



Hyperledger Cactus Home

Project	 HYPERLEDGER CACTUS
Status	INCUBATION
CII Badge	
Description	Hyperledger Cactus is a plugin based framework which aims to provide developers with an abstraction over protocol specific implementations, and enabling interoperability. This enables solutions to more easily adapt to new protocols, and make transactions involving multiple public and/or permissioned ledgers.

Key Characteristics

What is Hyperledger Cactus?

Cactus is a **pluggable enterprise-grade framework to transact on multiple distributed ledgers** without introducing yet another competing blockchain. An SDK of SDKs

Cactus aims to provide Decentralized, Adaptable and Secure Integration to and between Blockchain Networks. It's aims to cover as many protocols as possible through an **extensible plugin architecture** where new protocols or functionality can be added by creating new plugins.

Why should I use Cactus?

- To **address blockchain fragmentation**; Allow developers to connect and perform transactions across different blockchain networks.
- **Save** (distributed) app developers **from re-inventing the wheel**; Simplify secure interactions with blockchain nodes using a standardized interface across protocols.
- **Lower risk of adopting blockchain** by businesses; Abstract your app layer from the blockchain protocol, allowing developers to easily change the blockchain protocol being used and reducing risks of your app being obsolete.

What are Cactus Design principles?

- **Key principles:**
 - Plugin architecture: Maximize **flexibility** and **future-proofing** through plug-in architecture
 - Secure by Default: Avoid needing explicit action from users to have a **secure Cactus deployment**.
 - Toll Free: **Users** should not be required to use tokens for transactions & **Operators** should not be required to take a cut of individual transactions
 - Low Impact Deployment: Do not interfere with or impede **existing** network requirements
- **Additional principles:**
 - Wide Support: Support as many blockchain protocols as possible, and constantly support new ones.
 - Prevent Double Spending: Whenever two networks are interacting with each other ensure that there is no double spend whenever possible.
 - Preserving Ledger Features: Using Cactus should allow you to use all the features which the protocol enables.
 - Horizontal Scalability: Cactus should never be the bottleneck of all the networks involved. IE: If 2 networks can do 100tps, Cactus should be able to handle 200

What are Cactus current features?

- **Connectors** for different blockchain protocols
 - Hyperledger Besu, Hyperledger Fabric, (WIP for Corda, Geth, and Quorum)
- **Atomic transfers** across ledgers
 - HTLCs for Ether, ERC20 (WIP Fabtoken)
- **Decoupled identity**
 - JWT, (WIP OpenAPI)
- **Metrics**

Getting Involved

You are invited to get involved with the Cactus project. Here are some ways you can get started.

1. Join one of our pair programming calls
 - a. [North America Morning/Europe Evening](#)
 - b. [Asia-Pacific Morning/Europe Morning](#)
2. Instructions on [building Cactus](#) (the framework itself)
3. Join communication channels and introduce yourself and ask questions (details below)
4. Grab a good first issue based on your level of experience /technical area(s) of expertise or interests:
 - a. All [Good First Issues](#)
 - b. [Climate Action SIG Specific Good First Issues](#)
 - c. [Level 100 - Introductory Good First Issues](#)
 - d. [Level 200 - Intermediate Good First Issues](#)
 - e. [Level 300 - Advanced Good First Issues](#)
 - f. [Level 400 - Expert Good First Issues](#)

Communication

Mailing List

- cactus@lists.hyperledger.org
 - [subscribe](#)
 - [messages](#)

Chat (for questions and ephemeral discussions)

- [#cactus](#)

Meetings

<https://lists.hyperledger.org/g/cactus/calendar>

[Calendar of Public Meetings](#)

- Prometheus and Grafana based monitoring of the individual plugins

How can I collaborate?

To see a guide on how to use Hyperledger Cactus, take a look at the links below in the Documentation section. Keep in mind that this is currently being updated so please write us through the different means listed in the Communication section.

If you want to collaborate in Cactus' development, you can pick an issue directly from Github – we've linked to some good first issues below that are good places to start for new contributors. If you need extra guidance, contact us through the chat or join one of our meetings and we can help you.

36 Open	0 Closed	Query: state=open&labels=good-first-issue
>	feat(connector-fabric): external chain code deployment	0
	Fabric Hacktoberfest Triage_Needed	
	enhancement good-first-issue	
	good-first-issue-300-advanced	
	#916 opened May 04, 2021 by petermetz	
>	feat(keychain-aws-secretmanager): create aws secret manager plugin	2
	Developer_Experience Keychain good-first-issue	
	good-first-issue-200-intermediate	
	#912 opened May 04, 2021 by jagpreetsinghsasan	
>	refactor(core-api): discontinue the PluginAspect enum	0
	Core_API good-first-issue	
	good-first-issue-200-intermediate	
	#885 opened Apr 29, 2021 by petermetz	
>	docs(examples): carbon accounting microk8s deployment files	2
	Developer_Experience GFI_Climate_Action_SIG	
	Hacktoberfest dependencies documentation	
	good-first-issue good-first-issue-400-expert	
	#860 opened Apr 24, 2021 by petermetz	
>	feat(connector-fabric): pre-signed transactions support	0
	Fabric	
	GFI_Climate_Action_SIG Hacktoberfest Security	
	enhancement good-first-issue	
	good-first-issue-300-advanced	
	#858 opened Apr 24, 2021 by petermetz	
>	feat(connector-fabric): private data collections support	1
	Fabric	
	GFI_Climate_Action_SIG enhancement good-first-issue	
	good-first-issue-300-advanced	
	#857 opened Apr 24, 2021 by petermetz	

- > **fix(cmd-api-server): OpenAPI spec validation missing from plugin REST endpoints** 0
 API_Server Core_API Hacktoberfest bug
 good-first-issue good-first-issue-200-intermediate
 #847 opened Apr 23, 2021 by petermetz
- > **meta: categorize good first issues by experience level** 0
 Developer_Experience
 good-first-issue
 #811 opened Apr 18, 2021 by petermetz
- > **feat(ci): support debugging on CI server through ssh** 0
 Developer_Experience Hacktoberfest
 Nice-to-Have documentation enhancement
 good-first-issue help wanted
 #717 opened Mar 24, 2021 by petermetz
- > **feat(consortium-indy): support consortium database indy backend** 0
 Core_API Hacktoberfest
 enhancement good-first-issue
 #675 opened Mar 16, 2021 by petermetz
- > **fix(connector-fabric): mandate ssh host key verification** 0
 Fabric Hacktoberfest Security
 bug good-first-issue
 #663 opened Mar 12, 2021 by petermetz
- > **refactor: obtain output from TSC repo linter** 0
 Developer_Experience Hacktoberfest Nice-to-Have
 Triage_Needed enhancement good-first-issue
 help wanted
 #662 opened Mar 12, 2021 by petermetz
- > **test(examples): puppeteer GUI tests for supply chain frontend** 0
 Developer_Experience
 Hacktoberfest Nice-to-Have dependencies
 enhancement good-first-issue
 good-first-issue-300-advanced
 #650 opened Mar 10, 2021 by petermetz
- > **docs(contributing.md): explicit recommendation for avoiding global dependencies** 0
 Hacktoberfest dependencies
 documentation good-first-issue
 #585 opened Feb 16, 2021 by petermetz
- > 1

chore(deps): upgrade to openapi generator

2.2.6 **API_Server** **Developer_Experience** **Hacktoberfest**

bug **dependencies** **good-first-issue**

#584 opened Feb 16, 2021 by petermetz

> Containerize connector plugins **API_Server** 0

Besu **Corda** **Developer_Experience** **Epic** **Fabric**
Hacktoberfest **Quorum** **enhancement** **good-first-issue**

#545 opened Feb 05, 2021 by petermetz

> docs(contributing.md): explain watch script 0

Developer_Experience **Hacktoberfest** **documentation**
enhancement **good-first-issue**

#521 opened Jan 29, 2021 by petermetz

> ci: add fuzzer tests for our APIs **API_Server** 4

Core_API **Hacktoberfest** **Security** **bug** **dependencies**
enhancement **good-first-issue**

#495 opened Jan 15, 2021 by petermetz

> feat(openapi): add cactus OAS extension 0

Core_API **Developer_Experience** **Hacktoberfest**
Nice-to-Have **dependencies** **documentation**
good-first-issue

#489 opened Jan 14, 2021 by petermetz

> build(docker): support ARM64 **API_Server** 0

Developer_Experience **Hacktoberfest** **Nice-to-Have**
dependencies **enhancement** **good-first-issue**
good-first-issue-400-expert **help wanted**

#481 opened Jan 13, 2021 by petermetz

> build(npm): post version script to sync openapi specs **Developer_Experience** 0

Hacktoberfest **Nice-to-Have** **dependencies**
documentation **good-first-issue**

#479 opened Jan 13, 2021 by petermetz

> build(openapi-generator): swap local JDK to container **Developer_Experience** **Hacktoberfest** 1

dependencies **enhancement** **good-first-issue**

#463 opened Jan 09, 2021 by petermetz

> ci(release-automation): make release issuance atomic **Developer_Experience** 0

Hacktoberfest **Nice-to-Have** **enhancement**
good-first-issue

#451 opened Jan 06, 2021 by petermetz

- > **build(api-client): generate java, go clients** 1
Developer_Experience Hacktoberfest Nice-to-Have
dependencies enhancement good-first-issue
#393 opened Nov 20, 2020 by petermetz
- > **refactor: discontinue dedicated HTTP listeners (ExpressJS apps) for web service plugins** 0
API_Server Hacktoberfest enhancement
good-first-issue good-first-issue-200-intermediate
#358 opened Nov 04, 2020 by petermetz
- > **docs(readme): CII Best Practices badge 100% completion** 3
Hacktoberfest Security bug
documentation good-first-issue
#357 opened Nov 04, 2020 by petermetz
- > **refactor(core-api): discontinue web service plugin aspect** 2
Hacktoberfest enhancement
good-first-issue
#350 opened Nov 04, 2020 by petermetz
- > **feat(api-server): publish API server docker image** 3
API_Server Hacktoberfest enhancement
good-first-issue
#345 opened Nov 04, 2020 by petermetz
- > **build: start using cspell for grammar in code** 1
Developer_Experience Hacktoberfest
Nice-to-Have dependencies good-first-issue
#321 opened Oct 20, 2020 by petermetz
- > **test(test-tooling): dummy consortium definition generator** 0
Developer_Experience
Hacktoberfest Nice-to-Have enhancement
good-first-issue
#316 opened Oct 15, 2020 by petermetz
- > **feat(plugin-ledger-connector-burrow): add connector** 5
Hacktoberfest Nice-to-Have enhancement
good-first-issue
#292 opened Sep 25, 2020 by petermetz
- > **feat(plugin-ledger-connector-sawtooth): add Sawtooth support** 0
Hacktoberfest
enhancement good-first-issue
#268 opened Aug 29, 2020 by petermetz

> chore: migrate from test runner tap to AVA	2
<p>Nice-to-Have bug dependencies good-first-issue</p> <p>#238 opened Jul 24, 2020 by petermetz</p>	
> docs(tooling): Automatic Lossless Image Compression	0
<p>Developer Experience Hacktoberfest</p> <p>Nice-to-Have documentation good-first-issue</p> <p>#167 opened Jun 08, 2020 by petermetz</p>	
> docs(whitepaper): stop using 3rd party Plant UML servers	0
<p>Hacktoberfest Security bug</p> <p>dependencies documentation good-first-issue</p> <p>#164 opened Jun 08, 2020 by petermetz</p>	
> refactor(sdk): improve (shorten) SDK method names	0
<p>API_Server Developer Experience</p> <p>Hacktoberfest Nice-to-Have documentation</p> <p>good-first-issue</p> <p>#163 opened Jun 05, 2020 by petermetz</p>	

Hyperledger Cactus is currently undergoing a major refactoring effort to enable the desired to-be architecture which will enable plug-in based collaborative development to increase the breadth of use cases & Ledgers supported.

For a better understanding of where Hyperledger Cactus is heading please see the Whitepaper and Design Principles below!

Documentation

- [Whitepaper](#)
- [Original Design Principles Google Doc](#)

Project Management

Hyperledger Cactus uses [GitHub Issues](#) to track work items.

Repositories

Hyperledger Cactus uses [GitHub](#) for source code control.

- [Main repo](#)

History

- [Approved by the TSC on 30 APR 2020](#)
- [Proposal the TSC voted on](#)

Recent space activity



[Peter Somogyvari](#)

2021-05-10 [Cactus Maintainers Agenda - Planning Session](#) created May 03, 2021

2021-05-03 [Cactus Maintainers Agenda](#) updated May 03, 2021 • [view change](#)

Space contributors

- [Peter Somogyvari](#) (2 days ago)
- [Takuma Takeuchi](#) (9 days ago)
- [Ry Jones](#) (9 days ago)
- [Hart Montgomery](#) (9 days ago)
- [David Boswell](#) (12 days ago)
- ...

[2021-05-03 Meeting Notes](#) updated May 03, 2021 • [view change](#)

[2021-04-26 Meeting notes](#) updated Apr 27, 2021 • [view change](#)

[2021-04-19 Meeting notes](#) updated Apr 27, 2021 • [view change](#)