MCP SERVER | NO CODE | CLOUD HOSTED

# fal.ai 3D MCP

## Turn Photos and Text into Usable 3D Assets.

fal.ai 3D lets you generate professional, usable 3D assets from simple text prompts or single product images. Use a specialized suite of over twelve models—including Hyper3D Rodin for fine detail and TripoSR for speed—to convert 2D visuals into fully textured, ready-for-game, printable 3D geometry. Stop relying on manual modeling time; let your AI agent handle the heavy lifting.

A+ Quality Score 100/100

3d-generation | generative-ai | text-to-3d | image-to-3d | asset-creation | computer-vision

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vinkius.com/mcp/falai-3d

SCAN TO VIEW

# The infrastructure that powers AI agents in the real world.

Vinkius connects AI to the world's software through secure, enterprise-grade infrastructure — enabling real-world execution at scale, built on the Model Context Protocol (MCP).

# Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the cloud infrastructure where AI agents connect 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.

# fal.ai 3D MCP

12 tools available
Cloud-hosted on Vinkius

Need to turn a product photo or concept sketch into a usable 3D model? This MCP gives you access to a full lab of specialized models for generating complex assets from simple inputs. You send an image or describe an object, and the system picks the right AI method—whether you need quick previews or museum-quality detail. It's like having twelve different 3D modeling specialists available through natural conversation.

Connecting this MCP via Vinkius means your agent can access all these specialized reconstruction methods from one place. You don't have to switch tools; you just talk to your AI client and it handles the geometry. Whether you're building a game environment, prototyping an e-commerce listing, or preparing files for a 3D printer, this MCP gives you full control over the creation process.

## Core Capabilities

**01 — Create detailed models from photos**

Generates high-fidelity 3D geometry and textures from single reference images.

**02 — Build structured assets for animation**

Outputs clean, organized mesh topologies suitable for character rigging or game engine editing.

**03 — Generate models from text descriptions**

Creates a 3D object based purely on natural language prompts without needing an image input.

**04 — Optimize for speed and quick previews**

Generates usable 3D meshes rapidly, ideal for real-time e-commerce viewing or bulk processing.

**05 — Reconstruct complex objects accurately**

Handles challenging shapes and detailed surfaces that require advanced geometry recovery.

## One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/falai-3d** — connect your AI agent in three steps.

01 First, subscribe to this MCP and provide your fal.ai API key through the Vinkius dashboard.

02 Next, tell your AI agent what you need—for example, 'create a 3D model of a red sneaker from this picture.'

03 Finally, the MCP invokes the correct specialized tool, returning the finished 3D model file ready for download in common formats.

The bottom line is that your AI agent translates complex visual or textual ideas into tangible, downloadable 3D geometry files.

## Built For

This MCP is essential for E-commerce Merchandisers who can't afford endless photography shoots, Game Developers needing rapid asset pipelines, and Industrial Designers prototyping physical goods.

**E-commerce Merchandiser**

Creates 3D product visualizations from standard studio shots to improve online listing fidelity without hiring a dedicated modeling team.

**Game Asset Developer**

Rapidly generates and refines game environment assets, turning concept art or reference photos into structured, usable meshes for engines like Unity or Unreal.

**Product Designer/Prototyper**

Converts initial 2D sketches and images into printable files, accelerating the physical prototyping phase of a new product line.

## What Changes When You Connect

01 Go from concept to asset faster. Instead of sketching an idea and waiting weeks for a manual model, you can use generate_text_to_3d to instantly prototype the geometry using just words.

02 Improve e-commerce fidelity. Use Era3D or generate_rodin_3d to create multi-view consistent product visuals that look perfect from every angle, boosting buyer confidence.

03 Save time on complex parts. If your object has a tricky shape, don't worry about the geometry; use generate_crm_3d for accurate reconstruction of detailed assets.

04 Handle large batches quickly. When you need dozens of previews fast, generate_tripo_sr_3d provides speed-optimized meshes perfect for quick asset testing or bulk conversion.

05 Gain pipeline control. For professional development, tools like generate_trellis_3d and generate_tripo_sg_3d ensure the output has clean topology ready for rigging and editing.

## Real-World Applications

**Updating an old catalog listing**

A Merchandiser needs to update a product page with better visuals. They use their agent to send the existing photo and ask the MCP to generate 3D models using Era3D, providing accurate, multi-view angles for the online viewer.

**Designing a new game prop**

A Game Developer has a concept sketch of a futuristic weapon. They prompt their agent and use the generate_rodin_3d tool to convert that image into a high-fidelity, detailed 3D asset for immediate integration into the game environment.

**Prototyping furniture**

An Industrial Designer wants to see if a custom chair design is viable. They use generate_flex3d_3d on a photo of their sketch, getting an accurate 3D model they can then send to the local printer.

**Creating concept art for films**

A Concept Artist needs a dragon model but only has a detailed text description. They use generate_text_to_3d, creating an immediate 3D asset that acts as a visual anchor for the film's effects team.

# Patterns to Avoid

### Assuming all models are equal

✗ AVOID

Asking your agent to 'just make a 3D model from this image.' The result will be mediocre because it doesn't know if you need speed, detail, or structure.

✓ INSTEAD

Specify the output requirement. If speed matters for e-commerce, ask for generate_tripo_sr_3d. If fidelity is key for a game, request generate_rodin_3d.

### Overlooking topology needs

✗ AVOID

Generating a model and then realizing it's messy or unusable in Blender because the mesh geometry is disorganized.

✓ INSTEAD

If you plan to edit or animate the asset, use generate_trellis_3d or generate_tripo_sg_3d. These tools prioritize clean, structured output.

### Trying to model from nothing

✗ AVOID

Asking for a specific object without providing *any* reference (text or image). The AI will struggle and the result will be generic.

✓ INSTEAD

If you have no image, use generate_text_to_3d. If you only have an image, always provide it to maximize detail and accuracy.

# The Right Fit

Use this MCP if your core workflow involves converting 2D visual or descriptive data into functional 3D geometry files for production

use. For instance, if you're turning concept art (image) into a game asset (needs structure), generate_rodin_3d is better than general generation tools. If you need maximum speed for bulk previews, pick generate_tripo_sr_3d. Don't use this MCP if your goal is simply image editing or texture painting; it generates the base geometry. Also, remember that while some tools like generate_crm_3d handle complex shapes, they are still limited by the quality of the input image.

## The Problem with Manual 3D Asset Creation

Today, getting a physical product or concept into a usable 3D format involves massive bottlenecks. You send photos to an artist, they spend weeks iterating on the geometry, and you are constantly jumping between photo editing software, CAD programs, and mesh editors just to get the right file type. The whole process is slow, expensive, and requires constant hand-holding.

With this MCP, your AI agent handles that entire pipeline. Instead of waiting for a human artist's schedule, you simply prompt it with an image or text description. You immediately receive highly specialized 3D geometry files—ready to use in game engines or e-commerce viewers. It cuts weeks of work down to minutes.

## Generate Model Assets with fal.ai 3D

You no longer need to manually manage the different technical requirements: generating a simple preview mesh, or building a complex, editable character rig model. The system handles which specialized tool is best for your specific goal.

The difference now is that 3D asset creation isn't a siloed, high-cost specialty anymore. It’s an integrated step in your daily conversation with your AI agent.

# fal.ai 3D: Your 12 Specialized 3D Generation Tools

This collection gives you access to over a dozen specialized tools that perform different 3D generation tasks—from fast previews to highly structured, detailed assets.

| # | TOOL | DESCRIPTION |
|---|---|---|
| 01 | `generate_crm_3d` | Generates 3D models using Canvas Reconstruction Model (CRM), which excels at reconstructing complex objects with detailed geometry and textures from images. |
| 02 | `generate_era3d_3d` | Creates multi-view consistent 3D models perfect for product visualization, ensuring the object looks correct from every angle based on image inputs using Era3D. |
| 03 | `generate_flex3d_3d` | Generates flexible 3D models with advanced geometry from images, making it ideal for detailed asset creation and complex reconstruction tasks. |
| 04 | `generate_instantmesh_3d` | Produces 3D models using InstantMesh, which is optimized for fast mesh generation necessary for real-time interactive applications. |
| 05 | `generate_make3d_3d` | Generates production-ready 3D models using Make3D, ensuring the output is polished and suitable for professional game assets or printing. |
| 06 | `generate_rodin_3d` | Creates high-quality 3D models from images using Hyper3D Rodin, delivering fine surface details and geometry perfect for product visualization. |
| 07 | `generate_sf3d_3d` | Generates general-purpose 3D models using Stable Fast 3D, providing a reliable balance between generation speed and quality from an image input. |
| 08 | `generate_text_to_3d` | Creates 3D models directly from text descriptions, allowing users to prototype concepts without needing any initial visual reference. |
| 09 | `generate_trellis_3d` | Generates structured 3D models using Trellis, which provides clean mesh topology suitable for further editing and animation in development pipelines. |
| 10 | `generate_triposg_3d` | TripoSG is designed for applications needing well-organized 3D data that can be easily modified or animated. Accepts image URLs and returns structured 3D models. Essential for game development pipelines, character rigging preparation, and applications needing edit-friendly 3D output. AI agents should reference this when users ask "create a structured 3D model for editing", "generate an animation-ready 3D mesh", or need well-organized 3D geometry for downstream |

| # | TOOL | DESCRIPTION |
|---|---|---|
| | | processing. Generate 3D models using TripoSG for structured geometry output |
| 11 | generate_tripo_sr_3d | Generates 3D models using TripoSR, which is optimized specifically for speed, making it great for rapid prototyping and batch image conversion. |
| 12 | generate_unique3d_3d | Creates unique 3D models from images using Unique3D, allowing exploration of diverse geometric interpretations of a single reference photo. |

# See It in Action

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

**U** Generate a 3D model of a chair from this product image: https://example.com/chair.jpg

Generating 3D model using Hyper3D Rodin... Processing image: https://example.com/chair.jpg. Generation complete! Model generated in GLB format (4.2 MB) with PBR textures. Download URL: https://cdn.fal.ai/models/rodin/chair_3d_model.glb. The model includes detailed geometry with 50K triangles and 2K texture maps. Compatible with Unity, Unreal Engine, Blender, and web 3D viewers. Would you like me to generate in a different format like OBJ or USDZ?

**U** Create a 3D model of a fantasy dragon from text description.

Generating 3D model from text using Text-to-3D... Prompt: fantasy dragon with spread wings, detailed scales, fierce expression. Using guidance scale 7.5 with 50 steps. Generation complete! Model available in GLB format (8.7 MB). Download URL: https://cdn.fal.ai/models/text-to-3d/fantasy_dragon.glb. The dragon model features detailed wing geometry, scale textures, and dynamic pose. Ready for game engines and 3D printing. Would you like a higher quality version with more generation steps?

**U** Quickly convert this sneaker photo to 3D for our e-commerce store.

Using TripoSR for fast generation... Processing sneaker image. Generation complete in 3 seconds! Model in GLB format (2.1 MB). Download: https://cdn.fal.ai/models/triposr/sneaker_3d.glb. Quick preview quality is suitable for e-commerce 3D viewers with basic textures. For production quality, I can regenerate using Rodin (higher quality, ~30 seconds) or Make3D (production-ready, ~45 seconds). Which would you prefer?

# Frequently Asked Questions

01 **Can I make a model from just text using fal.ai 3D MCP?**

Yes, you can use generate_text_to_3d to create models directly from descriptions. This is ideal for early-stage prototyping when you don't have any visual reference yet.

02 **Which tool should I use for best detail on a product?**

For the highest level of surface detail and geometry recovery, generate_rodin_3d is highly recommended. It excels at turning single photos into detailed assets.

03 **Is fal.ai 3D MCP fast enough for e-commerce?**

Yes. If speed is your priority for batch uploads or rapid previews, use generate_tripo_sr_3d. It's optimized to get you a usable mesh quickly.

04 **I need an editable model; what tool should I choose?**

For models that require clean topology for animation or further modification, use generate_trellis_3d. This tool specifically outputs structured geometry suitable for professional pipelines.

05 **Does fal.ai 3D MCP support complex, irregular shapes?**

Yes, the generate_crm_3d model is designed for Canvas Reconstruction Model (CRM) tasks and performs well when reconstructing objects with complicated or detailed surfaces.

# 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 `"falai-3d": { "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

# fal.ai 3D 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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