategy.

Feedstock Evaluation

Adjust expected yields based on the specific quality of a new crude oil source.

4 Tools Available

#	TOOL	DESCRIPTION
01	calculate_hedge_ratio	This tool determines the specific ratio of financial hedging you need to offset price risk.
02	get_current_spread	Use this to find the immediate profitability of a refinery setup based on current market prices.
03	get_historical_trend	This tool analyzes how a specific crack spread configuration has moved over a chosen timeframe.
04	get_quality_impact_adjustment	This provides the adjustment factor needed to account for specific crude oil characteristics.

See It in Action

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

U What is the current 3-2-1 crack spread if crude is \$80 and gasoline/diesel are \$110 and \$95?



The current 3-2-1 crack spread value is \$55.00 per barrel.

U Show me the historical trend for the 5-3-2 spread in the US Gulf Coast from 2023-01-01 to 2023-12-31.



The average spread for the period was \$42.50 with a volatility of 5.2 and an upward trend direction.

U Calculate a hedge ratio for a spread of \$50 with a volatility of 4 and risk tolerance of 0.5.



The recommended hedge ratio is 0.65, with an estimated hedge cost of \$12.50.

Frequently Asked Questions

01 What is a crack spread?

A crack spread is the difference between the price of crude oil and the petroleum products refined from it. This MCP helps you calculate that difference to determine refinery margins.

02 Which AI clients can use this MCP?

You can use this MCP with any compatible client, including Claude, Cursor, Windsurf, and VS Code.

03 How does the hedge ratio calculation work?

The tool calculates the optimal ratio of financial hedging required to mitigate your specific price risk based on volatility and spread values.

04 Can I analyze historical data?

Yes, the `get_historical_trend` tool allows your agent to analyze how specific spreads have moved over any given period.

05 Do I need to host the MCP myself?

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

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>"crack-spread-analysis": { "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

Crack Spread Analysis 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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Platform	Vinkius Cloud for AI Agents
Endpoint	<code>https://edge.vinkius.com/{token}/mcp</code>

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