The XFSC Toolbox

All functionalities at a glance

Identity & Trust

Authentication & Authorisation Services

- Request verifiable, decentralised and cryptographic credentials and identity attributes from other participants in a Federation
- Maintain control over what information is shared with others

Organisation Credential Manager

- Configure a self-determined and easy entry into a Federation for companies by, e.g., independently issuing digital participation credentials to employees
- Provide software services and data assets with a digitally verifiable seal
- Cryptographic creation of verifiable Self-Descriptions
- Manage credentials and certificates of employees, data and services

Personal Credential Manager

- Self-sovereign management of one's own credentials e.g. identity documents, certificates or authorisations of individual participants (self-employed or employed)
- Maintain control over which credentials are used for authentication and authorisation purposes
- Authenticate using a mobile app or browser application
- Authenticate and authorise natural persons as well as machines and digital twins to enable trust-based machine-to-machine communication

Trust Services

- Enforce usage policies
- Ensure chains of trust between multiple participants, organisations and authorities
- Establish trust anchors with verification standards such as W3C Verifiable Credentials/Presentations.
- Establish rule-based trust on an attribute basis

Sovereign Data Exchange

Data Contract Service

- Obtain legally binding consent between data provider and data user for data access, exchange and use
- Cryptographic signing of a data contract
- Subsequent provision of the signed contract

Data Exchange Logging Service

- Track whether data has been transmitted and received
- Track whether data usage policies have been respected or violated, e.g. to clarify operational issues or detect fraudulent transactions
- Create an auditable transaction log that is only accessible to the contracting parties

Federated Catalogue

Federated Catalogue

- Search and select providers and their service offerings in a Federation based on Self-Descriptions
- Monitor relevant changes in service provision

Self-Description Tools

- Creation Wizard: Create valid Self-Descriptions (claims) using interactive web forms
- Visualisation Tool: Visualise created Self-Descriptions
- Validation Wizard: Validate the created Self-Descriptions (claims), e.g. check whether data types are correct and all mandatory information is present
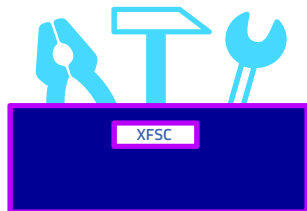
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All functionalities at a glance

Compliance

Authentication/Authorisation

- Support the implementation of a validation process for participants, resources and service provision prior to inclusion in a Federation's catalogue

- Document the validation process and create an audit trail to ensure compliance with generally accepted conformity assessment practices

Continuous Automated Monitoring Service

- Continuous automated rule compliance monitoring based on Self-Descriptions in a Federation's catalogue

Notarisation Service

- Issue a verifiable credential following successful validation of a participant to confirm status as a registered participant in a Federation

- Process notarisation requests and issue digital, legally binding and trustworthy credentials

Portal & Integration

Portal

- Operate a business web client for each Federation

- Integrate the individual Federation Services such as:

  - Search and filter function for querying Federation databases and displaying search results for services and data within a Federation

  - Member account with profile management to create and edit Self-Descriptions, organisational data, login history etc.

  - Credentials management

  - Add and authorise new members of a Federation

  - Dashboard with overview of all active and inactive services, status of booked services and history of used services

Orchestration Service

- Instantiation of selected services from the catalogue, esp. IaaS offerings such as compute and/or storage and installation of applications within the chosen infrastructure

- Use of Provider APIs for the IaaS lifecycle

- Update applications to e.g. the latest version

CLICK HERE FOR THE XFSC CODE IN GITLAB

https://eclipse.dev/xfsc/

Gaia-X
FEDERATION SERVICES
GXFS