Hyperledger Cactus Home

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 peer programming calls
2) How to get cactus to build
3) Join communication channels and introduce yourself and ask questions (details below)
4) Grab a good first issue below...

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
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.
feat: add vs-code dev container json file

Developer_Experience  Hacktoberfest  dependencies  good-first-issue
#512 opened Jan 29, 2021 by petermetz

docs(contributing.md): explain watch script

Developer_Experience  Hacktoberfest  documentation  enhancement  good-first-issue
#521 opened Jan 29, 2021 by petermetz

feat(corda): add prometheus metrics support to the OpenAPI specs of the plugin

API_Server  Hacktoberfest  enhancement  good-first-issue
#535 opened Feb 04, 2021 by jagpreetsinghsasan

docs(examples): add carbon-account-app

Besu  Corda  Developer_Experience  Epic  Fabric  Hacktoberfest  GFI_Climate_Action_SIG
documentation  good-first-issue  help wanted
#540 opened Feb 04, 2021 by petermetz

Containerize connector plugins

API_Server  Besu  Corda  Developer_Experience  Epic  Fabric  Hacktoberfest  Quorum
enhancement  good-first-issue
#545 opened Feb 05, 2021 by petermetz

docs(examples): puppeteer GUI tests for supply chain frontend

Hacktoberfest  Nice-to-Have  dependencies  enhancement  good-first-issue
#654 opened Mar 10, 2021 by petermetz

perf(tools): fabric 1.x AIO image prefetching

Developer_Experience  Fabric  Hacktoberfest
Nice-to-Have  Performance  dependencies  enhancement  good-first-issue
#649 opened Mar 10, 2021 by petermetz

docs(contributing.md): explicit recommendation for avoiding global dependencies

hacktoberfest  dependencies  documentation  good-first-issue
#585 opened Feb 16, 2021 by petermetz

chore(deps): upgrade to openapi generator 5.0.0

API_Server  Developer_Experience  Hacktoberfest
bug  dependencies  good-first-issue
#584 opened Feb 16, 2021 by petermetz

docs(contributing.md): explicit recommendation for avoiding global dependencies

hacktoberfest  dependencies
#585 opened Feb 16, 2021 by petermetz

perf(tools): fabric 1.x AIO image prefetching

developer_experience  fabric  hacktoberfest
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docs(contributing.md): explain watch script

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#521 opened jan 29, 2021 by petermetz

feat: add vs-code dev container json file

developer_experience  hacktoberfest  dependencies  documentation  good-first-issue
refactor: discontinue dedicated HTTP listeners (ExpressJS apps) for web service plugins

build(api-client): generate java, go clients

build(openapi-generator): swap local JDK to container

build(npm): post version script to sync openapi specs

ci: add fuzzer tests for our APIs

ci(release-automation): make release issuance atomic

build(docker): support ARM64

feat(openapi): add cactus OAS extension
<table>
<thead>
<tr>
<th>Issue</th>
<th>Title</th>
<th>Description</th>
<th>Label</th>
<th>Opened</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>#292</td>
<td>feat(plugin-ledger-connector-burrow): add connector</td>
<td>Hacktoberfest Nice-to-Have enhancement good-first-issue</td>
<td></td>
<td>Sep 25, 2020</td>
<td>petermetz</td>
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<tr>
<td>#295</td>
<td>ci(ledger-connector): pilot light performance benchmarks</td>
<td>Performance good-first-issue</td>
<td></td>
<td>Sep 25, 2020</td>
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<td>Sep 25, 2020</td>
<td>petermetz</td>
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<td>#316</td>
<td>test(test-tooling): dummy consortium definition generator</td>
<td>Developer Experience Hacktoberfest Nice-to-Have enhancement good-first-issue</td>
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<td>Oct 15, 2020</td>
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<td>build: start using cspell for grammar in code</td>
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<td>#339</td>
<td>fix(whitepaper): pdf rendering in sections 2.1.2, 3, 8</td>
<td>Nice-to-Have bug documentation good-first-issue</td>
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<td>Nov 03, 2020</td>
<td>petermetz</td>
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<td>#345</td>
<td>feat(api-server): publish API server docker image</td>
<td>API_Server Hacktoberfest enhancement good-first-issue</td>
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<td>Nov 04, 2020</td>
<td>petermetz</td>
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<td>#354</td>
<td>feat(core-api): hasTransactionFinality(): boolean on connector API</td>
<td>Hacktoberfest enhancement good-first-issue</td>
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<td>Nov 04, 2020</td>
<td>petermetz</td>
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<td>refactor(core-api): discontinue web service plugin aspect</td>
<td>Hacktoberfest enhancement good-first-issue</td>
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<td>Nov 04, 2020</td>
<td>petermetz</td>
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<td>#357</td>
<td>docs(readme): CII Best Practices badge 100% completion</td>
<td>Hacktoberfest Security bug documentation good-first-issue</td>
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<td>Nov 04, 2020</td>
<td>petermetz</td>
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<td>#268</td>
<td>feat(plugin-ledger-connector-sawtooth): add Sawtooth support</td>
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<td>Enhancement</td>
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<td>#238</td>
<td>chore: migrate from test runner tap to AVA</td>
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<td>#167</td>
<td>docs(tooling): Automatic Lossless Image Compression</td>
<td>Developer_Experience</td>
<td>Hacktoberfest</td>
<td>documentation</td>
<td>good-first-issue</td>
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<td>#164</td>
<td>docs(whitepaper): stop using 3rd party Plant UML servers</td>
<td>Hacktoberfest</td>
<td>Security</td>
<td>dependency</td>
<td>good-first-issue</td>
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<td>#163</td>
<td>refactor(sdk): improve (shorten) SDK method names</td>
<td>Hacktoberfest</td>
<td>API_Server</td>
<td>Developer_Experience</td>
<td>documentation</td>
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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 | Space contributors**