Gaia-X Lab – Onboarding Presentation

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Thursday, 24 March 2022

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Mission of the Gaia-X Lab

Thursday, 24
March 2022

What is the Gaia-X Lab?

- The Gaia-X Lab is a **development team** under the Gaia-X CTO office.
- The Gaia-X Lab team writes prototypes to **technically validate functional and technical hypothesis** made by the Gaia-X Working Groups, when working on the Gaia-X specifications.
- The team **demonstrates working prototypes**.
- The Lab **accelerates the development** of external **open-source software (OSS)** project.
- The Lab **identifies missing functional components** in the Gaia-X Specifications

Deliverables of the Gaia-X Lab?

- **All results of the prototyping activities are shared** with the Gaia-X Working Groups and the Gaia-X Lighthouses projects for their own considerations.
- The Gaia-X Lab **doesn't contribute to the Gaia-X specs**.
- The Gaia-X Lab **doesn't release any official Gaia-X deliverables**.
- **All working activities are publicly done** in the current repository.

Public Repository: **https://gitlab.com/gaia-x/lab**

Public Backlog: **https://gaia-x.atlassian.net/browse/LAB**

What happens with the Code?

Type	Use Case	Action
Accelerator	The prototype is a feature of an existing OSS project.	It's contributed back to the OSS project.
Filler	The prototype identified a missing Gaia-X Component.	It's released as a new OSS project under the Eclipse Foundation.
Demonstrator	The prototype showcases a workflow for educational purpose	It's released as a new OSS project under the Gaia-X OSS rules.

All Gaia-X Lab projects follow the **Gaia-X OSS rules**.

The license is either **Apache License Version 2.0** or **Eclipse Public License - v 2.0**.

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Context of the Gaia-X Lab

Development lifecycles

One **Gaia-X Ecosystem,** federating **interoperable autonomous ecosystems.**

- **Gaia-X Ecosystem:** the virtual set of Participants, Service Offerings, Resources fulfilling the requirements of the **Gaia-X Trust Framework.**

NIST 500-332: Cloud Federation Reference Architecture (§2)

Federation Services toolbox | Service catalogue | Federator | Participants | DLT | Verifiable Credential Wallet

Gaia-X Trust Framework 1/2
from fragmented market to service composition

- Enable the **creation of more complex composite services from atomic or elementary services** as well as complex services.

  - Ensuring **composability** and hence **substitution**
  - Creates **Transparency** with **portability across providers** and hosting platforms

Knowledge graph of verifiable and composable signed claims
(Catalogue demonstrator - March 2020)

Data pipeline example, from edge (mobile) to cloud

Gaia-X Trust Framework 2/2

To ensure **Trust** the Gaia-X Trust Framework is:

- **Automated by Gaia-X specific components** part of decentralized technology framework
- Versioned, i.e. **bound to** a specific version in time of the **Compliance rules set**
- **Applied to the self-description** file of all entities implied in the Gaia-X conceptual model (*)
- Aimed to **verify the existence and veracity of the attributes** and not judging their value

(*) as defined as part of the Gaia-X Conceptual model described in the Gaia-X Architecture document

The content
Verify if the mandatory attributes are filled in and if the values are verified.

Set of claims

attribute: value
attribute: value
attribute: value
.....

The envelop
Verify the keypair issuers and cryptographic signatures

Claims
Machine readable or plain English


```
@context:
  0:                    {…}
  1:                    "https://w3id.org/security/suites/ed25519-2020/v1"
cred:id:                "vc.gaia-x.eu//membership/pierre.gronlier@gaia-x.eu"
cred:type:
  0:                    "VerifiableCredential"
  1:                    "ParticipantCredential"
cred:issuer:            "did:web:vc.gaia-x.eu:issuer"
cred:issuanceDate:      "2022-01-17T22:42:34Z"
cred:expirationDate:    "2022-01-20T22:42:34Z"
cred:credentialSubject:
  @context:             {…}
  @type:                "schema:ProgramMembership"
  schema:id:            "mailto:pierre.gronlier@gaia-x.eu"
  schema:programName:   "Gaia-X AISBL"
proof:
  0:
    type:               "JsonWebKey2020"
    created:            "2022-01-17T22:42:34Z"
    jws:                "eyJhbGciOiJSUzI1Ni9..wX…2aThaSO6QtmNkODoOwUOqBA"
    proofPurpose:       "assertionMethod"
    verificationMethod: "did:web:vc.gaia-x.eu:issuer#JsonWebKey2020-RSA"
  1:
    type:               "Ed25519Signature2020"
    created:            "2022-01-17T22:42:34Z"
    verificationMethod: "did:web:vc.gaia-x.eu:iss…5519VerificationKey2020"
    proofPurpose:       "assertionMethod"
    proofValue:         "z5A5FwCVpmVQT3WJ9d5Gdywx…qbDY6injZSyHQX4hAEgHUT5"
```


- Trust Framework example:
  - All cars must have a color
  - All Datasets must have a location
  - All Services must identify their provider with its legal country of jurisdiction.
- Label examples:
  - cars level 1 are red, cars level 2 are blue, …
  - My dataset must be located in EU
  - My services must be non-subject/immune to non-EU laws

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Roadmap

Roadmap and Focus

- Demonstration of the **Trust Framework**, Self-Sovereign Identity (SSI) & Verifiable Credentials

Gaia-X defined

Gaia-X owned

External project

- Alpha Version of **Gaia-X Registry**

- Verification of **Gaia-X Compliance**

- **Trust Framework:** https://gaia-x.gitlab.io/policy-rules-committee/trust-framework/

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Gaia-X Lab Onboarding Demonstrator

Gaia-X Lab Onboarding Demonstrator

Demonstrator: **https://onboarding-portal.lab.gaia-x.eu/**
Repositories: **https://gaia-x.atlassian.net/browse/LAB**

Gaia-X Lab Registry

gx-registry 1.0.0 OAS3

Gaia-X Lab Registry

Apache 2.0

Trust Anchor

Endpoints to interact with registered trust anchors

POST `/api/trustAnchor` Look for a given Trust Anchor public key in the registry.

Parameters Try it out

No parameters

Request body — application/json

Example Value | Schema


```
{
  "publicKey": "MIIGDjCCBPagAwIBAgIUYSJuRCHo8Gy8nvmplyxHmMMMSCkwDQYJKoZIhvcNAQELBQAwgZYxCzAJBgNVBAYTAkJHMRgwFgYDVQRhEw9OVFJCRy0yMDMzOTczNTYxIzAhBgNVBAoTGkV2cm90cnVzdCBUZWNobm9sb2dpZ0MgSlNDM
SEwHwYDVQQLExhRdWFsaWfzpZWQgT38lcmF0dW5uYWwgQ0ExJTAjBgNVBAMTHEVZcm90cnVzdCBSU0EgT38lcmF0dW5uYWwgQ0EwHhcNMjAxMjAzMTA0OTAxWhcNMjAxMjAzMTA0OTAxWjCBrjELMAkGA1UEBhMCQkcxDjAMBgNVBAcMBVNvZmlhMS0wKw
YDVQQKDCRDb21tdW5pYZF0dW5pucy0SZWd1bGF0dW5uIENvbWlpc3Npb24xGDAWBgNVBGENMD05UUkJHLTEyMTc0Nzg2NDEqMCgGA1UEAwwhQnVsZ2FydWFuIFRydXN0ZWQgIGlzdCBPcGVyYXRvcIAxMRowGAYJKoZIhvcNAQkBFgtpbmZvQGNyYy5iZzC
CASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAKz5qD2Mt83syfXDZk/KTVSHMlhkodYR4Ci01mWSSLJ3jpmHfojmDb7mP8HaUysoD55cmTizjKS2EZ9/m4CFmq01ucC7SSgKFbpHEZ3yrfgoFsqTmNuEBX6euIDzMcdorG79rNsaXbxh/8h36+2C
jA2NGYRNDm47tcyK0Fo4ZZZEMASbngo7M6HlP57dQbuxlhlQv/SiQ6nomrZibqZoirroyBS6+m0mzj2+tcI8CZBPFEPOcuQmsabXSplets44c5Zqbr0/YSDcOTB+hfg+OofZ4TbtJJand4+HEr+TpyAMcgX1GyEmTS6RuY8edtIm/mcCMy4gJMacxH8jRosY
L5Do/KCAwEAAoOCAjgwgg1GMAwGA1UdEwEB/wQCMAAwHwYDVR0jBBgwFoAUFzSkMYUr3SKpwghmy0NpmTeTKwgmfwYIKmYBBQUHAQEEczBxMEUGCCsGAQUFBzAChjlodHRwOi8vYZEuZXZyb3RydXN0LmNvb59hcHEvRzYyb3RydXN0LmNvb59jcHMwCQYHBAL7EARAzARBgNVHSUECjA
9uYWxDQS5jcnQwKAYIKwYBBQUHMAGGHGhkdHA6Ly9jYS5lbnJvdHJ1c3QuY29tL29jc3AwIgYDVR0gBEcwRTA8BgorBgEEAYLxAIDMCgMKAYIKwYBBQUHAgEWHGhkdHA6Ly93d3cuZXZyb3RydXN0LmNvb59jcHMwCQYHBAL7EARAzARBgNVHSUECjA
IBgYEAJE3AwAwgaMGCCsGAQUFBwEDBIGMMIGTMBUGCCsGAQUFBwsOMAkGBwQAi+xJAQIwCAYGBACORgEBMBUGBgQAjkYBAjALEwNCR04CAQQCAQQwCAYGBACORgEEMBMGBgQAjkYBBjAJBgcEAISGAQYOMDoGBgQAjkYBBTAwMC4WKGh0dHBzO18vd3d3
LmV2cm90cnVzdC5jb20vcGRzL3Bkc19lbi5wZQYTAmVuMEoGA1UdHwRDMEEwP6A9oDuGOWh0dHA6Ly9jYS5lbnJvdHJ1c3QuY29tL2NybC9FdnJvdHJ1c3RSU0FPcGVyYXRpb25hbENBLmMyb0AdBgNVHQ4EFgQUeKOM3OLwOuGgkoVx5bNmKi7w9n4wD
gYDVR0PAQH/BAQDAgbAMA0GCSqGSIb3DQEBCwUAA4IBAQBzg38CHo1yoZ7iyZbdNU1GPCelBhJCiJDorNqo3zxdnW7vXA27tLc68n3V7QLbHUsXT6qpVHcObPxsPavVbBthFSZ1VrV7ULV5+FYo4QRt7y30E779mPYJg+MROdKNdpAk5UEAFCeMcUaRLK
vBxHYbGpv/+h4m1Thonyeehk8F2ytUZKUKs1WbzNB6vgC7+v1Yv1N8zCvxW0AWISCiMpqmDYBwGo3LkaKT3RBQymgP2Y3U0qCCkA7BqDiRVRV/L29x0NqwSdXWQnTSH7UpqTJycAtvdB/HFpGn1yK0DQWuP0cWhuWqtHnAjbtcq3RiIpgKg+GXF7f1Gut
1Q5pzv/Ke"
}
```


Responses

Code	Description	Links
200	Found a Trust Anchor for the public key in the registry Media type: application/json Controls Accept header. Example Value | Schema	No links
400		No links


```
{
  "trustState": "trusted",
  "trustedForAttributes": "/.*/gm",
  "trustedAt": 1645817070
}
```


3. List of defined trust anchors

Name	Defined as
State	The Trust Service Providers (TSP) must be a state validated identity issuer. - For `participant`, if the `legalAddress.country` is in EEA, the TSP must be **eIDAS** compliant. - Until end of 2022 Q1, to ease the onboarding and adoption this framework **DV SSL** can also be used. - **Gaia-X** association is also a valid TSP for Gaia-X association members.
eiDAS	Issuers of Qualified Certificate for Electronic Signature as defined in eIDAS Regulation (EU) No 910/2014 (homepage: https://esignature.ec.europa.eu/efda/tl-browser/#/screen/home) (machine: https://ec.europa.eu/tools/lotl/eu-lotl.xml)
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Gaia-X	*To be defined after 2022Q1.*
EDPB CoC	List of Code of Conduct approved by the EDBP (homepage: https://edpb.europa.eu/our-work-tools/documents/our-documents_fr?f%5B0%5D=all_publication_type%3A61&f%5B1%5D=all_topics%3A125)
gleif	List of registered LEI issuers. (homepage: https://www.gleif.org/en/about-lei/get-an-lei-find-lei-issuing-organizations) (machine: https://api.gleif.org/api/v1/registration-authorities)

Demonstrator: **https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post_api_trustAnchor**

Repositories: **https://gaia-x.atlassian.net/browse/LAB**

Features of the Gaia-X Onboarding Demonstrator

- **Demonstrates working prototype** of the Trust Framework
- **Validates functional and technical hypothesis** made by the Gaia-X Working Groups
- **Accelerates the development** of free open-source software (FOSS)
- **Issues and verifies** Gaia-X Participant Credentials, based on Self-Descriptions
- Leverages Gaia-X Participants Credentials for Access Control
- Provides a **first Version of the Gaia-X Registry**

Technology

- SSI Kit provided by walt.id under Apache 2.0 License, extended for Gaia-X
- Communication via HTTPS
- Using Decentralized IDentifiers (DIDs), JSON LD-based Credentials
- Using Open ID Connect for SSI
- Using Open ID Connect for Verifiable Presentations (OIDC4VP)
- Using Self-Issued Open Identity Provider v2 (SIOPv2)
- Cryptosuite (RSA and ED25519, SECP256K1 and others also possible)
- Registry can be used to find and verify the key of Trust Anchors

Gaia-X Lab Registry

gx-registry 1.0.0 OAS3

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Apache 2.0

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SEwHwYDVQQLExhRdWFsaWfzpZWQgT38lcmF0dW5uYWwgQ0ExJTAjBgNVBAMTHEVZcm90cnVzdCBSU0EgT38lcmF0dW5uYWwgQ0EwHhcNMjAxMjAzMTA0OTAxWhcNMjAxMjAzMTA0OTAxWjCBrjELMAkGA1UEBhMCQkcxDjAMBgNVBAcMBVNvZmlhMS0wKw
YDVQQKDCRDb21tdW5pYZF0dW5pucy0SZWd1bGF0dW5uIENvbWlpc3Npb24xGDAWBgNVBGENMD05UUkJHLTEyMTc0Nzg2NDEqMCgGA1UEAwwhQnVsZ2FydWFuIFRydXN0ZWQgIGlzdCBPcGVyYXRvcIAxMRowGAYJKoZIhvcNAQkBFgtpbmZvQGNyYy5iZzC
CASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAKz5qD2Mt83syfXDZk/KTVSHMlhkodYR4Ci01mWSSLJ3jpmHfojmDb7mP8HaUysoD55cmTizjKS2EZ9/m4CFmq01ucC7SSgKFbpHEZ3yrfgoFsqTmNuEBX6euIDzMcdorG79rNsaXbxh/8h36+2C
jA2NGYRNDm47tcyK0Fo4ZZZEMASbngo7M6HlP57dQbuxlhlQv/SiQ6nomrZibqZoirroyBS6+m0mzj2+tcI8CZBPFEPOcuQmsabXSplets44c5Zqbr0/YSDcOTB+hfg+OofZ4TbtJJand4+HEr+TpyAMcgX1GyEmTS6RuY8edtIm/mcCMy4gJMacxH8jRosY
L5Do/KCAwEAAoOCAjgwgg1GMAwGA1UdEwEB/wQCMAAwHwYDVR0jBBgwFoAUFzSkMYUr3SKpwghmy0NpmTeTKwgmfwYIKmYBBQUHAQEEczBxMEUGCCsGAQUFBzAChjlodHRwOi8vYZEuZXZyb3RydXN0LmNvb59hcHEvRzYyb3RydXN0LmNvb59jcHMwCQYHBAL7EARAzARBgNVHSUECjA
9uYWxDQS5jcnQwKAYIKwYBBQUHMAGGHGhkdHA6Ly9jYS5lbnJvdHJ1c3QuY29tL29jc3AwIgYDVR0gBEcwRTA8BgorBgEEAYLxAIDMCgMKAYIKwYBBQUHAgEWHGhkdHA6Ly93d3cuZXZyb3RydXN0LmNvb59jcHMwCQYHBAL7EARAzARBgNVHSUECjA
IBgYEAJE3AwAwgaMGCCsGAQUFBwEDBIGMMIGTMBUGCCsGAQUFBwsOMAkGBwQAi+xJAQIwCAYGBACORgEBMBUGBgQAjkYBAjALEwNCR04CAQQCAQQwCAYGBACORgEEMBMGBgQAjkYBBjAJBgcEAISGAQYOMDoGBgQAjkYBBTAwMC4WKGh0dHBzO18vd3d3
LmV2cm90cnVzdC5jb20vcGRzL3Bkc19lbi5wZQYTAmVuMEoGA1UdHwRDMEEwP6A9oDuGOWh0dHA6Ly9jYS5lbnJvdHJ1c3QuY29tL2NybC9FdnJvdHJ1c3RSU0FPcGVyYXRpb25hbENBLmMyb0AdBgNVHQ4EFgQUeKOM3OLwOuGgkoVx5bNmKi7w9n4wD
gYDVR0PAQH/BAQDAgbAMA0GCSqGSIb3DQEBCwUAA4IBAQBzg38CHo1yoZ7iyZbdNU1GPCelBhJCiJDorNqo3zxdnW7vXA27tLc68n3V7QLbHUsXT6qpVHcObPxsPavVbBthFSZ1VrV7ULV5+FYo4QRt7y30E779mPYJg+MROdKNdpAk5UEAFCeMcUaRLK
vBxHYbGpv/+h4m1Thonyeehk8F2ytUZKUKs1WbzNB6vgC7+v1Yv1N8zCvxW0AWISCiMpqmDYBwGo3LkaKT3RBQymgP2Y3U0qCCkA7BqDiRVRV/L29x0NqwSdXWQnTSH7UpqTJycAtvdB/HFpGn1yK0DQWuP0cWhuWqtHnAjbtcq3RiIpgKg+GXF7f1Gut
1Q5pzv/Ke"
}
```


Responses

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Gaia-X	*To be defined after 2022Q1.*
EDPB CoC	List of Code of Conduct approved by the EDBP (homepage: https://edpb.europa.eu/our-work-tools/documents/our-documents_fr?f%5B0%5D=all_publication_type%3A61&f%5B1%5D=all_topics%3A125)
gleif	List of registered LEI issuers. (homepage: https://www.gleif.org/en/about-lei/get-an-lei-find-lei-issuing-organizations) (machine: https://api.gleif.org/api/v1/registration-authorities)

Demonstrator: **https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post_api_trustAnchor**

Repositories: **https://gaia-x.atlassian.net/browse/LAB**

Gaia-X Lab Registry

- Use the eIDAS Trusted Service Provider List and TSP Services Public Keys provided

MIIE0TCCA7mgAwIBAgIBADANBgkqhkiG9w0BAQUFADBbMQswCQYDVQQGDAJBVDEjMCEGA1UECgwaVGVsZWtvbS1Db250cm9sLUtvbW1pc3Npb24xJzAlBgNVBAMM
HlNlY3VyZSBUaW1lc3RhbXBpbmcgU2VydmljZXMgMTAeFw0wNjEyMTUxNTA0MDBaFw0xMTEyMTUxNTA0MDBaMGkxCzAJBgNVBAYMAkFUMTIwMAYDVQQKDClCdW
5kZXNhbXQgZsO8ciBFaWNoLSB1bmQgVmVybWVzc3VuZ3N3ZXNlbjEmMCQGA1UEAwwdU2ljaGVyZXIgWmVpdHN0ZW1wZWxkaWVuc3QtMDEwggEiMA0GCSqGSIb3D
QEBAQUAA4IBDwAwggEKAoIBAQDIlUc4wAWOIwXBMsYC/y7ok3cLQffAxHKk1PVmfCuO7IVZ1FGBLA2N4vQfSmJ3Qi2z9abVYABaQm1nrl2rbDQ76BtJzRqLQofw9QOxcsB
pR0YzjLrpJ2l09E2MwETIL+IqyW2WQ32ARFzyWJIvXvOoIkSn5At7tQ4GmA+/e6Q2SGxVqt7Y8kecvxHLJkUbnq41RhFjWxZbI/cvNN2hu3lfzfVuBiY7QtzxkS7+XHkgKbJGoAL
WgXNIEA62I89kjq4OBEXecQOPBug/u1De48SlHmg+ZrhUdAqaE1Nj7JYAFse7OOBxjUlTkO3ihPZEnRN57aNRi8iRhauVffkcwyeZAgMA7lOjggGQMIIBjDAfBgNVHSMEGDAW
gBS9r9+uTM+eljNmNtsJ7RcCA+Fe2TAdBgNVHQ4EFgQUSgShCrcsQbbvXyFGRVdKwVB6YBQwNwYDVR0fBDAwLjAsoCqgKlYmaHR0cDovL3d3dy5zaWduYXR1ci5ydHIuYX
QvY3VycmVudC5jcmwwVgYDVR0gBE8wTTBLBgkqKAAVAAEAAQAwPjA8BggrBgEFBQcCARYwaHR0cDovL3d3dy5zaWduYXR1ci5ydHIuYXQvZGUvZGlyZWN0b3J5L2Nwcy
5odG1sMHMGA1UdEQRsMGqkaDBmMSMwIQYDVQQDDBpTaWNoZXJlciBaZWl0c3RlbXBlbGRpZW5zdDEyMDAGA1UECgwpQnVuZGVzYW10IGZ1ZXIgRWljaC0gdW5kIF
Zlcm1lc3N1bmdzd2VzZW4xCzAJBgNVBAYMAkFUMAwGA1UdEwQFMAMBAQAwDgYDVR0PAQH/BAQDAgeAMBYGA1UdJQEB/wQMMAoGCCsGAQUFBwMIMA4GByoo
AAoBAQEEAwEB/zANBgkqhkiG9w0BAQUFAAOCAQEARX3z9+khVFJx8w2PYuqCyoPnQSosZZd3k6igkYxAk8TMop55gpzg+BdegbnX2F4xgLauOQHwuAiTOQw9GnEQPKLV
xlN2LsTcu/9mZcIkJksiHt8sjBn9vEBD5Oi8FBWNwIymTVupadHrXG95L+byTSY8DvZDVP/vVAPGoucAu+6wxZEEXfEVPXT4HU2NLtt1pcmbHGWQKvWARnzFN+Ayeeuhz+hq
vbsKhSwQqkJs47cbj7atgCOb7zgavI79StPQE1dc7R6EkOF+mqAX26cOVJMMlX/t01w2EmQeTV6BzwWSMww3YjwwVy2BrdJ2IHxY4xua8+cqp1Wl0bbaVB1HIQ==

Demonstrator: **https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post_api_trustAnchor**

Example: https://www.signatur.rtr.at/currenttl.xml

05

Demonstration and Flows

Actors

Participant

- Gaia-X Participant undergoing a KYB process to **receive a Gaia-X Credential**

Federator / AISBL

- Gaia-X Federator / Gaia-X AISBL **providing Identity Services and Credentials**

Service Provider

- Gaia-X Service Provider **offering a service** to accredited Gaia-X Participants

Documents & Tools

Ecosystem self-description wizard tool

- Self-Description Generator

- Self-Description of a Participant

Verifiable Credential

- Verifiable Credentials signed by the Participant and the Federator / AISBL

Verifiable Credentials Wallet

- Set of Credentials held by the Participant in a Credential Manager / Wallet

Infrastructure

- Private Database containing identities
- Public Webserver
- Issuer / Signatory
- Verifier
- Credential Manager / Wallet

Gaia-X AISBL / Federator

- Federator / AISBL checks **information from Trusted Data Sources**
- AISBL **provides Trust Framework**, Federator **follows Trust Framework**
- Federator / AISBL public key is listed in the **Gaia-X Registry** as Issuer
- Federator provides **Onboarding Portal** for Accreditation
- Identification via public key in **DID:WEB via public Webservice**
- Federators provide **Credential Issuer / Signatory**
- Federators provide **Credential Validator Service / Verifier**

Participant / Service Provider

- Participant is registered with **Trusted Data Sources**
- Participant public key is NOT listed in the **Gaia-X Registry**
- Participant creates **Self-Description** using SD Toolkit
- Participant uses **Onboarding Portal** for Accreditation
- Participant operates a **public Webservice** (optional)
- Participant has **access to a Credential Manager**

Demonstration flow 1/4

Participant (OpenID Provider) visits the Onboarding Portal to receive a Credential

Onboarding Portal requests e-mail address to verify the Participant

The participants receives access to the Onboarding Service

This represents a full KYB process in which the AISBL / Federator checks the provided information (SD) with Trusted Data Sources and verifies the integrity of the SD & identity.

Demonstration flow 2/4

1. Visit the Gaia-X Lab Onboarding Portal and select *Register Credential.* This will start the onboarding flow.

2. Type your email that you also used to register on GitLab. If your email is not registered, you will not get an email and cannot issue a Participant Credential. Click on *Submit.*

3. Check your emails. You will receive a registration link that is valid for 24 hours. Click on the link to initiate the issuance of your credential.

Demonstration flow 2/4

Participant uses the wallet (here operated by the Lab) to create a DID:WEB with a public key

Participant exposes the DID:WEB Document via Lab Registry or an own webservice under the own domain

The DID:WEB can now be used to verify the public key and the issuance process can proceed.

Demonstration flow 2/4

1. Visit the [Gaia-X Lab Wallet] and type a new email and password combination that you can remember.

2. If you used a new account, an empty credential page will be shown. Click on the hamburger menu in the top right corner.

3. The menu opens. Select *Settings* to setup your account.

4. There are different aspects that you can manage in your wallet. We are interested in the Ecosystem setting for now.

5. We want to use did:web, so we click on *Add* for the *DNS* option.

Demonstration flow 2/4

1. The Setup Wizard begins. Click on *Get Started* and follow the steps.

2. You can now enter a domain that you control. If you do not enter a domain a default domain of the demonstrator will be used. Click on *Generated DID.*

3. Your did:web was successfully created. You can now copy the DID to inspect it in detail, use it somewhere else or just close the window.

Demonstration flow 3/4

Demonstration flow 3/4

1. Click on the link from the email that you received. If your token is considered valid you can choose your wallet and click on *Connect Wallet.*

2. You can now issue your credential. Click on Issue Credential and the onboarding API will prepare a new credential for you. You will be redirected to your wallet to accept the credential.

3. You received a credential. Click on the credential to view its content first. Click on *Accept* next if you want the credential in your wallet.

4. Your credential was successfully added to your wallet. You can use it now to create verifiable presentations.

Demonstration flow 4/4

Participant wants to access a Service offered by a Service Provider requiring the Credential.

If the Credential has been successfully verified the Service Provider grants access to the Service Offering.

Participant is the OpenID Provider (OP), the Service is the Requesting Party (RP).

Demonstration flow 2/4

1. Visit the Gaia-X Lab Onboarding Portal and select Verify *Credential.* This will start the verification process.

2. Select your wallet and click *Connect Wallet.* This will open a new tab with your wallet.

3. Your wallet allows you to select which credential you want to present to the requester. Select your credential and click on *Share.*

4. The Onboarding Portal will verify your credential if your credential is valid, you can download the results to share it with others.

What has not been shown?

- The Participant would have checked the Credentials of the Service Provider
- The Credentials will be used to increase trust in Service Providers and Service Offerings
- Many Verifiable Credentials can be combined to Verifiable Presentations
- The Verifiable Presentations will be part of the Service Offerings in the Catalogue
- The Registry can be used to revoke, i.e. the rights of an issuer, and this would lead to invalid Credentials
- The Issuer and the Verifier are the partier the Trust has been delegated to.

Summary – Triangle of Trust

Gaia-X Lab Onboarding Demonstrator

Demonstrator: **https://onboarding-portal.lab.gaia-x.eu/**
Repositories: **https://gaia-x.atlassian.net/browse/LAB**

Gaia-X Lab Registry

gx-registry 1.0.0 OAS3

Gaia-X Lab Registry

Apache 2.0

Trust Anchor

Endpoints to interact with registered trust anchors

POST `/api/trustAnchor` Look for a given Trust Anchor public key in the registry.

Parameters Try it out

No parameters

Request body — application/json

Example Value | Schema


```
{
  "publicKey": "MIIGDjCCBPagAwIBAgIUYSJuRCHo8Gy8nvmplyxHmMMMSCkwDQYJKoZIhvcNAQELBQAwgZYxCzAJBgNVBAYTAkJHMRgwFgYDVQRhEw9OVFJCRy0yMDMzOTczNTYxIzAhBgNVBAoTGkV2cm90cnVzdCBUZWNobm9sb2dpZ0MgSlNDM
SEwHwYDVQQLExhRdWFsaWfzpZWQgT38lcmF0dW5uYWwgQ0ExJTAjBgNVBAMTHEVZcm90cnVzdCBSU0EgT38lcmF0dW5uYWwgQ0EwHhcNMjAxMjAzMTA0OTAxWhcNMjAxMjAzMTA0OTAxWjCBrjELMAkGA1UEBhMCQkcxDjAMBgNVBAcMBVNvZmlhMS0wKw
YDVQQKDCRDb21tdW5pYZF0dW5pucy0SZWd1bGF0dW5uIENvbWlpc3Npb24xGDAWBgNVBGENMD05UUkJHLTEyMTc0Nzg2NDEqMCgGA1UEAwwhQnVsZ2FydWFuIFRydXN0ZWQgIGlzdCBPcGVyYXRvcIAxMRowGAYJKoZIhvcNAQkBFgtpbmZvQGNyYy5iZzC
CASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAKz5qD2Mt83syfXDZk/KTVSHMlhkodYR4Ci01mWSSLJ3jpmHfojmDb7mP8HaUysoD55cmTizjKS2EZ9/m4CFmq01ucC7SSgKFbpHEZ3yrfgoFsqTmNuEBX6euIDzMcdorG79rNsaXbxh/8h36+2C
jA2NGYRNDm47tcyK0Fo4ZZZEMASbngo7M6HlP57dQbuxlhlQv/SiQ6nomrZibqZoirroyBS6+m0mzj2+tcI8CZBPFEPOcuQmsabXSplets44c5Zqbr0/YSDcOTB+hfg+OofZ4TbtJJand4+HEr+TpyAMcgX1GyEmTS6RuY8edtIm/mcCMy4gJMacxH8jRosY
L5Do/KCAwEAAoOCAjgwgg1GMAwGA1UdEwEB/wQCMAAwHwYDVR0jBBgwFoAUFzSkMYUr3SKpwghmy0NpmTeTKwgmfwYIKmYBBQUHAQEEczBxMEUGCCsGAQUFBzAChjlodHRwOi8vYZEuZXZyb3RydXN0LmNvb59hcHEvRzYyb3RydXN0LmNvb59jcHMwCQYHBAL7EARAzARBgNVHSUECjA
9uYWxDQS5jcnQwKAYIKwYBBQUHMAGGHGhkdHA6Ly9jYS5lbnJvdHJ1c3QuY29tL29jc3AwIgYDVR0gBEcwRTA8BgorBgEEAYLxAIDMCgMKAYIKwYBBQUHAgEWHGhkdHA6Ly93d3cuZXZyb3RydXN0LmNvb59jcHMwCQYHBAL7EARAzARBgNVHSUECjA
IBgYEAJE3AwAwgaMGCCsGAQUFBwEDBIGMMIGTMBUGCCsGAQUFBwsOMAkGBwQAi+xJAQIwCAYGBACORgEBMBUGBgQAjkYBAjALEwNCR04CAQQCAQQwCAYGBACORgEEMBMGBgQAjkYBBjAJBgcEAISGAQYOMDoGBgQAjkYBBTAwMC4WKGh0dHBzO18vd3d3
LmV2cm90cnVzdC5jb20vcGRzL3Bkc19lbi5wZQYTAmVuMEoGA1UdHwRDMEEwP6A9oDuGOWh0dHA6Ly9jYS5lbnJvdHJ1c3QuY29tL2NybC9FdnJvdHJ1c3RSU0FPcGVyYXRpb25hbENBLmMyb0AdBgNVHQ4EFgQUeKOM3OLwOuGgkoVx5bNmKi7w9n4wD
gYDVR0PAQH/BAQDAgbAMA0GCSqGSIb3DQEBCwUAA4IBAQBzg38CHo1yoZ7iyZbdNU1GPCelBhJCiJDorNqo3zxdnW7vXA27tLc68n3V7QLbHUsXT6qpVHcObPxsPavVbBthFSZ1VrV7ULV5+FYo4QRt7y30E779mPYJg+MROdKNdpAk5UEAFCeMcUaRLK
vBxHYbGpv/+h4m1Thonyeehk8F2ytUZKUKs1WbzNB6vgC7+v1Yv1N8zCvxW0AWISCiMpqmDYBwGo3LkaKT3RBQymgP2Y3U0qCCkA7BqDiRVRV/L29x0NqwSdXWQnTSH7UpqTJycAtvdB/HFpGn1yK0DQWuP0cWhuWqtHnAjbtcq3RiIpgKg+GXF7f1Gut
1Q5pzv/Ke"
}
```


Responses

Code	Description	Links
200	Found a Trust Anchor for the public key in the registry Media type: application/json Controls Accept header. Example Value | Schema	No links
400		No links


```
{
  "trustState": "trusted",
  "trustedForAttributes": "/.*/gm",
  "trustedAt": 1645817070
}
```


3. List of defined trust anchors

Name	Defined as
State	The Trust Service Providers (TSP) must be a state validated identity issuer. - For `participant`, if the `legalAddress.country` is in EEA, the TSP must be **eIDAS** compliant. - Until end of 2022 Q1, to ease the onboarding and adoption this framework **DV SSL** can also be used. - **Gaia-X** association is also a valid TSP for Gaia-X association members.
eiDAS	Issuers of Qualified Certificate for Electronic Signature as defined in eIDAS Regulation (EU) No 910/2014 (homepage: https://esignature.ec.europa.eu/efda/tl-browser/#/screen/home) (machine: https://ec.europa.eu/tools/lotl/eu-lotl.xml)
DV SSL	Domain Validated (DV) Secure Sockets Layer (SSL) certificate issuers are considered to be temporarily valid Trust Service Providers. (homepage: https://wiki.mozilla.org/CA/Included_Certificates) (machine: https://ccadb-public.secure.force.com/mozilla/IncludedCACertificateReportPEMCSV)
Gaia-X	*To be defined after 2022Q1.*
EDPB CoC	List of Code of Conduct approved by the EDBP (homepage: https://edpb.europa.eu/our-work-tools/documents/our-documents_fr?f%5B0%5D=all_publication_type%3A61&f%5B1%5D=all_topics%3A125)
gleif	List of registered LEI issuers. (homepage: https://www.gleif.org/en/about-lei/get-an-lei-find-lei-issuing-organizations) (machine: https://api.gleif.org/api/v1/registration-authorities)

Demonstrator: **https://registry.gaia-x.eu/api-docs/#/Trust%20Anchor/post_api_trustAnchor**

Repositories: **https://gaia-x.atlassian.net/browse/LAB**

06 Appendix

Useful Resources

- Gaia-X Architecture Document 21.12.
- W3C OIDC Core OpenID Connect Core 1.0
- W3C IDC4VP OpenID Connect for Verifiable Presentations
- W3C OIDC Core OpenID Connect Core 1.0
- W3C DID Core Decentralized Identifiers (DIDs) v1.0
- Self-Issued OpenID Provider v2 (SIOPv2)
- walt.id SSI Kit Website

Step1/3: Collect signed claims

Step2/3: Create Gaia-X Self-Descriptions

Step3/3: Ecosystem governance extension