JACS:
JSON Agent Communication Standard

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About me

Small startup backend generalist.

Cofounded EdTech company, worked mental health care
Reading papers on neural nets in 2001 while backpacking in Asia, before I went to college for CS. Lots of hacking Semantic Web, NLP, and deep learning trying create structured data from the web before LLMs/Transformers.

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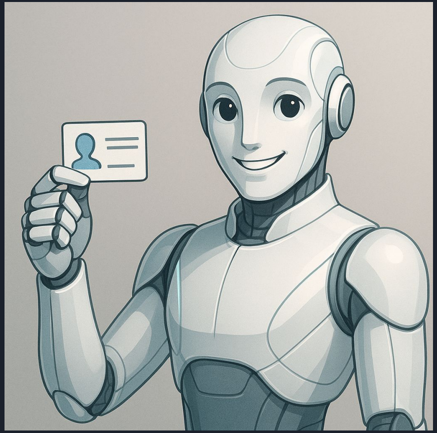
Your Agent needs an ID ™



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Use cases

1. A file is sitting on a server. Where did it come from? Who has access to it? (e.g. email, shared docs)

2. An MCP server gets a request from an unknown agent, the oauth flow doesn't guarantee the identity of the client after the initial handshake.

3. A document is modified by multiple human and AI collaborators. Which one is latest, correct version? Did the collaborators agree?

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Features

1. **Embeddable library** in multiple programming languages to sign JSON or any binary files by attaching a JACS header
2. **JSON Schemas** for common agent use cases
3. **Authentication middleware** for http, mcp
4. **Observability middleware** for https, mcp

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JACS Origin Story

Had an email project using AI for my startup two years ago and found shortcomings validating content across systems. DNS/SPF, PGP, left gaps.

Also, I thought about agents.txt, and how web content and http requests also have very little ability to identify and manage clients and I'd need to also find a new solution here as well. ARC is email only. DKIM is domain only.

With chat taking over, email seemed less important overall. I needed something new.

JACs makes identity, authz, provenance easier.

- OAuth 2/OpenID
- JWT
- PGP
- DKIM, SPF
- DPKI and blockchain
- W3C DID
- SAML
- mTLS, TLS, x509
- Kerberos
- FIDO2/WebAuthn/Passkeys
- ARC
- DPoP
- Checksums (RFC 6249., RFC 2068, RFC 3230, new HTTP Digest-Headers)

JACS for Auth

Making it easy to set up trusted identity

- Works in both the MCP server and MCP client
- Every request is verified in source identity and content
- Business logic can be built around decentralized identity

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Easy MCP and Web Auth

1.	Rust CLI	`$ cargo install jacs`
2.	CLI	`$ jacs init`
3.	Python	`$ pip install jacs`
4.	Node	`$ npm install jacs`

Python MCP Server
```
mcp = JACSMCPServer(FastMCP("Authenticated Echo Server"))
```

Python MCP Client
```
client = JACSMCPClient(server_url)
```

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Tech and Features

- Rust lib used in Python and Typescript
- JSON Schema https://json-schema.org/
- hashing and signing libraries: supports RSA, Ring ED25519 and (experimental) post quantum via dilithium
- Observability with Open Telemetry
- RBAC
- Data Lake integrations

Roadmap

1. PKI solution
2. Integration with A2A, physical devices
3. RBAC middleware for http
4. RBAC for Data Lakes, Filesystems, and Databases
5. full data lake solution

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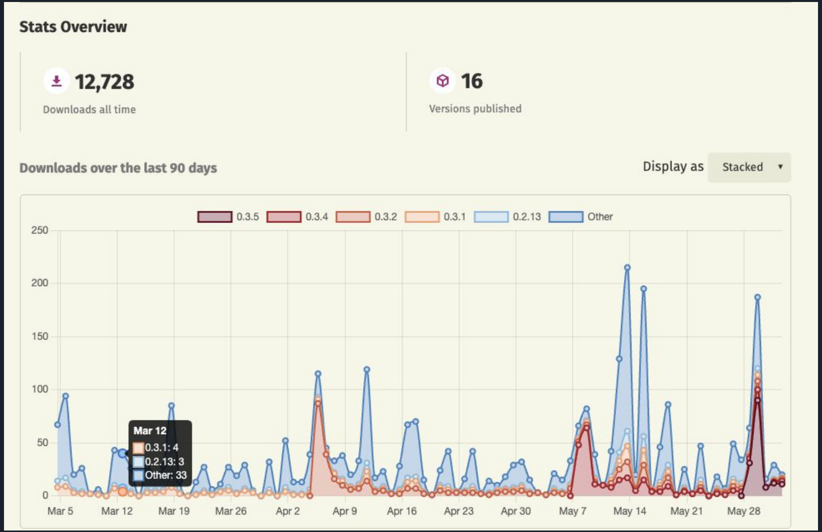
What JACS needs today

1. Users - integrations, use cases
2. Contributors - extensions, modularity
3. Strategic Partners - paths to adoption

Open Source

https://github.com/HumanAssisted/JACS

https://crates.io/crates/jacs



Stats Overview

12,728
Downloads all time

16
Versions published

Downloads over the last 90 days

Display as: Stacked

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Verify this document

View the JACS header file: https://raw.githubusercontent.com/HumanAssisted/JACS/refs/heads/main/jacs/docs/presentation/jacs/aialliance.presentation.jacs.json

Download document: https://raw.githubusercontent.com/HumanAssisted/JACS/refs/heads/main/jacs/docs/presentation/aialliance.presentation.pdf

Download public key: https://raw.githubusercontent.com/HumanAssisted/JACS/refs/heads/main/jacs/docs/presentation/jacs_keys/aialliance.presentation.key.pub

JACS header was created with:

```
$ JACS_PRIVATE_KEY_PASSWORD=hello jacs document create -v --attach aialliance.presentation.pdf -e false -o
aialliance.presentation.jacs.json -a
jacs/agent/08a79c8b-464c-41fb-b071-937e6543871d\:ba3cf18d-60f1-4fc7-bf0a-d1ec517ccbbe.json
```

From the jacs cli, verify with:

```
$JACS_PRIVATE_KEY_PASSWORD=hello jacs document verify -v -f jacs/aialliance.presentation.jacs.json -a
jacs/agent/08a79c8b-464c-41fb-b071-937e6543871d:ba3cf18d-60f1-4fc7-bf0a-d1ec517ccbbe.json
```

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License

Apache 2.0 - with Common Clause. *(Considering pure Apache 2.0)*

https://commonsclause.com/

Easy MCP and Web Auth

1. Rust CLI `$ cargo install jacs`
2. CLI `$ jacs init`
3. Python `$ pip install jacs`
4. Node `$ npm install jacs`

Python MCP Server

```
jacs_config_path = current_dir / "jacs.server.config.json"
os.environ["JACS_PRIVATE_KEY_PASSWORD"] = "hello"
jacs.load(str(jacs_config_path))
mcp = JACSMCPServer(FastMCP("Authenticated Echo Server"))
```

Python MCP Client

```
client = JACSMCPClient(server_url)
```

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