MCP SERVER | NO CODE | CLOUD HOSTED

Max Drawdown Calculator MCP

Quantify risk, pinpointing worst-case losses in seconds.

Max Drawdown Calculator analyzes historical price data instantly, letting you quantify investment risk and volatility metrics. It pinpoints the single worst percentage decline a portfolio faced, calculates how long assets take to recover after major losses, and measures accumulated stress using established financial indices. Get objective risk numbers without opening another spreadsheet.

A+ Quality Score 100/100

drawdown | volatility | finance | risk | investment | metrics

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vinkius.com/mcp/max-drawdown-calculator

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.

Max Drawdown Calculator MCP

4 tools available
Cloud-hosted on Vinkius

Figuring out true market risk used to mean spending hours sifting through massive spreadsheets—copying historical highs, manually calculating dips, and trying to ballpark recovery times. This MCP changes that. It takes your raw price history and gives you immediate answers on how volatile an investment has been.

Instead of guessing at downside risk, this tool provides precise measurements. You can pinpoint the exact worst-case loss a portfolio experienced using the maximum drawdown calculation. Need to know if things are looking better now? You can compare current prices directly against historical peaks for instant status checks. For deeper analysis, it calculates recovery metrics to see how long an asset typically takes to bounce back after falling hard. The system also generates the Ulcer Index, a single number that captures accumulated volatility stress over time.

When you use this MCP through Vinkius, you're connecting powerful risk modeling directly into your agent workflow. You stop tracking numbers and start getting actionable insights about portfolio resilience.

Core Capabilities

01 — Determine worst-case historical loss

Identifies the largest percentage drop an investment has sustained from its peak value.

02 — Assess recovery time after a dip

Analyzes how many periods it takes for an asset's price to return to previous highs following a decline.

03 — Check current drawdown status

Compares the most recent market reading against all historical peak prices instantly.

04 — Measure accumulated volatility stress

Generates a single metric that summarizes the cumulative negative pressure or 'stress' on an asset over time.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/max-drawdown-calculator** — connect your AI agent in three steps.

01 Feed your historical price data (timestamps and values) into this MCP.

02 Run the specific tool you need—for instance, calculating the maximum drawdown or getting the current status.

03 Receive a clear, quantitative risk metric showing exactly how volatile the asset has been.

The bottom line is that your agent sends raw price data to this MCP, and it returns precise, industry-standard metrics quantifying the investment's historical risk profile.

Built For

Portfolio managers and quantitative analysts who get frustrated by manually running drawdown reports across multiple spreadsheets. It’s for anyone whose job relies on objective, immediate assessment of financial risk.

Quantitative Analyst

Uses this MCP to backtest investment strategies against historical data, validating the true maximum loss potential before committing capital.

Portfolio Manager

Checks an entire portfolio's risk exposure by running drawdowns and recovery metrics across multiple assets in minutes.

Financial Risk Officer

Generates standardized volatility reports (like the Ulcer Index) to satisfy compliance audits without manual data manipulation.

What Changes When You Connect

01 Stop guessing about downside risk. Use `calculate_max_drawdown` to get the single most severe percentage decline an asset faced historically.

02 Don't just look at current prices. Run `get_current_drawdown_status` to instantly see how far off today's price is from its all-time high.

03 Improve risk modeling by using `calculate_ulcer_index`. This gives you a single, standardized metric for accumulated volatility stress, which is better than looking at dozens of charts.

04 Better understand portfolio resilience. Run `calculate_recovery_metrics` to see exactly how long assets typically take to recover after they crash.

05 Save hours on backtesting. By integrating this MCP, you bypass manual spreadsheet work and get objective risk data directly into your agent's workflow.

Real-World Applications

Validating a potential investment during market cycles

A portfolio manager wants to know if a volatile tech stock is truly safe. They ask their agent to run `calculate_max_drawdown` and `get_current_drawdown_status` on the last five years of data, immediately determining both the historical worst-case loss and how far today's price sits from its peak.

Auditing compliance for institutional risk reports

A financial risk officer needs to prove that a portfolio meets certain volatility standards. They use `calculate_ulcer_index` across all holdings, generating a single, auditable metric instead of compiling dozens of individual charts.

Evaluating recovery potential after a downturn

A hedge fund analyst needs to assess if a commodity is undervalued post-crash. They run `calculate_recovery_metrics` on the historical data, getting an objective time frame estimate for how long it usually takes for that specific commodity to bounce back.

Comparing risk profiles between competing assets

A client wants to know if Bonds or Tech stocks are safer. The agent runs `calculate_max_drawdown` on both asset classes using the same historical data, allowing for a direct, quantitative comparison of their worst-case losses.

Patterns to Avoid

Estimating risk by looking at recent price swings

✗ AVOID

Looking only at the last month's charts and thinking, 'It looks like it will bounce back soon.' This ignores massive historical downturns that could happen.

✓ INSTEAD

Instead of eyeballing it, use `calculate_max_drawdown` to see the worst loss in the asset's entire history. Then run `get_current_drawdown_status` to anchor today's price against that full peak.

Calculating risk using simple moving averages

✗ AVOID

Using a 20-day or 50-day average to judge if an asset is overbought/oversold. These metrics don't measure true downside exposure.

✓ INSTEAD

For actual historical risk measurement, always use `calculate_ulcer_index` for cumulative stress, or `calculate_max_drawdown` for the absolute worst percentage loss.

Comparing assets using only current volatility

✗ AVOID

Only checking if a stock is volatile *right now*. This misses major structural weaknesses in its pricing history.

✓ INSTEAD

To get a full picture, always check the `calculate_max_drawdown` alongside today's status. That gives you both the potential loss and the current gap.

The Right Fit

Use this MCP if your primary concern is objective quantification of historical financial risk and volatility metrics. If you need to know 'What was the biggest drop?' or 'How stressed has this asset been?', this tool group nails it.

Don't use it if you are simply trying to predict future price movements based on technical indicators, because no MCP can do that. Also, don't use it if your only need is basic data retrieval—if you just need the current closing price without context, a simpler data-fetching tool works better.

You *should* use this when you compare assets (A vs B) and want to know which one has shown superior risk management over time.

You should run `calculate_max_drawdown` first; that sets the benchmark for the entire analysis.

The headache of manually compiling drawdown reports

Right now, assessing true investment risk means wrestling with spreadsheets. You pull historical price data into Excel or Google Sheets and spend hours building complex formulas to find the peak-to-trough drop for every single asset in your portfolio. Then you manually calculate recovery timelines and try to standardize volatility stress across different instruments.

With this MCP, those manual steps disappear. You feed your raw price history once and instantly get industry-standard metrics. Your agent provides precise calculations—like the maximum drawdown and the Ulcer Index—giving you objective risk numbers in seconds.

Get instant insight with Max Drawdown Calculator

You no longer need to manually compare today's price against historical peaks. The `get_current_drawdown_status` tool handles that comparison instantly, showing you exactly how far the market has fallen from its highest point.

The result is simple: your agent delivers quantitative answers instead of requiring hours of complex formula building and cross-referencing dozens of tabs.

Max Drawdown Calculator: 4 Tools for Risk Assessment

These tools allow you to analyze financial history by calculating specific, quantifiable measures of risk, volatility, and drawdown across different asset classes.

#	TOOL	DESCRIPTION
01	`calculate_max_drawdown`	Finds the single worst percentage decline and how long that decline lasted, based on price history.
02	`calculate_recovery_metrics`	Analyzes the duration required for an asset's price to bounce back after a significant drop in value.
03	`get_current_drawdown_status`	Compares today's market price directly against the highest point recorded in the provided historical data set.
04	`calculate_ulcer_index`	Provides one standardized number that measures the total accumulated psychological stress from negative returns.

See It in Action

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

U What was the maximum drawdown for this price series: [{'timestamp': '2023-01-01', 'value': 100}, {'timestamp': '2023-01-02', 'value': 80}, {'timestamp': '2023-01-03', 'value': 90}]?

The maximum drawdown was 20.0% (from 100 to 80) occurring between 2023-01-01 and 2023-01-02.

U Calculate the Ulcer Index for these prices: [{'timestamp': '2023-01-01', 'value': 100}, {'timestamp': '2023-01-02', 'value': 90}, {'timestamp': '2023-01-03', 'value': 85}]

The Ulcer Index value is 7.54.

U Is the current price of 105 at an all-time high based on this history: [{'timestamp': '2023-01-01', 'value': 110}, {'timestamp': '2023-01-02', 'value': 105}]?

No, the current price is not at an all-time high. It is currently in a drawdown of 4.55% from the peak of 110.

Frequently Asked Questions

01 **How does Max Drawdown Calculator compare to standard volatility metrics?**

Max Drawdown focuses specifically on peak-to-trough decline, identifying the worst historical percentage loss. It's a more severe measurement than general volatility because it only tracks drawdowns from established highs.

02 **Can I use Max Drawdown Calculator to predict future prices?**

No, this MCP analyzes historical data; it doesn't predict the future. It gives you a detailed map of past risk so you can make better-informed decisions today.

03 **What is the difference between `calculate_max_drawdown` and `get_current_drawdown_status`?**

`calculate_max_drawdown` finds the single worst drop over an entire period. `get_current_drawdown_status` simply compares the most recent price point against the historical peak available.

04 **Does Max Drawdown Calculator require financial data?**

Yes, this MCP requires time-series numerical data, specifically a list of timestamps and corresponding asset prices, to run any calculation.

05 **Is the Ulcer Index useful for comparing different types of assets?**

Absolutely. Because it’s a single, standardized metric that captures accumulated stress regardless of asset type, it's ideal for comparing wildly different investment classes (like bonds vs. tech stocks).

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 `"max-drawdown-calculator": { "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

Max Drawdown Calculator 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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