MCP SERVER | NO CODE | CLOUD HOSTED

Implied Probability Extractor MCP for AI Agents

Analyzing Sportsbook Odds Margin and Fair Market Value

The Implied Probability Extractor helps bettors and analysts strip bookmaker margins from American odds. It converts standard sportsbook odds into true implied probabilities, allowing you to see the underlying fair market value of any sporting outcome. You can identify betting discrepancies by removing the 'vig' (bookmaker margin) automatically.

A+ Quality Score 100/100

betting | odds | probability | sportsbook | analytics

MAINTAINED BY VINKIUS CLOUD FOR AI AGENTS · JULY 2026
vinkius.com/mcp/implied-probability-extractor

SCAN TO VIEW

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.

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.

Implied Probability Extractor MCP

3 tools available
Cloud-hosted on Vinkius

When you look at sports odds, you aren't seeing the true probability; you're seeing what the bookmaker wants you to bet. This MCP strips that built-in profit margin—the vig—from American odds. It gives you a clear picture of the underlying fair market probabilities for any game. You can use this connection to compare de-viggered numbers against your own projections, which is critical for finding genuine value in betting lines. While many services offer odds conversion, connecting through Vinkius lets your AI client access this precise financial utility alongside thousands of other specialized tools. This means you're not just calculating probabilities; you're running a full analytical comparison that tells you where the real money is.

Core Capabilities

01 — Determine Bookmaker Margin

Calculate the total margin (the 'vig') being charged across a set of odds.

02 — Convert Odds to Raw Probabilities

Instantly converts American odds into unadjusted raw implied probabilities for quick analysis.

03 — Calculate Fair Market Probability

Removes the bookmaker's margin from given odds, providing true market-based probabilities.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/implied-probability-extractor** — connect your AI agent in three steps.

01 You provide your AI client with a set of American odds (e.g., -110, +150) and the outcome you want analyzed.

02 The MCP processes these numbers by first calculating the total overround percentage to identify the margin charged.

03 It then provides multiple outputs: the raw probabilities, the calculated margin, and finally, the true implied probability after stripping out the vig.

The bottom line is you get three distinct views of your odds—the bookmaker's view, the unadjusted view, and the actual fair market view.

Built For

This MCP is built for quantitative analysts, professional sports bettors, and financial modelers. If you spend hours checking sportsbook odds across multiple platforms to find value, this tool saves you time. You're tired of manually calculating the margin just to know if a line is good? We built this for you.

Quantitative Analyst

Uses the MCP to test market efficiency by comparing raw odds against calculated true probabilities across multiple sports.

Professional Sports Bettor

Checks specific betting lines to ensure the bookmaker's margin isn't too high, maximizing potential value before placing a wager.

Financial Model Developer

Requires accurate probability conversion utilities for financial modeling that involves structured outcome predictions.

What Changes When You Connect

01 Instantly calculate the bookmaker's margin: Use `calculate_overround_percentage` to figure out exactly what percentage of your bet is going straight to profit.

02 Identify true value with `get_true_probabilities`: This function strips away the vig, showing you the actual underlying probability of an outcome regardless of the sportsbook's line.

03 Quickly generate preliminary data: Use `get_raw_probabilities` when you need a fast, unadjusted look at how the odds translate into percentages for initial comparison.

04 Compare multiple sources efficiently: Run all three utilities on different sets of odds to build a comprehensive analysis that pinpoints discrepancies in market pricing.

05 Cut down research time: Stop wasting time manually running complex probability formulas; let your agent handle the math and give you actionable data points.

Real-World Applications

Finding Value in NFL Point Spreads

A user spots a mismatch between two major sportsbooks' odds for an upcoming game. They ask their agent to use `get_true_probabilities` on both sets of lines. The MCP reveals that one book is significantly underpricing the outcome, directing the user to place a better bet.

Auditing Bookmaker Profit Margins

A betting analyst needs to check if a new sportsbook is charging standard margins. They feed the odds into `calculate_overround_percentage`, and the MCP immediately returns the total vig, allowing for rapid competition analysis.

Comparing Odds Across Different Markets

A bettor needs to compare win/loss probabilities across different types of bets (e.g., moneyline vs. spread). By using `get_raw_probabilities`, the agent generates a baseline percentage for every outcome, making comparison straightforward.

Modeling Future Market Behavior

A quantitative analyst builds a financial model that predicts market volatility. They use the MCP to adjust historical odds by calculating `get_true_probabilities`, ensuring their model reflects real-world, margin-free risk.

Patterns to Avoid

Assuming Raw Odds are Fair

✗ AVOID

A user sees American odds of -120 and thinks that means the probability is exactly 54.5%. They place a bet based on this assumption, losing money because they didn't account for the bookmaker's profit.

✓ INSTEAD

To find the actual fair value, you must use `get_true_probabilities`. This utility strips out the margin and gives you the true implied probability needed to make an accurate decision.

Ignoring Margin Differences

✗ AVOID

Comparing two different sportsbooks' odds for the same game without checking them. One book might have a much higher vig, which skews any basic comparison.

✓ INSTEAD

Always run `calculate_overround_percentage` first on both sets of odds. This reveals the hidden margin and ensures you're comparing apples to apples before making an investment.

Using Only Basic Conversion

✗ AVOID

A user only uses a simple calculator to convert odds, which provides unadjusted numbers that fail when market conditions change or when multiple outcomes are involved.

✓ INSTEAD

Use the specialized utilities like `get_raw_probabilities` and `get_true_probabilities`. These functions handle complex probability relationships necessary for reliable betting analysis.

The Right Fit

You should use this MCP if your primary goal is finding true value or auditing market efficiency in sports betting. Specifically, if you need to know the bookmaker's profit percentage, use `calculate_overround_percentage`. If you need a definitive picture of what the odds *should* be without any markup, rely on `get_true_probabilities`—that's your best tool for identifying discrepancies. Don't use this if you just need to convert a single pair of simple odds into percentages; those basic functions are fine. But if you plan to compare multiple outcomes or audit the market structure, you absolutely need these advanced tools.

Implied Probability Extractor: Stripping Bookmaker Margin from Betting Odds

Today, analyzing sports odds means jumping between websites and running manual calculations. You take the American odds, plug them into a converter, and get a raw percentage. Then you have to guess if that number accounts for the bookmaker's cut. It's tedious work: copy-pasting numbers, making assumptions about profit margins, and spending hours just determining which lines are fairly priced.

With this MCP, your agent handles all that messy math instantly. You feed in a set of odds, and it doesn't just give you one number; it calculates the overround percentage and then uses `get_true_probabilities` to show you the underlying fair market probability. Suddenly, hours of spreadsheet work are replaced by a single, definitive data point.

Implied Probability Extractor: Calculating Fair Odds for Sports Betting Analysis

The manual process requires you to remember the specific formula for removing the vig and apply it consistently across different sportsbooks. You risk human error every time you have to manually

This MCP eliminates that guesswork. It provides dedicated utilities, including `get_true_probabilities`, which guarantees the removal of the bookmaker's margin, giving your

calculate the margin or convert odds from a second platform.

analysis reliable data that’s ready for comparison against any other market projection.

Implied Probability Extractor: 3 Tools for Sportsbook Odds Margin Analysis

Use these tools to calculate the margin charged by a sportsbook, convert unadjusted raw odds, and extract fair market probabilities from any given set of betting lines.

#	TOOL	DESCRIPTION
01	`calculate_overround_percentage`	Determines the total margin, or 'vig', being charged by a bookmaker across multiple odds.
02	`get_raw_probabilities`	Converts American odds into unadjusted raw implied probabilities without removing any margins.
03	`get_true_probabilities`	Removes the bookmaker's margin to provide fair market probabilities, revealing the underlying true value of the odds.

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 true probabilities for a game where one side is at -150 and the other is at +120?

Odds Analysis Report

The bookmaker's margin (vig) on this line is 7.89%.

Here are the calculated fair market probabilities:
- **Outcome A:** 45.6% (True Probability)
- **Outcome B:** 54.4% (True Probability)

This shows Outcome A has a better value than the odds suggest.

U Calculate the overround for these three outcomes: [-100, +200, -300]

Overround Calculation

Based on the odds provided:
- Total Overround (Vig): **8.5%**
- This means 8.5% of your money is going to the bookmaker's profit pool, not on payouts.

Always factor this margin into your final decision.

U Convert these odds to their raw implied probabilities: [-130, -130]

Raw Probability Conversion

The unadjusted raw implied probabilities are:

- **Outcome 1:** 54.17%
- **Outcome 2:** 54.17%

Note: These numbers include the bookmaker's margin, so use this for a quick check only.

Frequently Asked Questions

01 **How does the Implied Probability Extractor MCP help me find value in sports betting?**

It helps you by stripping out the bookmaker's profit margin (the vig) from displayed odds. This reveals the true, underlying probability of an outcome, letting you compare what the market *should* be versus what the sportsbook is offering.

02 **What is the difference between raw and true probabilities using this MCP?**

Raw probabilities are simple conversions that include the bookmaker's margin. True probabilities, which you get from the Implied Probability Extractor, have had that profit margin removed to show the fair market chance.

03 **Can I use this MCP if the odds I am looking at aren't standard American format?**

While it specializes in American odds, you can feed your agent a variety of numbers. The MCP is designed to analyze the structure and calculate the margin regardless of minor variations.

04 **Does the Implied Probability Extractor only work for single outcomes?**

No. You can use it on multiple outcomes at once, which allows you to compare probabilities across an entire game or market simultaneously in one request.

05 **Is this MCP better than just using a general odds calculator?**

Yes. A basic calculator only converts numbers; the Implied Probability Extractor calculates and removes the bookmaker's profit margin, giving you actionable data that tells you where the real risk lies.

06 **How do I use the Implied Probability Extractor to audit a sportsbook?**

You run the odds through the overround percentage calculator. This immediately shows you the total margin being charged by the bookmaker, giving you an instant assessment of their profit structure.

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 `"implied-probability-extractor": { "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

Implied Probability Extractor 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

V I N K I U S

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DOCUMENT INFORMATION

Generated	July 2026
MCP Server	Implied Probability Extractor MCP
Server ID	`019f1fe0-ee9c-70ac-8403-5b02df6ce5fb`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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