MCP SERVER | NO CODE | CLOUD HOSTED

Mode Calculator MCP

Instantly map scales to musical modes.

The Mode Calculator instantly generates all seven musical modes—Ionian through Locrian—from any major or minor parent scale. Musicians and theorists use this MCP to explore a mode's specific notes, sonic character, and typical genre without guesswork, translating complex music theory into actionable data for composition.

A+ Quality Score 100/100

music-theory | scales | modes | composition | audio

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.

Mode Calculator MCP

3 tools available
Cloud-hosted on Vinkius

If you work with scales, you know the difference between just knowing the name of a mode and actually understanding what it sounds like. This specialized tool lets composers and theorists instantly generate the full set of seven modes from any given parent scale. You don't have to consult multiple textbooks or write out long note sequences by hand anymore. It figures out every mode, giving you its precise notes and telling you about its emotional character—whether it leans bright or dark, and what genre usually uses it. When using this MCP through Vinkius, your AI client handles the deep music theory so you can just focus on composition. You'll get everything from a quick list of note sequences to a detailed analysis of a mode's sonic texture. It closes the gap between abstract academic concepts and practical musical application.

Core Capabilities

01 — Generate all seven modes

It provides the complete set of seven distinct musical modes (Ionian through Locrian) for any major or minor parent scale.

02 — Analyze mode sonic character

It retrieves detailed information on a specific mode's emotional texture and typical associated music genres.

03 — Isolate note sequences

It extracts the individual, ordered notes that make up any single specified musical mode.

One Click on Vinkius — From Prompt to Execution

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

01 Provide a parent scale and specify which modes you need to explore.

02 The MCP processes the data and returns all seven potential modes for analysis or note extraction.

03 You receive structured output detailing the notes, genre association, and sonic texture of the chosen mode.

The bottom line is: it takes a simple parent scale name and outputs fully defined musical theory that you can immediately use in your work.

Built For

This MCP is for music theorists who hate manual notation, composers stuck on harmonic choices, or audio engineers needing precise note data. If you spend time researching scale structures and modes by hand, this tool saves hours of tedious work.

Music Theorist

Uses the MCP to rapidly compare the theoretical differences between all seven modes derived from a single key signature.

Composer/Songwriter

Feeds the tool with a parent scale and uses the output notes to build harmonic progressions that match a desired mood (e.g., bright or dark).

Audio Engineer

Needs accurate, isolated note sequences for specific modes—like Dorian or Lydian—to program instruments in a Digital Audio Workstation.

What Changes When You Connect

01 Stop guessing the mood of your music. The analyze_mode_texture tool tells you if a mode sounds bright or dark, helping you select chords that match the emotional tone you need.

02 Get all 7 modes at once. Using generate_mode_set means you never have to manually write out Ionian through Locrian; it gives you the full set for any key immediately.

03 Focus on composition, not notation. If you only need the raw notes for one specific mode, list_mode_notes extracts just that sequence, perfect for quick programming or sequencing tasks.

04 Save time researching music theory. You get reliable data—from note lists to genre suggestions—all in a single, predictable workflow via your AI client.

05 Deepen your harmonic knowledge. This MCP lets you bridge the gap between complex academic concepts and practical application using real-world musical examples.

Real-World Applications

The composer needs to avoid a common sound

A songwriter needs to make sure their song sounds epic, so they ask the agent about Lydian mode in C Major. The tool analyzes the texture and confirms it has a bright sonic character, letting them proceed with confidence.

The student is studying modal interchange

A music theory student needs to compare all seven modes derived from A minor. They use generate_mode_set to get the full list of notes for Dorian, Phrygian, etc., allowing them to study the differences without writing out dozens of chords.

The producer is building a sample pack

An audio engineer needs the note sequence for Mixolydian mode in G Major. They use list_mode_notes to get the precise notes (G A B C D E F) so they can program accurate, isolated samples into their workstation.

The user is unsure of a mood

A filmmaker asks what kind of music fits a 'dreamlike' scene. The agent uses analyze_mode_texture and suggests that the Lydian mode derived from A minor has a bright, cinematic texture, giving them an immediate starting point.

Patterns to Avoid

Listing modes individually

✗ AVOID

Writing out all 7 modes by hand and then having to cross-reference notes for each one. This is slow and prone to human error.

✓ INSTEAD

Use generate_mode_set. This tool gives you the complete set of seven musical modes in one go, saving you dozens of manual note entries.

Guessing mode texture

✗ AVOID

Simply knowing a scale name but having no idea if it sounds 'dark' or 'bright,' leading to harmonic choices that clash with the intended mood.

✓ INSTEAD

Run analyze_mode_texture. This tool immediately tells you the sonic character and typical genre, ensuring your emotional intent matches the theory.

Copy-pasting full sets of notes

✗ AVOID

Needing only three specific notes from a mode but having to copy an entire 7-note sequence into your sheet music.

✓ INSTEAD

Use list_mode_notes. This tool gives you the clean, isolated note sequence for just the one mode or set of notes you actually need.

The Right Fit

You should use this MCP if your goal is to systematically explore the harmonic possibilities within a single key structure. If you are a composer needing quick mood checks, analyze_mode_texture works best. If you're a theorist comparing all seven modes side-by-side, generate_mode_set is your go-to tool. However, don't use this if you only need to know what the notes of two unrelated scales sound like; in that case, look for a general scale comparator MCP. Also, if you are trying to solve a completely different problem—say, managing inventory or scheduling appointments—this tool is useless because it focuses exclusively on music theory.

The endless cycle of manual scale notation

Right now, figuring out the differences between Ionian and Aeolian isn't just about memorizing finger patterns; it involves writing out every single note for each mode in a separate document. You cross-reference them to check for subtle tonal shifts. Then, if you want to know what mood that particular combination evokes, you might have to open up another reference guide just for genre association and sonic texture.

With this MCP, the process changes completely. Instead of laborious note listing, your AI client handles all the heavy lifting. You provide the parent scale, and instantly, you get structured data detailing every mode's notes, its emotional character (bright or dark), and where it typically appears in music.

Generating a Mode Set with generate_mode_set

The old way meant opening one tab to list the notes, another tab to check the genre, and a third place to write out the full sequence. You're constantly switching context just to compare basic harmonic structures.

Now you use generate_mode_set. It aggregates all that information into one clear output stream. You get the complete theoretical picture—all seven modes—without ever leaving your current workflow.

Mode Calculator with 3 Tools

These tools allow you to generate full mode sets, isolate specific note sequences, or check the emotional character of any musical mode.

#	TOOL	DESCRIPTION
01	`list_mode_notes`	Provides the exact sequence of notes that constitute a specific mode you name.
02	`generate_mode_set`	Outputs the complete set of seven musical modes for any parent scale you provide.
03	`analyze_mode_texture`	Determines the sonic character and typical genre associated with a single specified mode name.

See It in Action

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

U Show me all the modes for C Major.

For C Major, the modes are: Ionian (C D E F G A B), Dorian (D E F G A B C), Phrygian (E F G A B C D), Lydian (F G A B C D E), Mixolydian (G A B C D E F), Aeolian (A B C D E F G), and Locrian (B C D E F G A).

U What is the texture of the Lydian mode in A Minor?

The Lydian mode derived from A Minor has a bright sonic texture and is typically used in cinematic or dreamlike compositions.

U List the notes for the Dorian mode in G Major.

The notes for the Dorian mode in G Major are: A, B, C, D, E, F#, G.

Frequently Asked Questions

01 **How do I use Mode Calculator to find notes for a single mode?**

Use list_mode_notes, and simply provide the name of the desired mode (like Dorian) and the parent scale. The MCP will return only the specific ordered sequence of notes you asked for.

02 **Does Mode Calculator tell me if a mode is dark or bright?**

Yes, analyze_mode_texture does this. You give it a mode name and parent scale, and it returns descriptive information about its sonic character, helping you match the mood of your piece.

03 **What if I want all seven modes for my song?**

You need generate_mode_set. This tool is designed to output the entire set of seven distinct modes from any given parent scale in one single operation.

04 **Can Mode Calculator handle minor scales?**

Absolutely. The MCP accepts both major and minor parent scales, ensuring you can explore modal theory regardless of your starting key signature.

05 **What is the difference between list_mode_notes and generate_mode_set?**

list_mode_notes only gives you one mode's notes. generate_mode_set, however, generates all seven modes simultaneously, giving you a comprehensive comparison.

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 `"mode-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

Mode 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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DOCUMENT INFORMATION

Generated	June 2026
MCP Server	Mode Calculator MCP
Server ID	`019f010e-e5c2-704d-b7de-45736f8ce05f`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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