Container diagram for Open Science Platform

Researcher

A researcher who enrolls and interacts with the platform to upload and manage research artifacts.

Uses
[HTTPS]

User Interface, integration and execution
[system]

Jupyter Notebooks
[Python, Jupyter]

Provides the front-end interface for users to interact with the platform and manage research artifacts.

Calls API functions to interact with
[JSON over HTTPS]

Communicates with
[HTTPS]

Extract Metadata

Index and Search

Iroha v1 Python Library
[Python]

Handles communication with the Hyperledger Iroha blockchain.

IPFS HTTPS Client
[Python]

Handles communication with the IPFS network to store and retrieve research artifacts.

Extended Services
[system]

Metadata Extraction
[Apache Tika, Python]

Extracts metadata from uploaded research artifacts.

Search System
[Whoosh, Python]

Provides keyword-based search functionality for stored artifacts.

Sends transactions and queries

Upload and download files and JSON objects

Core Services
[system]

Smart Contracts
[Solidity (EVM)]

Smart contracts tightly integrated with Hyperledger Burrow, providing Ethereum EVM compatible functionalities for managing projects and artifacts.

IPFS Network
[A decentralized file storage network used to store research artifacts and metadata.]

Process the Smart Contract

Hyperledger Burrow
[Provides EVM compatible run time]

Execute transactions and queries

Hyperledger Iroha
[A decentralized ledger that ensures the integrity and traceability of user data, projects, and research artifacts.]

Legend

- person
- system
- container
- external person
- external system
- external container