MCP SERVER | NO CODE | CLOUD HOSTED

Scale Generator MCP

Build precise musical theory logic into your app.

Scale Generator MCP provides structural breakdowns of musical scales across multiple octaves. It lets you discover complex scale families—like Modes or Pentatonic structures—and check if your proposed tonic and scale type are musically valid before composing a single note.

A+ Quality Score 100/100

music-theory | scales | intervals | musical-notes | octaves

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vinkius.com/mcp/scale-generator

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.

Scale Generator MCP

3 tools available
Cloud-hosted on Vinkius

This connector lets you build complex music theory tools directly into your workflow. If you're working on an app that needs to generate accurate musical data, this MCP handles the heavy lifting. You get structural breakdowns of specific scales across multiple octaves, complete with Roman numeral degrees and enharmonic equivalents. Need to know what scale families exist? You can discover over four popular groups, including Pentatonic and Exotic modes. Plus, you never have to guess if your notes work together; the engine validates any tonic or scale type input instantly. Through Vinkius, you connect this power source once from any MCP-compatible client and get access to precise musical data for everything from game scores to educational curricula.

Core Capabilities

01 — Generate multi-octave scale reports

Instantly generates a complete structural breakdown of a chosen scale across multiple octaves.

02 — Discover supported scales

Retrieves a list of all the musical scale families and types available in the engine.

03 — Validate musical inputs

Confirms whether a user's specified tonic note and scale type combination is musically supported.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/scale-generator** — connect your AI agent in three steps.

01 Start by checking the system to validate if your chosen starting note (tonic) and desired scale type are legitimate combinations.

02 If the input passes validation, you select how many octaves of detail you need for that specific scale structure.

03 The MCP returns a structured report detailing every note in the requested range, including its Roman numeral degree and enharmonic name.

The bottom line is that it turns theoretical music knowledge into reliable, actionable data points.

Built For

This MCP serves composers who need to verify complex harmonies before scoring, educational software developers building theory tools, and game designers creating procedural music systems. If your work relies on precise musical structure, you need this.

Composer/Music Producer

Uses it to generate comprehensive reports for complex harmonic ideas or to verify scale choices across multiple movements.

Educational Software Developer

Integrates the validation tools into learning modules, allowing students to test if their chosen musical intervals are structurally sound.

Game Audio Designer

Checks for supported scale types and validates tonics when building dynamic music systems that need reliable harmonic rules.

What Changes When You Connect

01 Stop guessing if a scale works. Use `validate_musical_input` to confirm instantly that your tonic and scale type are mathematically sound before writing code or music.

02 Generate huge reports without manual calculation. The `generate_scale_report` tool gives you structural breakdowns across multiple octaves, saving hours of notation work.

03 Never get stuck on what scales exist. Run `list_available_scales` to discover every supported family, from Pentatonic to Exotic modes, giving you creative options.

04 Write smarter music theory tools. You can feed the engine any tonic and ask it if that combination is valid, making your app much more robust.

05 Cut down on data cleanup. The detailed reports provide not just notes, but Roman numeral degrees and enharmonic equivalents, ready for direct use in documentation.

Real-World Applications

Developing a new music education quiz

An educator needs to build a quiz that only accepts valid harmonic combinations. They can first run `list_available_scales` to map all options, and then use `validate_musical_input` on the front end to ensure students' answers are always musically supported.

Creating dynamic game music for a fantasy RPG

A developer needs the background score to shift smoothly but remain harmonically consistent. They use `generate_scale_report` on the chosen scale type, getting reliable note data that dictates the limits of the entire musical system.

Harmonizing a complex piece for publication

A composer has an idea but isn't sure if their proposed key signature is viable. They use `validate_musical_input` to check their tonic against various scale types, quickly ruling out impossible combinations.

Building a comprehensive music reference tool

A developer wants to list every recognized musical structure. They run `list_available_scales`, pulling in all the necessary data families—Modes, Pentatonic, etc.—to populate their entire database.

Patterns to Avoid

Using simple lookup tables for scales

✗ AVOID

A beginner might hardcode only Major and Minor scales. When the user tries to input a Dorian mode, the system simply fails or returns incomplete data.

✓ INSTEAD

Don't rely on fixed lists. Use `list_available_scales` first to understand all supported families, then use `generate_scale_report` to build complex structures like modes accurately.

Assuming basic interval rules are enough

✗ AVOID

A user writes code that only checks if a note is within the standard 12-tone chromatic scale. This fails when dealing with historical or exotic scales.

✓ INSTEAD

Always use `validate_musical_input` to check your tonic and scale type against the engine's comprehensive ruleset, which supports much more than just basic intervals.

Calculating reports manually in Excel

✗ AVOID

Writing a formula for 3 octaves of C Major is fine, but extending that to an Exotic scale across 5 octaves requires hundreds of complex, fragile formulas.

✓ INSTEAD

Let the MCP do it. Just call `generate_scale_report`, specify the tonic and the octave count, and get a clean, structured data output every time.

The Right Fit

Use this MCP if your project requires deep, mathematically accurate musical structure—think composition tools, theoretical education apps, or procedural audio systems. You need to know *why* a scale works, not just what notes it has. Don't use this if you simply need a basic list of common scales; in that case, a simple JSON lookup might suffice. However, never rely on simple lookups for complex theory. If your goal is validation or generating multi-octave reports with Roman numerals, then the `generate_scale_report` and `validate_musical_input` tools are essential. This MCP handles the complexity of musical grammar so you can focus on creativity.

Manually checking scale validity is a huge time sink.

Right now, if your application needs to handle different scales—say, passing from Major to Lydian—you spend hours maintaining massive switch statements or complex lookup tables. You have to manually map every possible tonic against every supported scale type, checking for edge cases and making sure the notes are correct across multiple octaves.

With this MCP, you simply call `validate_musical_input`. The engine handles all the theoretical complexity instantly. You get a clean pass/fail result that lets your application proceed immediately, no matter how exotic or complex the musical theory involved is.

Generate Scale Reports with generate_scale_report

Before this MCP, generating a full structural breakdown of a scale—say, for three octaves—meant copying and pasting the pattern multiple times, hoping you didn't miss an enharmonic equivalent or miscalculate a Roman numeral degree. It was tedious, error-prone work.

Now, `generate_scale_report` does it in one step. You tell your agent what scale and how many octaves, and you get the complete, structured data set ready for consumption. The process goes from hours of manual notation to a single API call.

Scale Generator With 3 Tools

These tools let you programmatically handle complex music theory tasks, from validating harmonic inputs to generating detailed scale reports.

#	TOOL	DESCRIPTION
01	`generate_scale_report`	Creates a full structural breakdown of any specific scale across multiple octaves, listing all the notes and their degrees.
02	`list_available_scales`	Finds and lists every supported musical scale family available in the system.
03	`validate_musical_input`	Checks whether a specific tonic note paired with a chosen scale type is mathematically and musically valid.

See It in Action

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

U Generate a report for C Major scale with 2 octaves.

The C Major scale (2 octaves) includes: I: C, II: D, III: E, IV: F, V: G, VI: A, VII: B. The second octave follows the same pattern starting from the next C.

U What scales are available in the Pentatonic category?

The available pentatonic scales include Major Pentatonic and Minor Pentatonic.

U Is F# a valid tonic for the Lydian scale?

Yes, F# is a valid tonic and the Lydian scale type is supported by the engine.

Frequently Asked Questions

01 **How does Scale Generator MCP validate musical input?**

It checks if your chosen tonic note and scale type combination is mathematically and theoretically sound. This prevents your app from generating impossible or non-existent scales.

02 **Can I use generate_scale_report for more than one octave?**

Yes, the `generate_scale_report` tool handles multi-octave breakdowns easily. You just specify the number of octaves you need in your request.

03 What kinds of scales can list_available_scales find?

It finds a wide range of families, including standard modes like Dorian and Phrygian, as well as specific types like Pentatonic and Exotic scales.

04 Is Scale Generator MCP just for Western music theory?

The engine is designed to handle complex musical structures. Use `list_available_scales` first to see the full range of supported systems.

05 What format does generate_scale_report return?

It returns a structured data output containing every note, its Roman numeral degree (I, II, etc.), and its enharmonic equivalent.

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 `"scale-generator": { "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

Scale Generator 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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DOCUMENT INFORMATION

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Endpoint	`https://edge.vinkius.com/{token}/mcp`

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