Hyperledger Aries

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D es cr ip ti on	Hyperledger Aries is infrastructure for blockchain-rooted, peer-to-peer interactions as defined in the Trust over IP Technical Stack, Layers 2 (secure peer to peer communications) and 3 (data exchange protocols). It defines messaging protocols and implements those protocols in shared, reusable, interoperable tool kits designed for initiatives and solutions focused on creating, transmitting and storing verifiable digital credentials.

Hyperledger Aries is infrastructure for blockchain-rooted, peer-to-peer interactions. It includes a shared cryptographic storage for blockchain clients as well as a communications protocol for allowing off-ledger interactions between those clients. Aries consumes the cryptographic support provided by Hyperledger Ursa, to provide secure secret management and decentralized key management functionality.

Key Characteristics

- A blockchain interface layer (known as a resolver) for creating, signing and reading blockchain transactions
- A cryptographic storage element that can be used for secure storage of cryptographic secrets, verifiable credentials, and other information used to build clients for exchanging (issuing, proving) verifiable credentials.
- An encrypted, peer-to-peer messaging system (called DIDComm) based on Decentralized Identifiers (DIDs) supporting off-ledger interaction between those clients using multiple transport protocols.
- Support for exchanging (issuing and proving) verifiable credentials in a multiple formats, including an implementation of ZKP-capable verifiable credentials using the ZKP primitives found in Ursa.
- A series of higher-level protocols and a subset of those protocols versioned "Aries Interop Profiles" to enable the independent implementation and deployment of interoperable Aries agents.
- A set of production-ready (and several proof of concept) Aries framework implementations enabling different use cases and deployments. The frameworks are dependency in use case specific implementations of Aries agents, such as a mobile wallet, an enterprise verifiable credential issuer/verifier, etc.
- An agent test harness to enable continuous interoperability testing of agents and agent frameworks.

Documentation

For those new to the Aries community, Trust over IP and verifiable credentials, Linux Foundation provides two courses about the concepts and technology:

- For a business perspective, Introduction to Hyperledger Sovereign Identity Blockchain Solutions: Indy, Aries & Ursa
- For a developer perspective, Becoming an Aries Developer

The latter is obviously more focused on Aries, with the first chapter providing a summary of the former course, and a series of hands on labs based on Aries implementations.

Project Management and Issue Tracking

All Aries projects use GitHub for receiving issues, receiving pull requests and tracking releases. The links to the GitHub repos for the project are below.

Repositories

Note that while the frameworks listed below are written in a specific, identified language, for the the business layer applications built on top of the frameworks can be implemented in any language.

https://github.com/hyperledger/aries

https://github.com/hyperledger/aries-rfcs

https://github.com/hyperledger/aries-cloudagent-python

https://github.com/hyperledger/aries-framework-dotnet

https://github.com/hyperledger/aries-framework-go

https://github.com/hyperledger/aries-framework-javascript

https://github.com/hyperledger/aries-vcx

https://github.com/hyperledger/aries-agent-test-harness

https://github.com/hyperledger/aries-mobile-agent-react-native

https://github.com/hyperledger/aries-mobile-agent-xamarin

All Aries repositories - https://github.com/hyperledger?utf8=%E2%9C%93&q=aries&type=&language=

Communication

Mailing List

- https://lists.hyperledger.org/g/aries

Chat (for questions and ephemeral discussions)

Questions are welcome and best asked in Hyperledger Rocketchat. Start in the #aries channel and the community will guide you if the question should be moved to one of the many Aries channels.

Meetings

Aries Working Group

People who want to learn about or contribute to Aries should join this call. This does not replace our asynchronous collaboration, but should help us keep everyone up-to-date and moving together.

Discussion items: upcoming releases, current PRs, work that will generate future PRs, architecture changes that will impact downstream teams, project standards, best practices, design, etc.

For call details and agendas, see: Aries Working Group

Calendars

- Hyperledger Calendar of Public Meetings

History

- Proposed by Nathan George
- Approved by the TSC on 2019-05-02
- Active status approved by the TSC on 25 FEB 2021