MCP SERVER | NO CODE | CLOUD HOSTED

Time Signature Calculator MCP

Get the exact beat math for any song idea.

Time Signature Calculator figures out the core rhythm of any piece for you. Need to know if 7/8 feels compound or simple? Want the exact millisecond duration of a measure at 140 BPM? This MCP analyzes meter structure, identifies polyrhythmic relationships, and calculates precise rhythmic timings across all time signatures.

A+ Quality Score 100/100

music-theory | rhythm | tempo | bpm | polyrhythm

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vinkius.com/mcp/time-signature-calculator

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.

Time Signature Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Composing music requires more than just good ears; it demands mathematical precision. This connector gives you that metric engine right in your workflow. Instead of guessing the feel or timing, you get hard data on rhythm and meter structure. You can determine if a specific measure is simple, compound, or asymmetric. It also finds all possible polyrhythms relative to a given pulse point. Need to know exactly how long one full measure lasts at 120 BPM? The tool calculates that duration in milliseconds. When you use this MCP through Vinkius, your AI client acts as a specialized music theory consultant, giving you reliable data for sequencing or composing without opening three different software programs.

Core Capabilities

01 — Determine rhythmic feel

Analyzes the time signature to classify its underlying metric structure (Simple, Compound, etc.).

02 — Calculate precise measure timing

Returns the exact duration of any given measure in milliseconds based on your specified tempo.

03 — Identify rhythmic relationships

Finds potential polyrhythms and proportional equivalences between different time signatures.

One Click on Vinkius — From Prompt to Execution

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

01 Input the specific time signature, BPM (beats per minute), and measure type you need analyzed.

02 The MCP processes these inputs, running calculations for duration, meter feel, or rhythmic ratios.

03 You receive structured data detailing the total milliseconds or the list of possible polyrhythms.

The bottom line is: you input a musical concept, and it outputs quantifiable metrics that let you build your composition with perfect timing.

Built For

Anyone who works with rhythm or music theory needs this. Composers, audio engineers building drum patterns, and game developers designing rhythmic levels will find this essential. If your job requires converting musical concepts into exact timings, you're in the right place.

Audio Engineer

Needs to program complex drum loops or calculate precise timing for syncopated effects across different BPMs.

Composer/Music Theorist

Must verify the rhythmic feeling of an unusual time signature (like 13/8) or find mathematically sound polyrhythmic foundations.

Video Game Developer (Rhythm Genre)

Designs levels that require precise knowledge of measure duration and complex beat mapping for player interaction.

What Changes When You Connect

01 Stop guessing timing. Use get_measure_duration to instantly know exactly how many milliseconds one measure lasts at any tempo, making sequencing perfect every time.

02 Understand rhythm theory without textbooks. Running analyze_meter_structure tells you immediately if a signature feels simple or compound—no more second-guessing the meter feel of 7/8.

03 Build complex tracks with confidence. calculate_rhythmic_relationships finds all possible polyrhythms, letting you layer beats that sound mathematically perfect.

04 Speed up composition flow. Instead of opening three different apps for timing, rhythm analysis, and tempo calculation, your agent handles it all in one go.

05 Validate difficult concepts. Need to know if a 3/4 pattern can relate harmonically to a 2/3 feel? This MCP provides the mathematical answer.

Real-World Applications

Syncing an epic cinematic score

A composer needs to make sure their massive orchestral score hits specific beats in a challenging 11/8 time signature. They ask their agent to use get_measure_duration, which immediately returns the precise millisecond count needed for perfect synchronization across all instruments.

Designing a polyrhythmic drum pattern

A beatmaker wants to create a complex groove over a 4/4 measure but needs it to imply a 5/4 feel. They use calculate_rhythmic_relationships and get back ratios like 2:3, giving them the exact mathematical foundation for their unique rhythm.

Analyzing folk music transcriptions

A theorist is looking at an old piece written in a complex time signature. They run analyze_meter_structure and instantly learn that even though it's 9/8, its underlying feel is Compound, which helps them understand the composer's intent.

Setting up a tempo-locked game level

A developer needs to map out a rhythm game section. They use get_measure_duration with their target BPM and measure length, guaranteeing that the player’s input timing aligns perfectly with the game engine's clock.

Patterns to Avoid

Using general math calculators

✗ AVOID

Trying to determine if a time signature is compound or simple using basic integer division. You get numbers, but no musical context.

✓ INSTEAD

Use analyze_meter_structure. This tool doesn't just give you numbers; it interprets the rhythm and tells you if the meter feels Compound or Simple.

Relying on sheet music visuals

✗ AVOID

Looking at a measure of notes on a page and having to manually estimate the total duration based on quarter note values. It's slow and prone to human error.

✓ INSTEAD

Run get_measure_duration. Give it the BPM and time signature, and it spits out the precise millisecond value you need for digital timing.

Forgetting beat relationships

✗ AVOID

Writing a groove that feels good but doesn't mathematically connect to the main tempo of the song. The transition sounds jarring.

✓ INSTEAD

Check calculate_rhythmic_relationships first. It gives you all the possible polyrhythms and equivalences, so your transitions will always sound intentional.

The Right Fit

Use this MCP if your problem is rooted in *measurable time* or *mathematical rhythm*. Specifically, if you need to know: 1) The exact millisecond duration of a measure (use get_measure_duration); 2) The underlying rhythmic classification (use analyze_meter_structure); or 3) How two different rhythms relate proportionally (use calculate_rhythmic_relationships). Don't use this MCP if you are asking for subjective creative advice, like 'What key should I write in?' or 'Should the chorus be minor?' For those things, talk to a human composer. You need data, not opinion.

The headache of manual rhythm calculation

Today, if you're building complex music sequences or composing in unusual meters, you end up jumping between multiple tools. You might manually calculate a measure's duration using one program, then copy-paste that number into another to check the rhythmic feel, and finally open a third tab just to find potential polyrhythms. It’s tedious, it's slow, and it’s easy to lose track of decimal points or misremember which unit was in milliseconds.

With this MCP, all those steps collapse into one clean process. You feed the BPM and time signature once, and your agent handles every calculation—duration, feel, and related rhythms—giving you a comprehensive data set that's ready for use.

Understand rhythm with analyze_meter_structure

Before this MCP, determining the true 'feel' of a complex signature like 9/8 was guesswork. You’d look at the grouping and *hope* you were right about whether it felt Simple or Compound.

Now, simply ask your agent to run analyze_meter_structure. It instantly classifies the rhythm for you. That immediate, authoritative feedback lets you move straight into composition without wasting time second-guessing the meter.

Time Signature Calculator MCP with 3 Tools

Use these specialized tools to analyze rhythm, calculate precise timing metrics, and understand the mathematical structure of any time signature.

#	TOOL	DESCRIPTION
01	`analyze_meter_structure`	Determines the rhythmic feel and subdivision pattern of a given time signature.
02	`calculate_rhythmic_relationships`	Finds possible polyrhythms and proportional meter equivalences based on your inputs.
03	`get_measure_duration`	Calculates the total duration of a single measure in milliseconds, given a BPM and time signature.

See It in Action

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

U How long is one measure in 4/4 at 120 BPM?

One measure at 120 BPM in 4/4 lasts 2000 milliseconds.

U What is the rhythmic feeling of 6/8 time?

The 6/8 time signature has a Compound metric feeling.

U What polyrhythms can I play over 3/4?

Possible polyrhythms for 3/4 include ratios like 2:3 or 3:2 relative to the pulse.

Frequently Asked Questions

01 **How does Time Signature Calculator find polyrhythms?**

It uses calculate_rhythmic_relationships to mathematically compare different beat counts. If you ask for relationships over 3/4, it gives you common ratios like 2:3 or 3:2.

02 **Do I need to provide BPM when using get_measure_duration?**

Yes, the tool requires both a tempo (BPM) and the time signature. Without these two inputs, it cannot calculate the total duration in milliseconds.

03 **Does analyze_meter_structure only work for simple meters?**

No, it analyzes all types of signatures—Simple, Compound, and Add/Asymmetric—and tells you exactly how they feel rhythmically.

04 **What is the difference between get_measure_duration and analyze_meter_structure?**

get_measure_duration gives you a specific number (milliseconds). analyze_meter_structure gives you a qualitative classification (like Compound).

05 **Can I use Time Signature Calculator for gaming rhythm levels?**

Yes. You can use get_measure_duration to calculate the precise timing needed for your game's beat map, ensuring perfect synchronization across all platforms.

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 `"time-signature-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

Time Signature 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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