

MCP SERVER

NO CODE

CLOUD HOSTED

Color Space Converter MCP for AI Agents

Guaranteeing Color Fidelity Across Print and Digital Media

The Color Space Converter is a mathematical engine for transforming color data between every major professional color model. It handles single conversions from RGB to CMYK, processes entire palettes with batch transformations, or gives you deep insight into a color's identity across all supported spaces like OKLAB and LAB.

A+ Quality Score 100/100

color

conversion

rgb

hsl

cmyp

oklab



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 — 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.

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.

Color Space Converter MCP

3 tools available

Cloud-hosted on Vinkius

Working with color can be a nightmare. You nail the perfect shade on your screen, only to find it looks completely different when printed. This MCP solves that problem by providing a single source of truth for color values. It acts as a precision engine, allowing you to convert colors between all major mathematical and perceptual models—think RGB, HSL, CMYK, OKLAB, LAB, and more. You can use the tool to perform quick, single conversions when needed, or run massive batches if you're working with an entire palette of brand colors. Plus, instead of just getting one number, you can inspect a color's full profile to understand exactly how it behaves across every space. Connecting this MCP through Vinkius gives your AI client access to industry-leading color science, letting you trust the accuracy of your design work from concept to final output.

Core Capabilities

01 — Batch Convert Multiple Colors

Run a list of colors and convert them simultaneously into one or more target color spaces.

02 — Single Color Space Conversion

Converts a specific color value instantly from any supported space to another (e.g., CSS hex code to HSL).

03 — Analyze Full Color Profile Breakdown

Provides a detailed breakdown of a single color's identity and mathematical properties across all supported models.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/mcp/color-space-converter — connect your AI agent in three steps.

- 01 Feed the MCP a color value and specify its current format (e.g., 'This is RGB(255, 0, 0)' and that you want CMYK).
- 02 The engine processes the data through its mathematical models to calculate the equivalent values in the target space.
- 03 Your AI client receives a structured result containing the precise color parameters for use.

The bottom line is, instead of cross-referencing multiple charts or running several scripts, your agent handles all the complex math instantly and accurately.

Built For

Anyone whose job requires color accuracy—from web designers building responsive sites to print artists preparing files for offset press. If you've ever had a client complain that 'the colors look duller when printed,' this MCP is what you need.

Graphic Designer

Uses the MCP to ensure brand consistency by converting color palettes between digital (RGB) and print (CMYK) standards.

Web Developer

Checks how a single CSS hex code or HSL value translates into different display profiles, guaranteeing accurate colors across various monitors.

Art Director

Inspects complex visual assets to verify that the chosen color profile (like OKLAB) maintains perceptual accuracy regardless of the final medium.

What Changes When You Connect

- 01 Stop guessing about color shifts. Use `inspect_color_profile` to get a full spectrum breakdown of any shade, validating its behavior across RGB, CMYK, and OKLAB.

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- 02 Process large assets quickly. The `batch_transform_colors` tool lets you convert entire palettes of brand colors in one go, saving hours on repetitive conversions.

 - 03 Achieve single-source accuracy. When you use `convert_color`, you get instant, mathematically verified translations from any space to another, eliminating guesswork.

 - 04 Eliminate format risk. Whether your client is designing for web or print, this MCP ensures the color values are accurate and transferable across all standard models.

 - 05 Deep technical insight. You don't just get an answer; you get a full understanding of why that conversion happened by analyzing the underlying mathematical model.
-

Real-World Applications

A brand needs to migrate its entire style guide from web use to print.

The Art Director asks their agent to process 50 hex codes. Using `batch_transform_colors`, the MCP converts every shade accurately from RGB to CMYK, ensuring zero color drift for the printer.

A product designer is finalizing packaging mockups and needs assurance on color stability.

The agent calls `inspect_color_profile` on a key accent color. The resulting profile shows how that shade behaves across LAB space, confirming it maintains perceived brightness regardless of printing process.

A developer needs to check if a specific CSS gradient works on different monitors.

The agent uses `convert_color` to test the exact conversion of a primary brand shade from HSL to RGB, confirming the values are correct for web implementation.

Patterns to Avoid

Manual cross-referencing of color charts

✗ AVOID

The designer spends 30 minutes consulting three different online color conversion guides to move a shade from RGB to CMYK, risking human error with each manual calculation.

✓ INSTEAD

Instead, let your agent use `convert_color`. You feed it the starting value and the target format; it spits out the exact, verified number instantly.

Treating all color spaces as equal

✗ AVOID

Assuming that because a color looks good in an RGB preview, it will translate perfectly to print without checking its CMYK values.

✓ INSTEAD

Always use `inspect_color_profile`. This forces the MCP to analyze the color's identity across *all* spaces, showing you where potential mathematical discrepancies exist.

Processing colors one by one

✗ AVOID

Having a full palette of 12 brand shades and running `convert_color` twelve separate times just to get the CMYK equivalent for all of them.

✓ INSTEAD

Group those tasks. Use `batch_transform_colors` once, providing the entire list of colors you need converted at the same time.

The Right Fit

You should use this MCP if color accuracy is a non-negotiable part of your job flow—if print fidelity matters, or if you're working across multiple display types. This tool excels when you need to move beyond simple hex code lookups and understand the underlying mathematics of colors. Don't use it if all you need is a quick, rough estimate; this MCP provides high-precision results. If your task involves comparing many colors at once (like an entire brand palette), prioritize `batch_transform_colors`. If you just need to know the single best conversion for one color, `convert_color` is faster.

Color Space Converter: Solving Color Model Pain Points in Graphic Design

When a designer starts a project today, they often get bogged down. They nail the perfect shade on their monitor using an RGB value, but then they have to manually copy-paste that number into a print file setup for CMYK. This process is tedious and highly prone to error; one wrong decimal point or format mismatch can ruin the entire brand look when it hits the press.

With this MCP, your agent handles the heavy lifting. You tell it the starting color in any space, and it uses `convert_color` to provide the mathematically perfect equivalent for CMYK—and every other model you need. What you get is immediate, verifiable color data that bridges the gap between screen life and printed reality.

Color Space Converter: Achieving Precision in Digital Web Development

Web developers frequently deal with the challenge of consistent display. They might be using HSL values for a gradient, but they need to know exactly how that translates into 8-bit RGB across different browsers and monitor profiles. Checking this manually means jumping between developer tools and color pickers.

Now you can ask your agent about it. By running `inspect_color_profile`, the MCP gives you a full breakdown of that color's identity, showing its mathematical values in multiple spaces. You get certainty: you know the exact parameters to use, eliminating guesswork from your frontend code.

3 Color Conversions, Transformations, and Color Science Tools for Designers

Use these tools to precisely manage color values, converting entire palettes or analyzing specific shades across every professional color model.

#	TOOL	DESCRIPTION
01	<code>batch_transform_colors</code>	Converts an entire list or palette of colors in a single, efficient operation.
02	<code>convert_color</code>	Performs a precise one-time conversion between two specific color spaces.
03	<code>inspect_color_profile</code>	Generates a comprehensive report showing a single color's identity across every supported model.

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 HSL and LAB values for a deep forest green that is Pantone 348 C?



Forest Green Color Profile

- **Source:** Pantone 348 C (Print)
- **HSL Equivalent:** H: 120°, S: 50%, L: 35%
- **LAB Space Values:** L=32, a=-10, b=20

This profile confirms the shade is dark and earthy, maintaining good perceptual accuracy across mediums.

U I have three brand colors: #FF5733, #33A8FF, and #9933FF. Convert them all to CMYK for a brochure.



Batch Conversion Results

HEX CODE	COLOR SPACE	C	M	Y	K
#FF5733	CMYK	0	80	100	0
#33A8FF	CMYK	65	0	25	0
#9933FF	CMYK	40	90	0	30

Use these values for consistent print results.

U What are the RGB and HSL values for a pure magenta? (Like CSS 'deeppink').



Color Analysis: Deep Pink

COLOR SPACE	VALUE	NOTES
RGB	R: 255, G: 192, B: 203	Standard screen values.
HSL	H: 348°, S: 100%, L: 50%	Excellent for visualizing hue shifts.

The color is vibrant and high saturation across all models.

Frequently Asked Questions

01 How does the Color Space Converter help when I move designs from screen to print?

It solves the biggest problem in design: color shift. You can use this MCP to convert colors accurately, guaranteeing that the shade you see on your monitor will match what comes out of the professional printer.

02 Is Color Space Converter better than just using a standard online hex-to-CMYK tool?

Yes. Standard tools only give you basic conversions. This MCP provides mathematical proof and gives you access to advanced models like OKLAB, which is necessary for truly accurate color science.

03 Can I convert a whole palette of colors at once with the Color Space Converter?

Absolutely. You use its batch transformation tool to process dozens or hundreds of brand shades simultaneously. This saves massive amounts of time compared to doing it manually.

04 What kind of color models does the Color Space Converter support?

It supports all major models, including RGB, HSL, CMYK, LAB, OKLAB, and more. This breadth means you can work with any existing color standard.

05 Does the Color Space Converter only handle hex codes?







No. You can input colors in various formats—CSS values, HSL parameters, or even raw RGB tuples. The MCP handles all of them seamlessly for conversion.

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>"color-space-converter": { "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

Color Space Converter 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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