

Claude Desktop MCP Cheat Sheet

8 Free MCP Servers for Homelab · Quick Reference Card

ai-engineering.at

Full Homelab AI Stack

github.com/AI-Engineerings-at/homelab-mcp-bundle

CLAUDE_DESKTOP_CONFIG.JSON

```
// ~/Library/Application Support/Claude/claude_desktop_config.json {
  "mcpServers": {
    "portainer": {
      "command": "python3",
      "args": [
        "/path/to/portainer-mcp/server.py",
        "env": {
          "PORTAINER_URL": "http://host:9000",
          "PORTAINER_TOKEN": "your-token"
        }
      },
      "proxmox": {
        "command": "python3",
        "args": [
          "/path/to/proxmox-mcp/server.py",
          "env": {
            "PVE_HOST": "pve.local",
            "PVE_USER": "root@pam",
            "PVE_PASSWORD": "yourpw"
          }
        },
        "grafana": {
          "command": "python3",
          "args": [
            "/path/to/grafana-mcp/server.py",
            "env": {
              "GRAFANA_URL": "http://host:3000",
              "GRAFANA_PASSWORD": "admin"
            }
          }, // + n8n, ollama, uptime-kuma, mattermost, adguard }
    }
  }
}
```

QUICK INSTALL

- 1 Clone the repo: `git clone github.com/AI-Engineerings-at/homelab-mcp-bundle`
- 2 Install dependency: `pip install "mcp[cli]>=1.0.0"`
- 3 Copy config template to: `~/Library/Application Support/Claude/claude_desktop_config.json`
- 4 Set env vars (replace placeholders in config)
- 5 Restart Claude Desktop — MCP shows in toolbar

Python 3.9+ required · Works on macOS, Linux, Windows (WSL)

8 MCP SERVERS — REFERENCE

SERVER	TOOLS	KEY ENV VARS	EXAMPLE QUERY
portainer-mcp	5 tools services, stacks, logs	PORTAINER_URL PORTAINER_TOKEN	"Show me all running Docker services"
proxmox-mcp	6 tools nodes, VMs, LXC's	PVE_HOST PVE_USER / PVE_PASSWORD	"What's the memory usage on pve3?"
n8n-mcp	5 tools workflows, runs, stats	N8N_URL N8N_API_KEY	"Which workflows failed in the last hour?"
ollama-mcp	4 tools models, generate, chat	OLLAMA_URL	"What models are loaded? How much VRAM?"
grafana-mcp	6 tools dashboards, PromQL, alerts	GRAFANA_URL GRAFANA_PASSWORD	"Any firing Grafana alerts right now?"
adguard-mcp	6 tools stats, querylog, block	ADGUARD_URL ADGUARD_PASSWORD	"Block ads.example.com in AdGuard"

uptime-kuma-mcp

3 tools
monitors, uptime %

KUMA_URL
KUMA_USERNAME / KUMA_PASSWORD

"Are all my services up? What's the uptime?"

mattermost-mcp

5 tools
send, read, search

MM_URL
MM_TOKEN

"Post alert to #ops channel"

NATURAL LANGUAGE EXAMPLES

- > Are all my services up? Show anything that's down
- > What's the CPU usage across my Proxmox nodes?
- > Show me Docker services with less than 1 replica
- > Run PromQL: node_memory_MemAvailable_bytes / 1e9
- > Which n8n workflows ran today and how many failed?
- > List all Ollama models and their sizes
- > How many DNS queries did AdGuard block today?
- > Show me the last 10 Uptime Kuma incidents
- > Send "Deploy done ✓" to my #deployments channel
- > Start VM 105 on Proxmox pve1
- > What's the disk usage on all my nodes?
- > Show me firing alerts from Grafana + Prometheus

TROUBLESHOOTING

MCP not showing in Claude

Check JSON syntax in config. Restart Claude Desktop. Look for errors in Developer Tools → Console.

Connection refused / timeout

Check service URL is reachable from your machine. Try curl http://host:port/api/health

Authentication failed

Verify API token/password in env vars. Test credentials manually with curl -u user:pass

ModuleNotFoundError: mcp

Run: pip install "mcp[cli]>=1.0.0" — use the same Python that runs the server

Server works but no tools visible

Ensure server.py uses @mcp.tool() decorators and runs mcp.run() at the end