



GRAPHQL CONF 2026

The State of GraphQL Agent Skills

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SPEAKER

Dale Seo

Apollo MCP Server · Apollo Skills

 apollographql.com

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 linkedin.com/in/daleseo



apollo:skills-demo > claude

Claude Code v2.1.91

Welcome back Jonny!



Sonnet 4.6 · Claude Enterprise · apollographql
~/skills-demo

Tips for getting started
Run /init to create a CLAUDE.md file with instructions for Claude

Recent activity
No recent activity

> set up an apollo mcp server to fetch data from https://countries.trevorblades.com/graphql
fo

ctrl+g to edit in Vim

What we'll cover

01

Foundations

Why agents struggle, and what a Skill is.

02

Misconceptions

Common concerns about Skills.

03

Ecosystem

How Skills are discovered, installed, and shared.

04

Skills for GraphQL

Where agents need the most guidance.

05

Maintenance & Scale

Keeping Skills useful as teams and tools change.

ONBOARDING CHECKLIST

- Overview
- Code Style
- Architecture
- Testing
- Tools
- Team Conventions

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

EVERY MONDAY 😊



NEW SESSION

What the agent doesn't know

01 Personal preferences

- `claude code`
- > Match the style of the rest of the codebase
- > Use Gitmoji for my commit message

What the agent doesn't know

01 Personal preferences

- `claude code`
- > Match the style of the rest of the codebase
- > Use Gitmoji for my commit message

02 Team conventions

- `claude code`
- > Use our custom `useQuery` wrapper
- > Wire this through our auth context, not directly

What the agent doesn't know

01 Personal preferences

- `claude code`
- > Match the style of the rest of the codebase
- > Use Gitmoji for my commit message

02 Team conventions

- `claude code`
- > Use our custom `useQuery` wrapper
- > Wire this through our auth context, not directly

03 Best practices

- `claude code`
- > Set up cursor-based pagination on this list field
- > Return errors as a union type instead of throwing

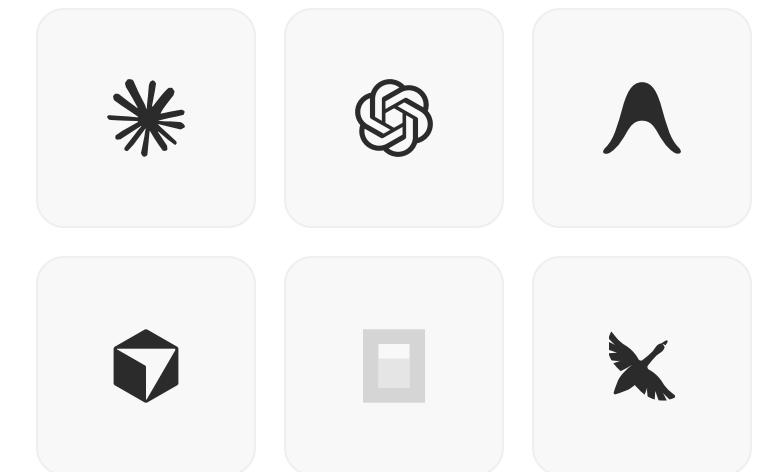
A skill is just a folder

```
my-skill/  
├── SKILL.md           # required – metadata + instructions  
├── references/       # optional – deep dives by topic  
│   ├── queries.md  
│   ├── mutations.md  
│   └── caching.md  
├── scripts/         # optional – executable code  
│   ├── run-codegen.sh  
│   └── check-config.sh  
└── assets/         # optional – templates, resources  
    └── provider.tsx
```

PUBLISHED BY



SUPPORTED BY



agentskills.io ↗

Inside **SKILL.md**

```
---
name: apollo-client
description: >
  Guide for building React applications with Apollo Client 4.x.
  Use this skill when:
  (1) setting up Apollo Client in a React project,
  (2) writing GraphQL queries or mutations with hooks,
  (3) configuring caching or cache policies,
  (4) managing local state with reactive variables,
  (5) troubleshooting Apollo Client errors or performance issues.
license: MIT
compatibility: React 18+, React 19. Works with Next.js, Vite, CRA.
---
```

Apollo Client 4.x Guide

Apollo Client is a comprehensive state management library for JavaScript that enables you to manage both local and remote data with GraphQL.

NAME

How you trigger it manually

DESCRIPTION

What the agent reads to decide whether to use the Skill

BODY

Plain-English instructions

MISCONCEPTIONS

I hear some **concerns**
about Skills.

MISCONCEPTION 1

"Skills bloat the context."

MISCONCEPTION 1

Skills load progressively

UP FRONT

```
/apollo-ios      Guide for building Apple-platform app...
/apollo-client   Guide for building React applications...
/apollo-server   Guide for building GraphQL servers wi...
/apollo-kotlin   Guide for building applications with ...
/rover           Guide for using Apollo Rover CLI to m...
/apollo-mcp-server Guide for using Apollo MCP Server to ...
/apollo-connectors Guide for integrating REST APIs into ...
/apollo-federation Guide for authoring Apollo Federation...
/skill-creator   Create new skills following the agent...
/rust-best-practices Guide for writing idiomatic Rust code...
```

ON DEMAND

```
---
name: apollo-server
description: >
  Guide for building GraphQL servers with
  Apollo Server 5.x. Use this skill when:
  (1) setting up a new Apollo Server project,
  (2) writing resolvers or defining schemas...
license: MIT
---

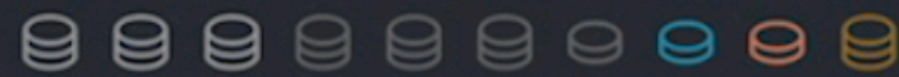
# Apollo Server 5.x Guide

Apollo Server is an open-source GraphQL server
that works with any GraphQL schema...
```

```
references/ # deep dives by topic
scripts/    # helpers the agent can run
assets/     # templates, examples, data
```



Context Usage



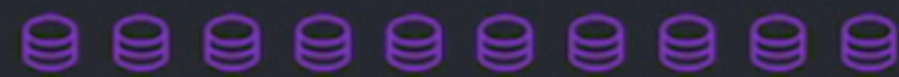
Sonnet 4.6

claude-sonnet-4-6

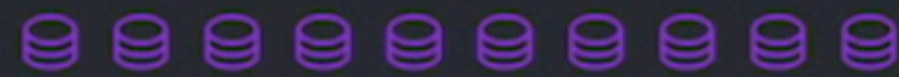
110.2k/200k tokens (55%)



Estimated usage by category



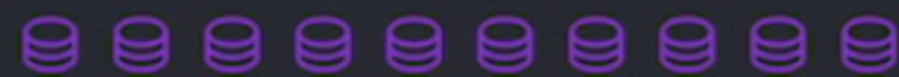
System prompt: 6.6k tokens (3.3%)



System tools: 7.2k tokens (3.6%)



MCP tools: 1.2k tokens (0.6%)



Memory files: 813 tokens (0.4%)



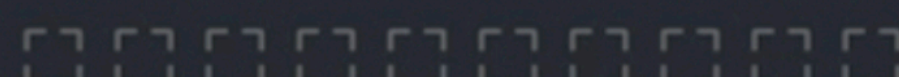
Skills: 1.7k tokens (0.9%)



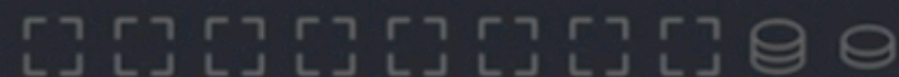
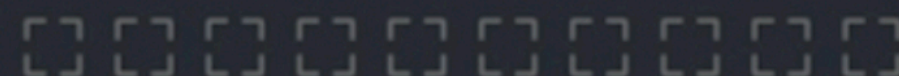
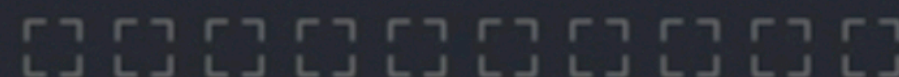
Messages: 93.5k tokens (46.7%)



Compact buffer: 3k tokens (1.5%)



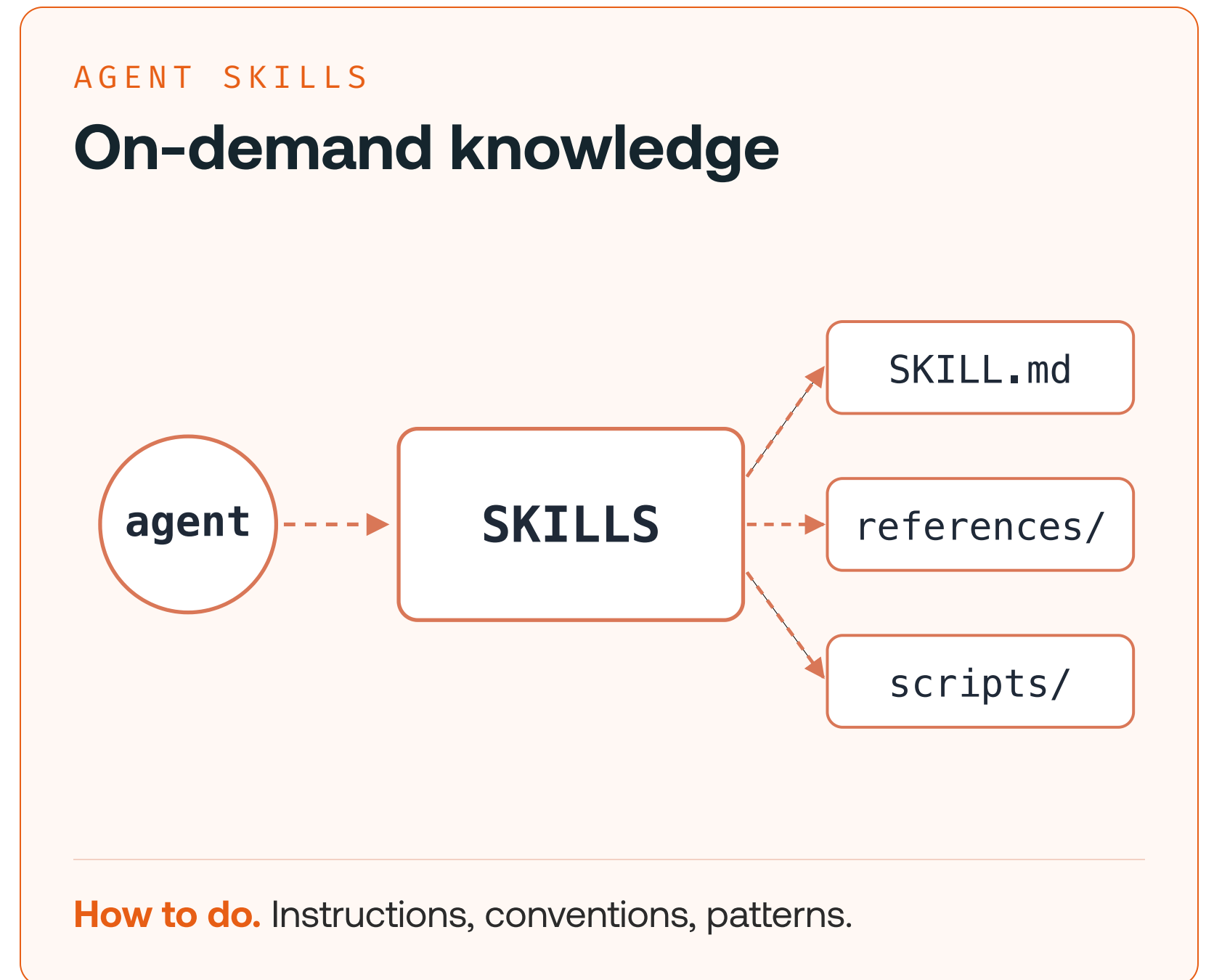
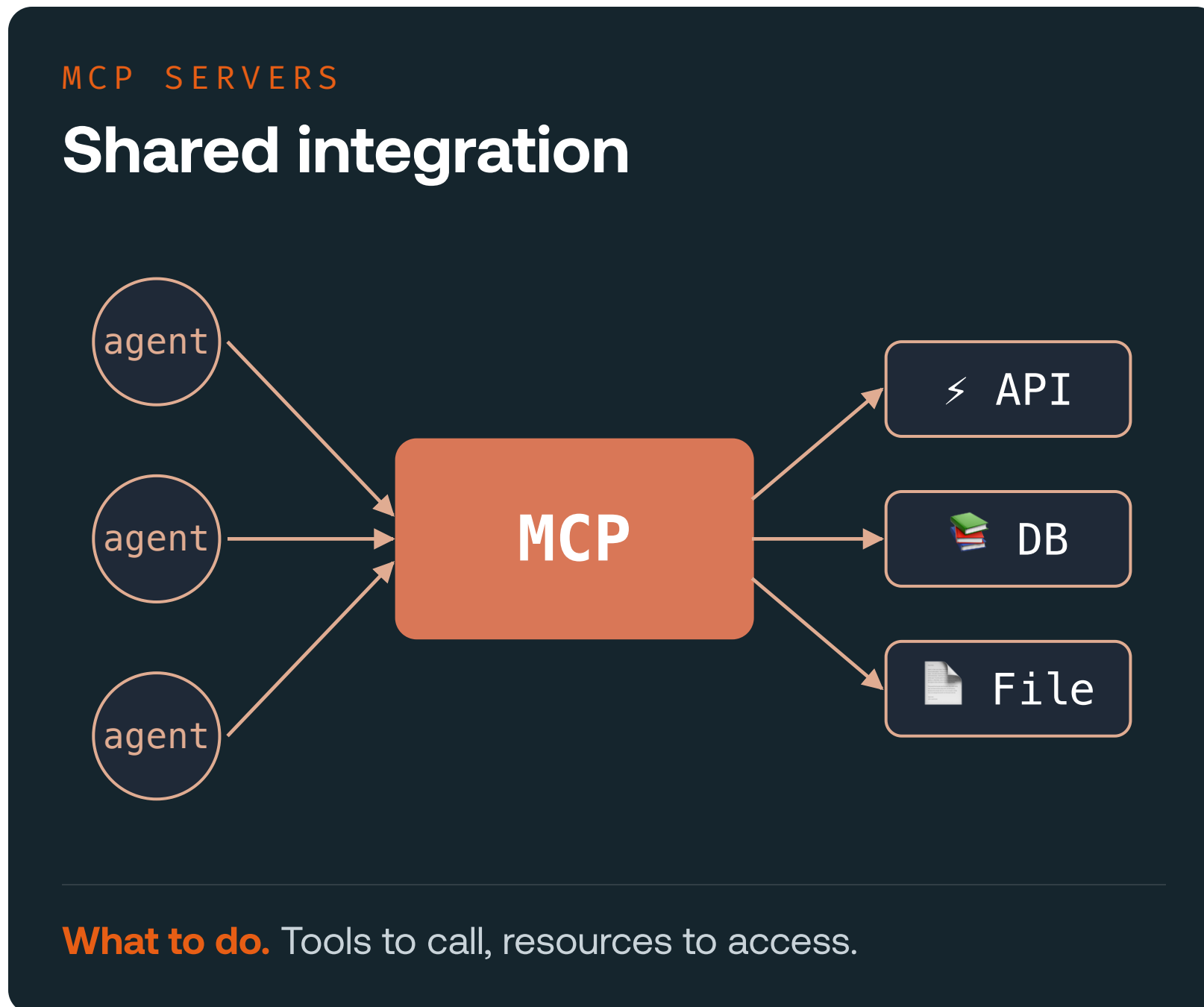
Free space: 86.1k (43.0%)



MISCONCEPTION 2

"Skills replace MCP."

Different problems, different layers



TAKEAWAY

Complementary, not competing

> Create a skill that guides how we use Apollo Connectors.

SKILL skill-creator

Loaded SKILL.md

Complementary, not competing

> Create a skill that guides how we use Apollo Connectors.

```
SKILL skill-creator
```

```
Loaded SKILL.md
```

```
MCP ApolloDocsSearch("Apollo Connectors")
```

```
4 pages matched for "Apollo Connectors"
```

```
MCP ApolloDocsRead("connectors/examples")
```

```
pulled content into references/examples.md
```

```
✓ skill apollo-connectors ready · 1 reference file · 1.6K tokens metadata
```

MISCONCEPTION 3

"Agents are getting so good,
we won't need Skills soon."



with Apollo Skills

TIME ELAPSED

00:00

TOKEN USAGE

0

```
~/demo/mcp2
~/demo/mcp2 on dale.seo@gmail.com
)
```



without Apollo Skills

TIME ELAPSED

00:00

TOKEN USAGE

0

```
~/demo/mcp1
~/demo/mcp1 on dale.seo@gmail.com
) cluade
zsh: command not found: cluade

~/demo/mcp1 on dale.seo@gmail.com
)|
```



TAKEAWAY

**Bigger models give
the agent
more horsepower.
Skills give it direction.**

More tokens don't fix a missing map.

ECOSYSTEM

Where do **Skills** live?

DISCOVER

skills.sh by Vercel

▲ / Skills

[Topics](#) [Official](#) [Audits](#) [Docs](#)



THE OPEN AGENT SKILLS ECOSYSTEM

Skills are reusable capabilities for AI agents. Install them with a single command to enhance your agents with access to procedural knowledge.

TRY IT NOW

```
$ npx skills add <owner/repo>
```



AVAILABLE FOR THESE AGENTS



SKILLS LEADERBOARD

Q



All Time (91,034) [Trending \(24h\)](#) [Hot](#)

INSTALL

Two commands.

```
$ npx skills add <name>
```

```
Skills dialog dismissed
> /apollo-client
• Apollo Client 4.x Guide
I've loaded the Apollo Client skill. This guide covers Apollo Client 4.x for managing GraphQL data in React applications.

What would you like to do?

Common tasks:
- Set up Apollo Client in a new project
- Write queries or mutations
- Configure caching and type policies
- Implement Suspense-based data fetching
- Set up TypeScript code generation
- Debug caching or performance issues

Integration guides available:
- Client-side apps (Vite, CRA)
- Next.js App Router
- React Router 7 framework mode
- TanStack Start

Reference documentation:
- Queries, mutations, fragments
- Suspense hooks
- Caching strategies
- State management
- Error handling
- Troubleshooting

Let me know what you're working on and I can provide specific guidance or code examples.
> |
```

```
$ gh skills install <name>
```

```
gh skill preview apollographql/skills apollo-ios@546248d512863a8ec189acc60e9f4c486dba2676

skills on } main [?] via ● took 16s
) head -20 .claude/skills/apollo-mcp-server/SKILL.md
---
allowed-tools: Bash(rover:*) Bash(npx:*) Read Write Edit Glob Grep
compatibility: Works with Claude Code, Claude Desktop, Cursor.
description: |
  Guide for using Apollo MCP Server to connect AI agents with GraphQL APIs. Use this skill when: (1) setting up or configuring Apollo MCP Server, (2) defining MCP tools from GraphQL operations, (3) using introspection tools (introspect, search, validate, execute), (4) troubleshooting MCP server connectivity or tool execution issues.
license: MIT
metadata:
  author: apollographql
  github-path: skills/apollo-mcp-server
  github-ref: refs/tags/v1.2.1
  github-repo: https://github.com/apollographql/skills
  github-tree-sha: 55e98cc412194c17b85b5a9a38898cd8215ff91b
  version: 1.1.1
name: apollo-mcp-server
---
# Apollo MCP Server Guide

Apollo MCP Server exposes GraphQL operations as MCP tools, enabling AI agents to interact with GraphQL APIs through the Model Context Protocol.

## Quick Start
```

SHARE

Push to GitHub

The screenshot shows the GitHub interface for the repository 'apollographql / skills'. At the top, there is a navigation bar with a search bar containing 'Type / to search' and various utility icons. Below this is a secondary navigation bar with links for Code, Issues (1), Pull requests (1), Agents, Actions, Projects, Wiki, Security and quality, Insights, and Settings. The repository name 'skills' is displayed as 'Public'. On the right side of the repository header, there are buttons for 'Edit Pins', 'Unwatch 3', 'Fork 4', and 'Starred 59'. The main content area features a file browser on the left with a search bar containing 'skill.md'. The search results list several files, with 'skills/rover/SKILL.md' highlighted. To the right of the file browser is a commit history table showing recent changes. On the far right, the 'About' section provides information about the repository, including its description 'Apollo GraphQL Agent Skills', a link to 'skills.sh/apollographql/skills', and tags 'graphql', 'apollo', and 'agent-skills'. It also lists various documents like 'Readme', 'MIT license', and 'Code of conduct', along with statistics: 59 stars, 3 watching, and 4 forks.

apollographql / skills

Type / to search

Code Issues 1 Pull requests 1 Agents Actions Projects Wiki Security and quality Insights Settings

skills Public

Edit Pins Unwatch 3 Fork 4 Starred 59

main 39 Branches 4 Tags

skill.md

skills/rover/SKILL.md

skills/apollo-ios/SKILL.md

skills/apollo-client/SKILL.md

skills/apollo-kotlin/SKILL.md

skills/apollo-router/SKILL.md

skills/apollo-server/SKILL.md

skills/skill-creator/SKILL.md

skills/graphql-schema/SKILL.md

skills/apollo-connectors/SKILL.md

skills/apollo-federation/SKILL.md

skills/apollo-mcp-server/SKILL.md

64d4087 · 2 days ago 199 Commits

complexity library	2 days ago
skill content cha...	2 days ago
hql-schema to 1...	2 days ago
	4 months ago
tion	3 weeks ago
ols MCP config	2 months ago
lient skill	2 weeks ago
ypeScript code e	3 months ago

About

Apollo GraphQL Agent Skills

skills.sh/apollographql/skills

graphql apollo agent-skills

Readme

MIT license

Code of conduct

Security policy

Activity

Custom properties

59 stars

3 watching

4 forks

25

SKILLS FOR GRAPHQL

Why does GraphQL need Skills?

CASE STUDY

Apollo Skills

14

skills

25K

installs

- GraphQL Best Practices
- Apollo Expertise
- Library Usage



Official

Official skills from the companies and organizations that build the technology — the makers teaching you how to use their products.

CREATOR		REPOS	SKILLS
anthropics	skills	14	364
apify	agent-skills	4	26
apollographql	skills	2	15

astronomer	agents
auth0	agent-skills
automattic	agent-skills
axiomhq	skills
base	skills
better-auth	skills
bitwarden	ai-plugins
box	box-for-ai
brave	brave-search-skills
browser-use	browser-use
browserbase	skills
callstackincubator	agent-skills
clerk	skills
clickhouse	agent-skills
cloudflare	skills
coderabbitai	skills
coinbase	agentic-wallet-skills
contentstack	contentstack-agent

skills / apollographql / skills

apollographql/skills

14 skills 22.8K total installs GitHub

```
$ npx skills add apollographql/skills
```

rust-best-practices	9.5K
apollo-client	2.5K
graphql-schema	1.7K
graphql-operations	1.5K
apollo-mcp-server	1.4K
apollo-server	1.2K
apollo-connectors	911
rover	870
skill-creator	800
apollo-federation	658
apollo-router	639
apollo-kotlin	605
apollo-router-plugin-creator	514

Better defaults

PROMPT

> Design a GraphQL type for a User with an id, name, email, and a list of posts.

OUT OF THE BOX

```
# nullable by default  
type User {  
  id: ID  
  name: String  
  email: String  
  posts: [Post]  
}
```

ISSUE

Nullable everywhere.

Every consumer has to null-check everything.

Better defaults

PROMPT

> Design a GraphQL type for a User with an id, name, email, and a list of posts.

OUT OF THE BOX

```
# nullable by default
type User {
  id: ID
  name: String
  email: String
  posts: [Post]
}
```

graphql-schema SKILL LOADED

```
# intentional nullability
type User {
  id: ID!
  name: String!
  email: String # nullable on purpose
  posts: [Post!]! # list pattern
}
```

Production-safe queries

PROMPT

> Write a query to fetch a user by id, returning their name and email.

OUT OF THE BOX

```
# anonymous
{
  user(id: "123") {
    name
    email
  }
}
```

ISSUES

- 01 No operation name.
- 02 The id is hardcoded.
- 03 The response doesn't include **id**.

Production-safe queries

PROMPT

> Write a query to fetch a user by id, returning their name and email.

OUT OF THE BOX

```
# anonymous
{
  user(id: "123") {
    name
    email
  }
}
```

graphql-operations SKILL LOADED

```
# operation name
query GetUser($id: ID!) {
  user(id: $id) { # variable, not hardcoded
    id             # for client-side caching
    name
    email
  }
}
```

Graphs that actually compose

PROMPT

> *Add reviews to User in my subgraph. The users subgraph already owns it.*

OUT OF THE BOX

```
# new, disconnected User  
type User {  
  id: ID!  
  reviews: [Review!]!  
}
```

ISSUE

The supergraph won't even compose.

Two subgraphs disagree on what User is.

Graphs that actually compose

PROMPT

> Add reviews to User in my subgraph. The users subgraph already owns it.

OUT OF THE BOX

```
# new, disconnected User
type User {
  id: ID!
  reviews: [Review!]!
}
```

apollo-federation SKILL LOADED

```
extend schema
  @link(url: "https://specs.apollo.dev/federation/v2.14",
        import: ["@key"]) # opts into Federation 2

type User @key(fields: "id") { # ties to the same entity
  id: ID!
  reviews: [Review!]! # contributes, doesn't redefine
}
```

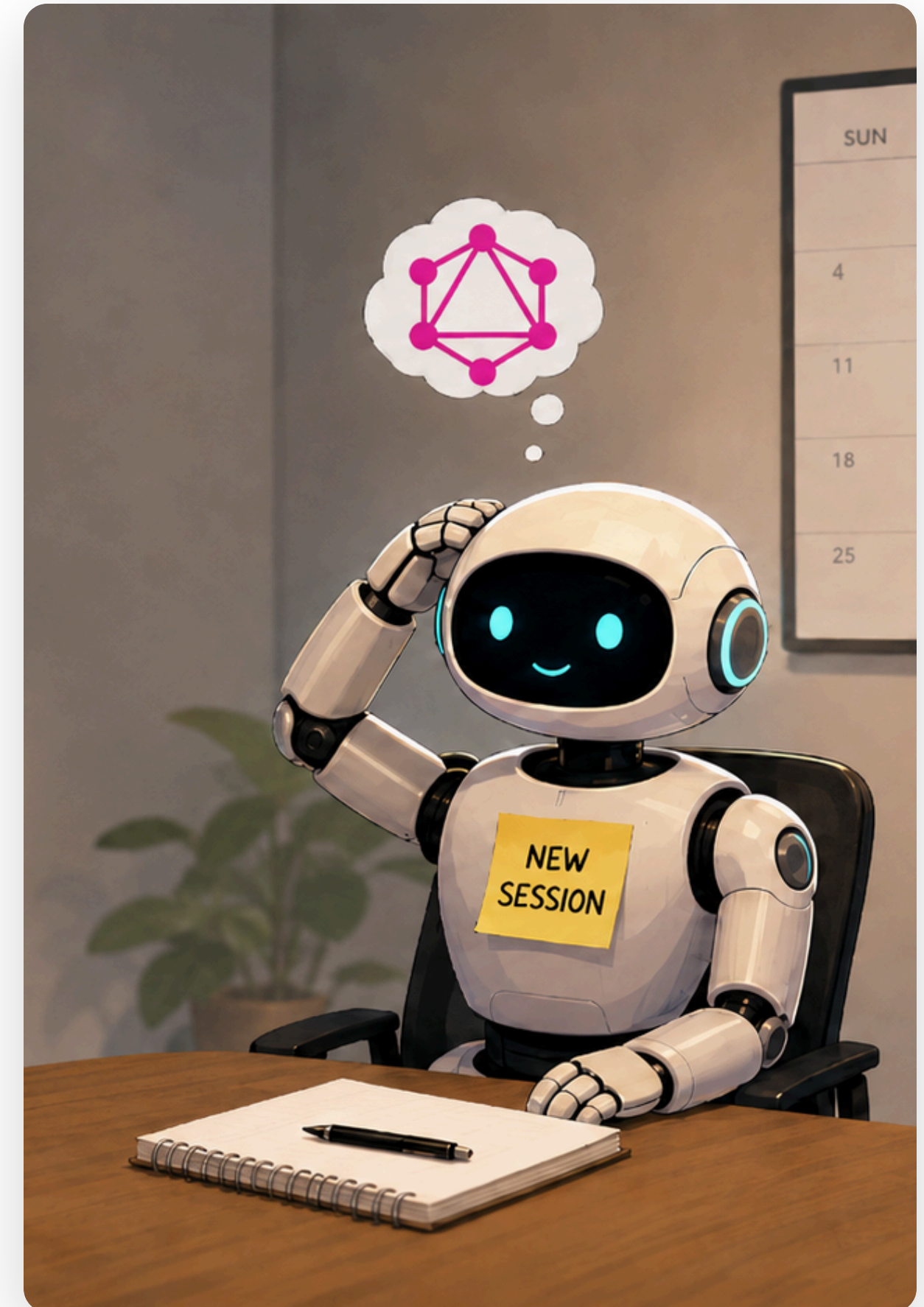
LESSONS

Where agents need guidance

01 Design decisions

02 Beyond valid syntax

03 Architectural context

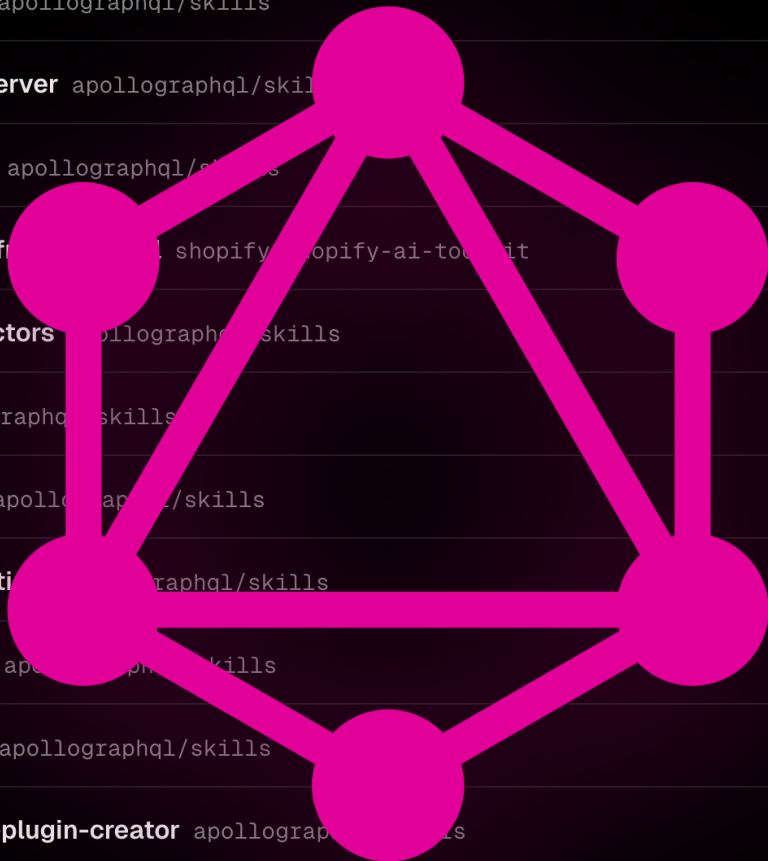


The GraphQL community writes what comes next.

▲ / Skills Topic

Q GraphQL

#	SKILL
1	rust-best-practices apollographql/skills
2	graphql-schema apollographql/skills
3	graphql-operations apollographql/skills
4	apollo-client apollographql/skills
5	apollo-mcp-server apollographql/skills
6	apollo-server apollographql/skills
7	shopify-storefront shopify/shopify-ai-toolkit
8	apollo-connectors apollographql/skills
9	rover apollographql/skills
10	skill-creator apollographql/skills
11	apollo-federation apollographql/skills
12	apollo-router apollographql/skills
13	apollo-kotlin apollographql/skills
14	apollo-router-plugin-creator apollographql/skills
15	graphql-architect jeffallan/claude-skills
16	apollo-ios apollographql/skills
17	graphql sickn33/antigravity-awesome-skills
18	graphql-and-hidden-parameters yaklang/hack-skills
19	golang-graphql samber/cc-skills-golang
20	graphql-implementation aj-geddes/useful-ai-prompts
21	graphql-development mindrally/skills
22	graphql-architect sickn33/antigravity-awesome-skills



MAINTENANCE & SCALE

**Skills deserve
maintenance.**

AI-powered Sync

PRODUCT REPOS

apollo-server

○ v5.5

apollo-client

● v3.14 → v4.0

router

● v2.13 → v2.14

rover

○ v0.38.1

apollo-mcp-server

● v1.12 → v1.13

SKILLS REPO

```
name: Sync skill from product release

on:
  repository_dispatch:
    types: [product-release]

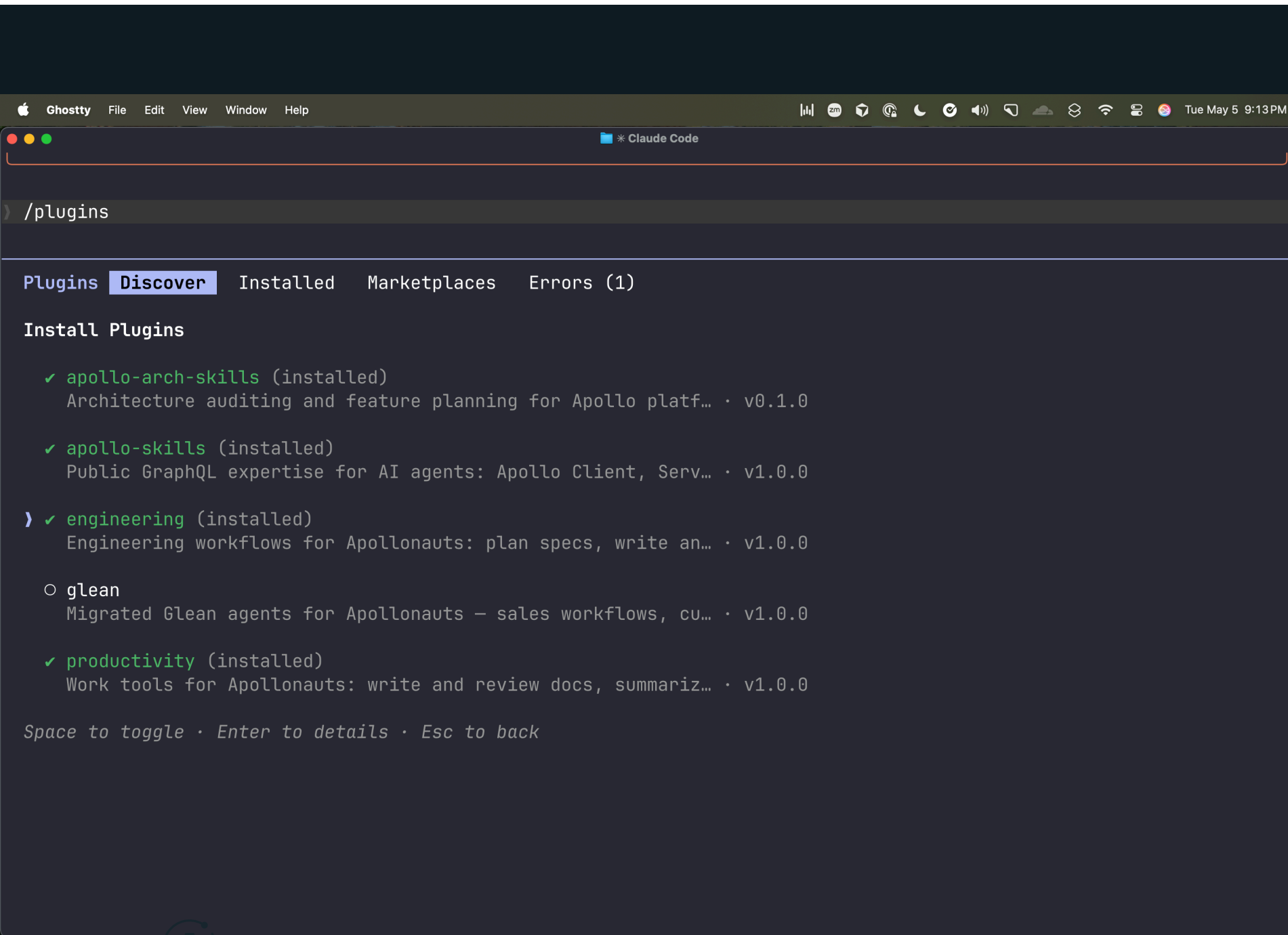
jobs:
  triage:
    runs-on: ubuntu-latest
    steps:
      - uses: anthropics/claude-code-action@v1
        with:
          prompt: "Read release notes for ${{ github.event.client_payload.repo }}.
                  Decide if the matching SKILL.md needs updating."

  rewrite:
    needs: triage
    if: needs.triage.outputs.update_required == 'true'
    steps:
      - uses: anthropics/claude-code-action@v1
        with:
          prompt: "Update SKILL.md to reflect changes. Open a PR."
```

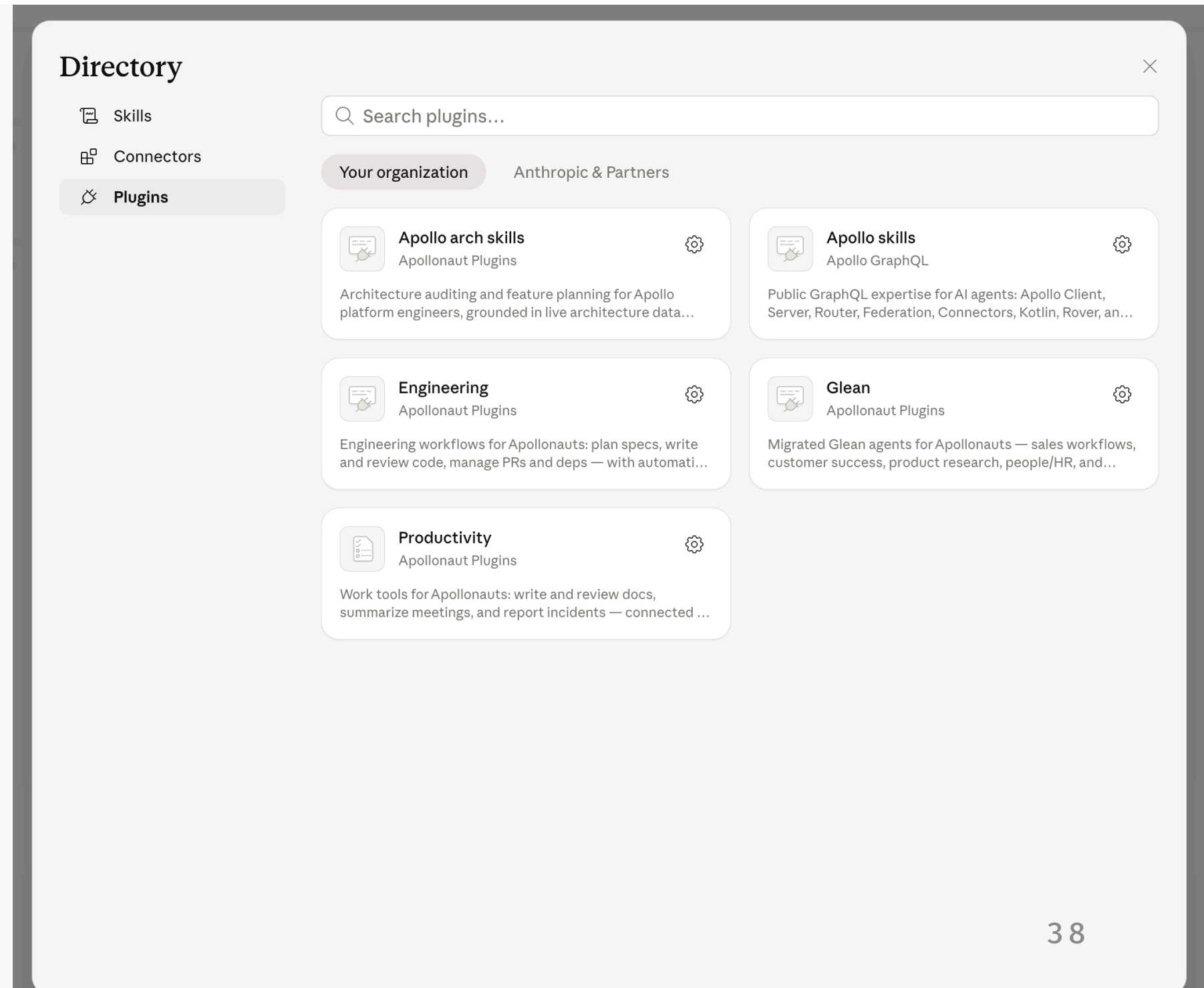
INTERNAL SKILLS

Plugin Marketplace

Claude Code



Claude Desktop



THANK YOU

Use Skills.

Less prompting. More shipping.

agentskills.io · skills.sh · `gh skills` · `npx skills`




Q & A

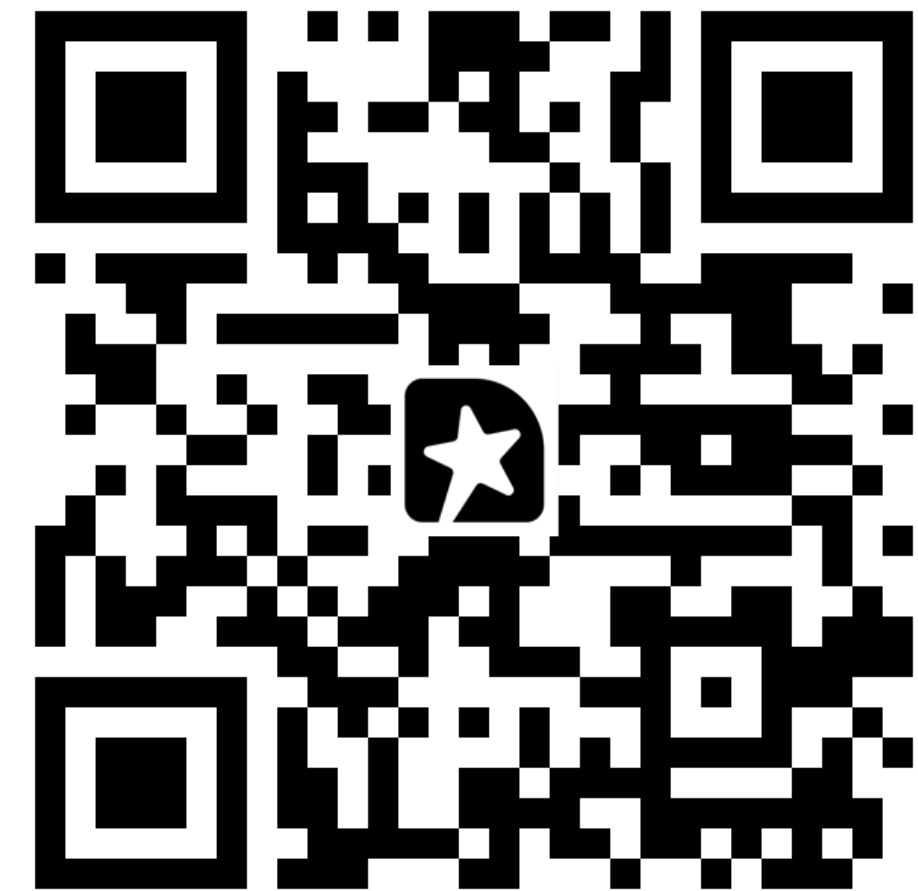
Questions?

Dale Seo · Apollo GraphQL

 github.com/DaleSeo

 [linkedin.com/in/daleseo](https://www.linkedin.com/in/daleseo)

 x.com/DaleSeo



The State of GraphQL Agent Skills

Scan to give feedback