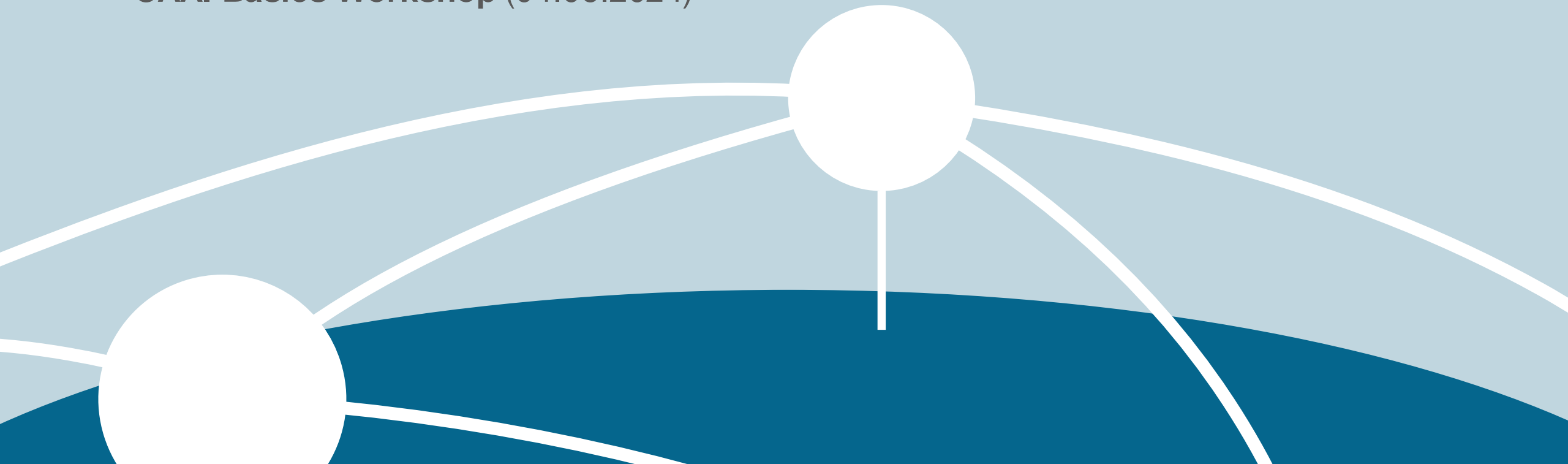


# IAM4NFDI – Exemplary Incubator Project

Integration of NFDI AAI to Open edX

CAAI Basics Workshop (04.06.2024)

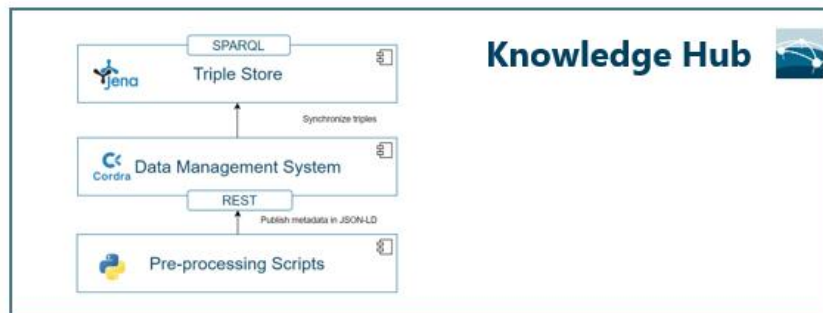


# Background

Learning Management System (Open edX) is 1 of 6 core services within NFDI4Earth

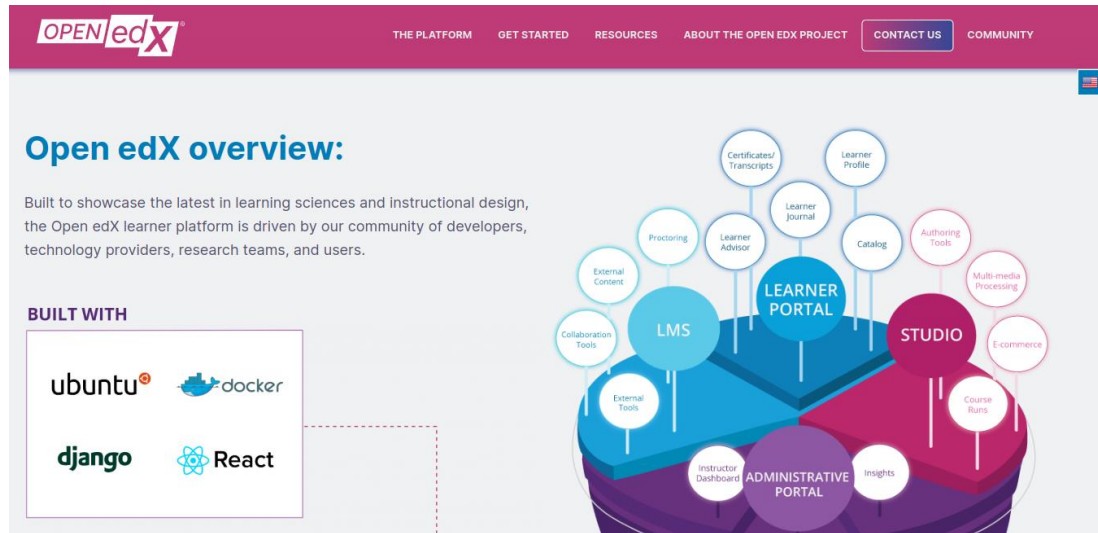


**Human-readable interface(s)**



**Machine-readable interface**

# Background



**Open edX overview:**

Built to showcase the latest in learning sciences and instructional design, the Open edX learner platform is driven by our community of developers, technology providers, research teams, and users.

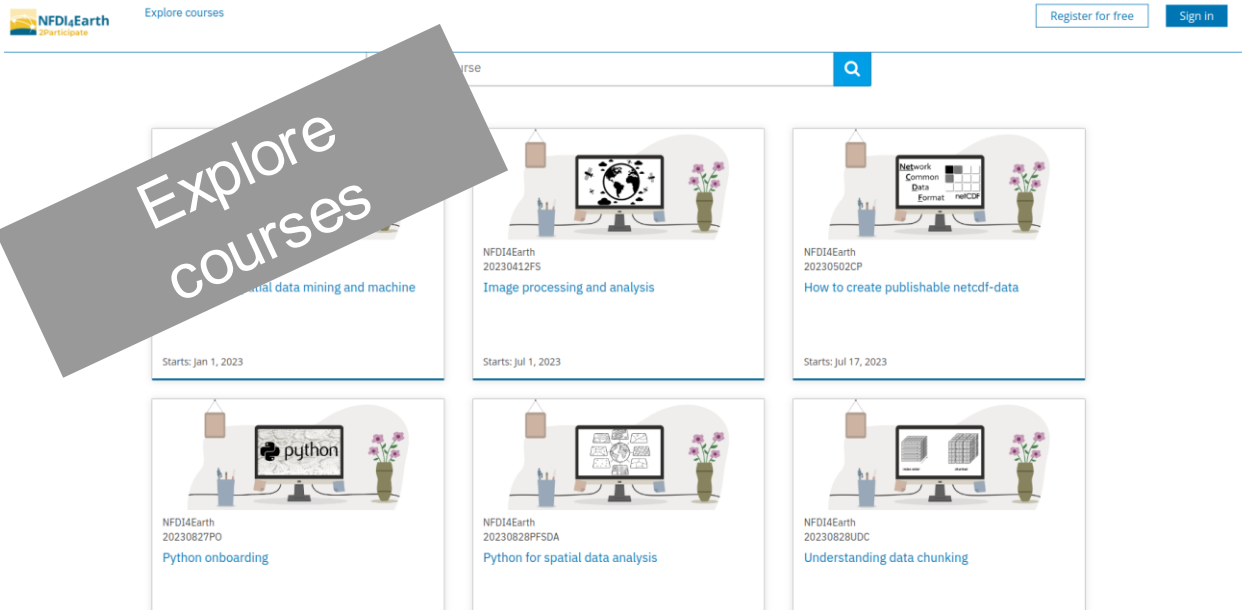
**BUILT WITH**

- ubuntu
- docker
- django
- React

**LEARNER PORTAL**

- Certificates/Transcripts
- Learner Profile
- Learner Journal
- Catalog
- Authoring Tools
- Multi-media Processing
- E-commerce
- Course Runs
- Insights
- ADMINISTRATIVE PORTAL
- Instructor Dashboard
- External Tools
- LMS
- External Content
- Collaboration Tools
- Proctoring
- Learner Advisor

- Login is obligatory
- 2 user groups
  - Users → many and heterogeneous
  - Authors → different institutions

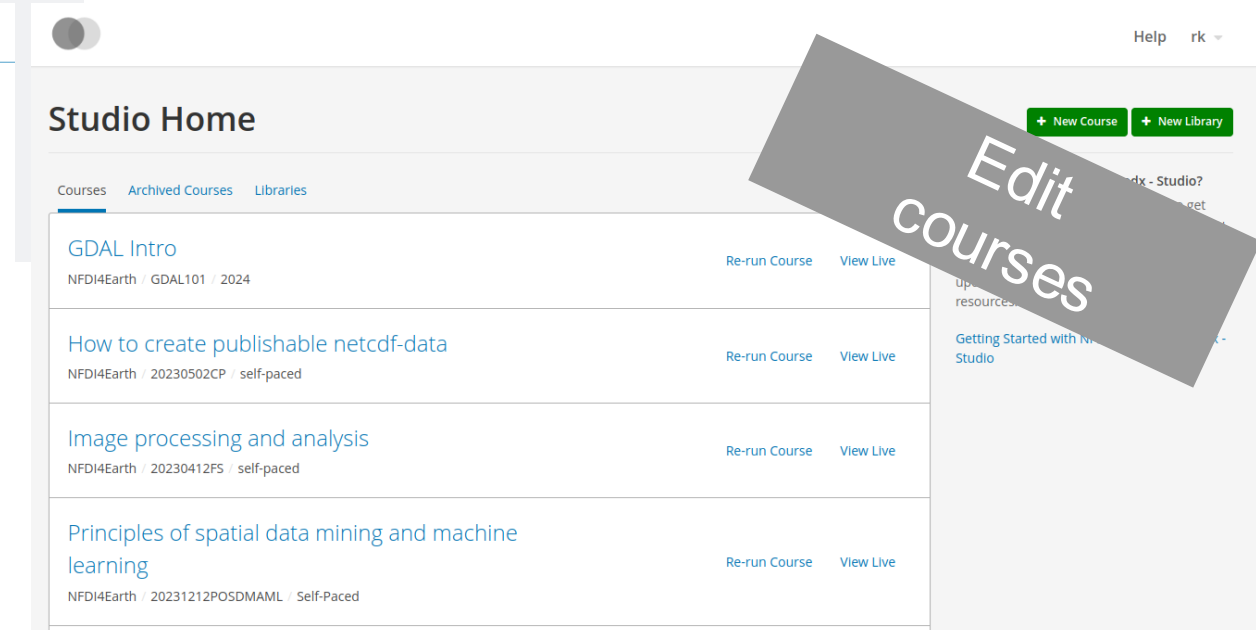


Explore courses

Register for free Sign In

Explore courses

- NFDI4Earth 20230412FS: Image processing and analysis (Starts: Jan 1, 2023)
- NFDI4Earth 20230502CP: How to create publishable netcdf-data (Starts: Jul 17, 2023)
- NFDI4Earth 20230827PO: Python onboarding
- NFDI4Earth 20230828PFSDA: Python for spatial data analysis
- NFDI4Earth 20230828UDC: Understanding data chunking



Studio Home

+ New Course + New Library

Courses Archived Courses Libraries

- GDAL Intro (NFDI4Earth / GDAL101 / 2024) [Re-run Course] [View Live]
- How to create publishable netcdf-data (NFDI4Earth / 20230502CP / self-paced) [Re-run Course] [View Live]
- Image processing and analysis (NFDI4Earth / 20230412FS / self-paced) [Re-run Course] [View Live]
- Principles of spatial data mining and machine learning (NFDI4Earth / 20231212POSDMAML / Self-Paced) [Re-run Course] [View Live]

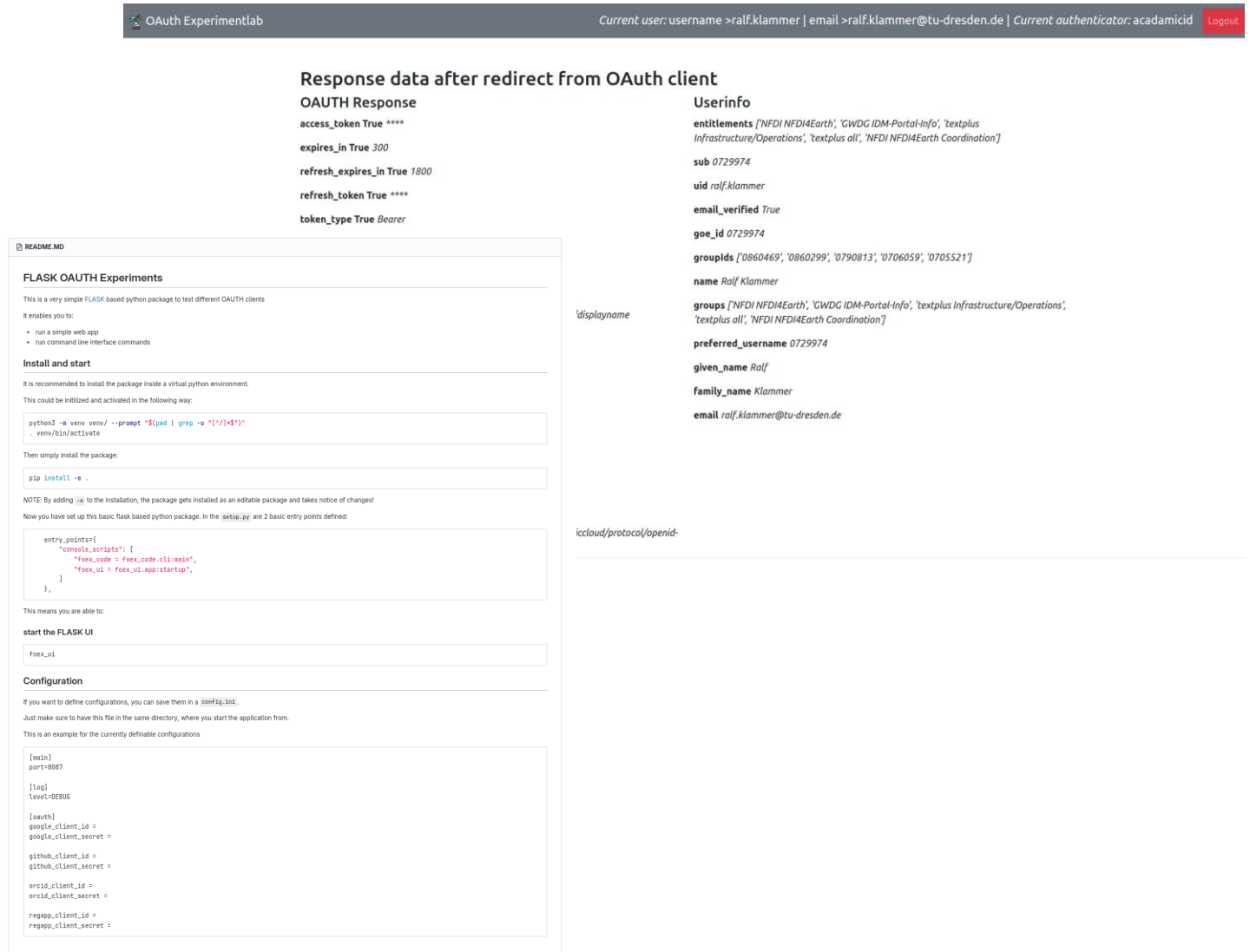
Edit courses

# Process of the incubator project

- Goals:
  - Getting first impression of IAM4NFDI
  - Test usability and features of available Community AAI
  - Find out how to decide between Community AAI
- 3 major steps
  1. Test authentication process
  2. Test handling of Virtual Organizations
  3. Decide for one Community AAI

# Step 1 - Authentication – Testapp

- Applied for OAuth-Client at 3 of 4 CAAs (Unity, RegApp & AcademicID)
- Simple Flask Application to learn and test
  - "How to authenticate in general"
  - "How to authenticate via each CAAI"



The screenshot shows a terminal window for an "OAuth Experimental lab". The top bar indicates the current user is "username > ralf.klammer" and the current authenticator is "academicid".

**Response data after redirect from OAuth client**

**OAUTH Response**

```
access_token True ****
expires_in True 300
refresh_expires_in True 1800
refresh_token True ****
token_type True Bearer
```

**Userinfo**

```
entitlements ['NFDI NFDI4Earth', 'GWDG IDM-Portal-Info', 'textplus Infrastructure/Operations', 'textplus all', 'NFDI NFDI4Earth Coordination']
sub 0729974
uid ralf.klammer
email_verified True
goe_id 0729974
groupids ['0860469', '0860299', '0790813', '0706059', '0705521']
name Ralf Klammer
groups ['NFDI NFDI4Earth', 'GWDG IDM-Portal-Info', 'textplus Infrastructure/Operations', 'textplus all', 'NFDI NFDI4Earth Coordination']
preferred_username 0729974
given_name Ralf
family_name Klammer
email ralf.klammer@tu-dresden.de
```

The terminal also displays a README for "FLASK OAUTH Experiments". It includes instructions for installation and configuration. The configuration section shows a sample `config.ini` file:

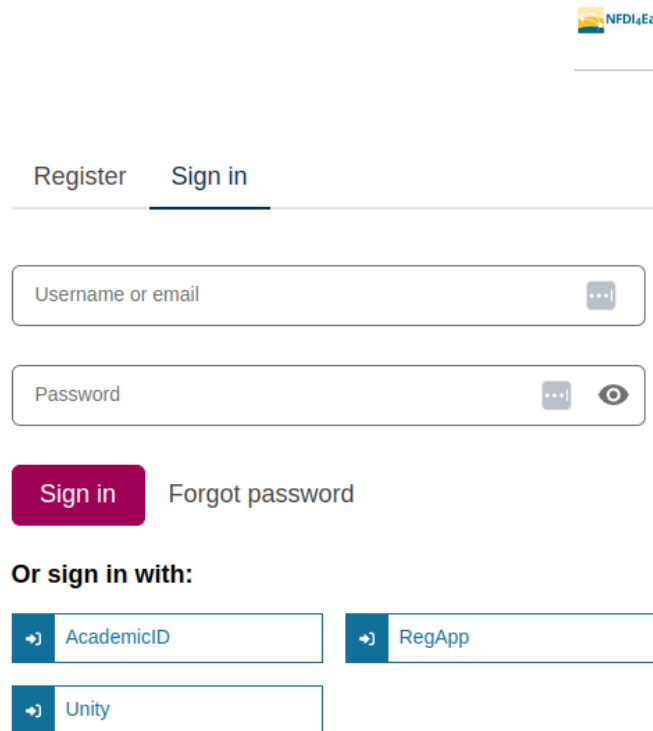
```
[main]
port=8087

[log]
level=DEBUG

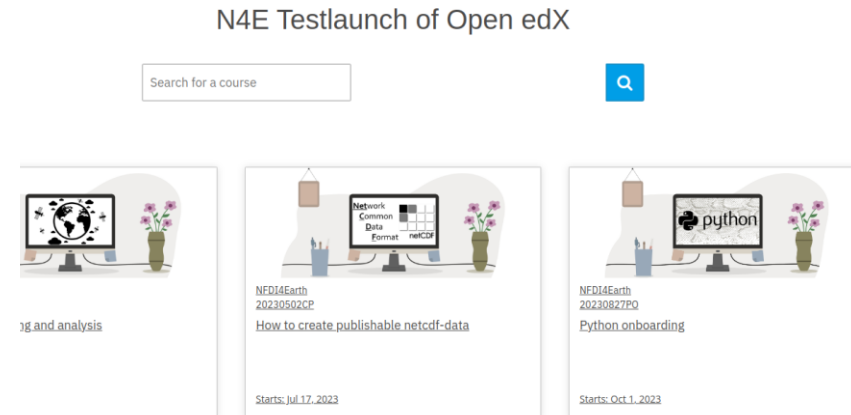
[oauth]
google_client_id =
google_client_secret =
github_client_id =
github_client_secret =
orcid_client_id =
orcid_client_secret =
regapp_client_id =
regapp_client_secret =
```

# Step 1 - Authentication - Open edX

- Integrated 3 of the 4 CAAs



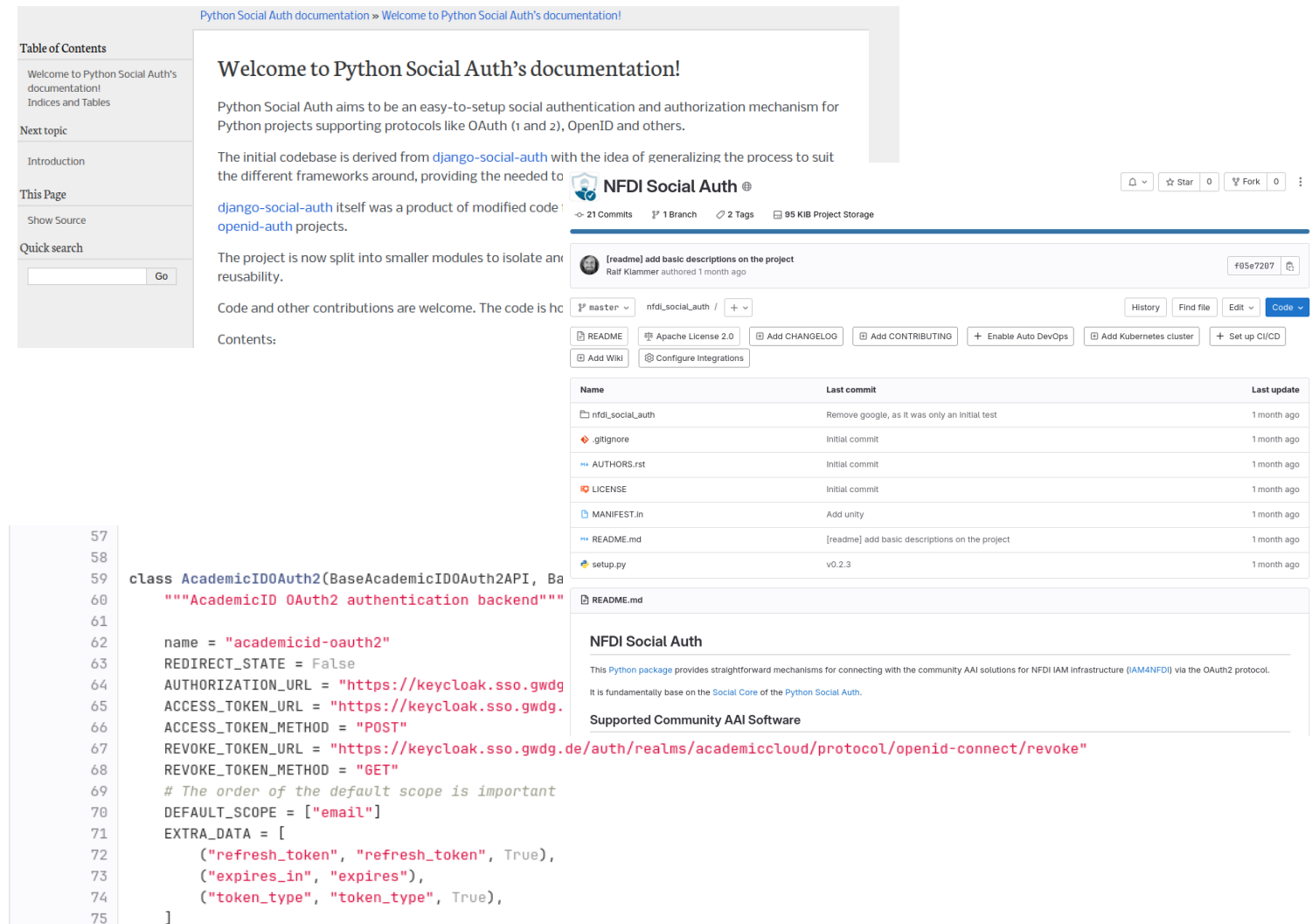
The screenshot shows the registration and sign-in interface. At the top left is the NFDI4Earth logo. On the right, there are links for "Explore courses", "Register for free", and "Sign in". The main heading is "N4E Testlaunch of Open edX". Below this is a search bar labeled "Search for a course" with a magnifying glass icon. The "Sign in" tab is selected, showing a "Register" link and a "Sign in" link. There are two input fields: "Username or email" and "Password" (with a password visibility icon). Below the password field is a "Sign in" button and a "Forgot password" link. Underneath, it says "Or sign in with:" followed by three buttons: "AcademicID", "RegApp", and "Unity".



The screenshot displays three course cards under the heading "N4E Testlaunch of Open edX". Each card features a search bar at the top with the text "Search for a course" and a magnifying glass icon. The first card is titled "ig.and.analysis" and shows a globe icon. The second card is titled "How to create publishable netcdf-data" and includes the course ID "NFDI4Earth 20230502CP" and a start date of "Starts: Jul.17. 2023". The third card is titled "Python onboarding" and includes the course ID "NFDI4Earth 20230827PO" and a start date of "Starts: Oct.1. 2023".

# Step 1 - Authentication – Python Social Auth

- Open edX based on Django
- makes use of "Python Social Auth" mechanism
- Simple integraton of CAAs
  - third party auth provider
  - via tutor plugin
- Supplement:
  - [reusable python classes based on "Python Social Auth"](#)

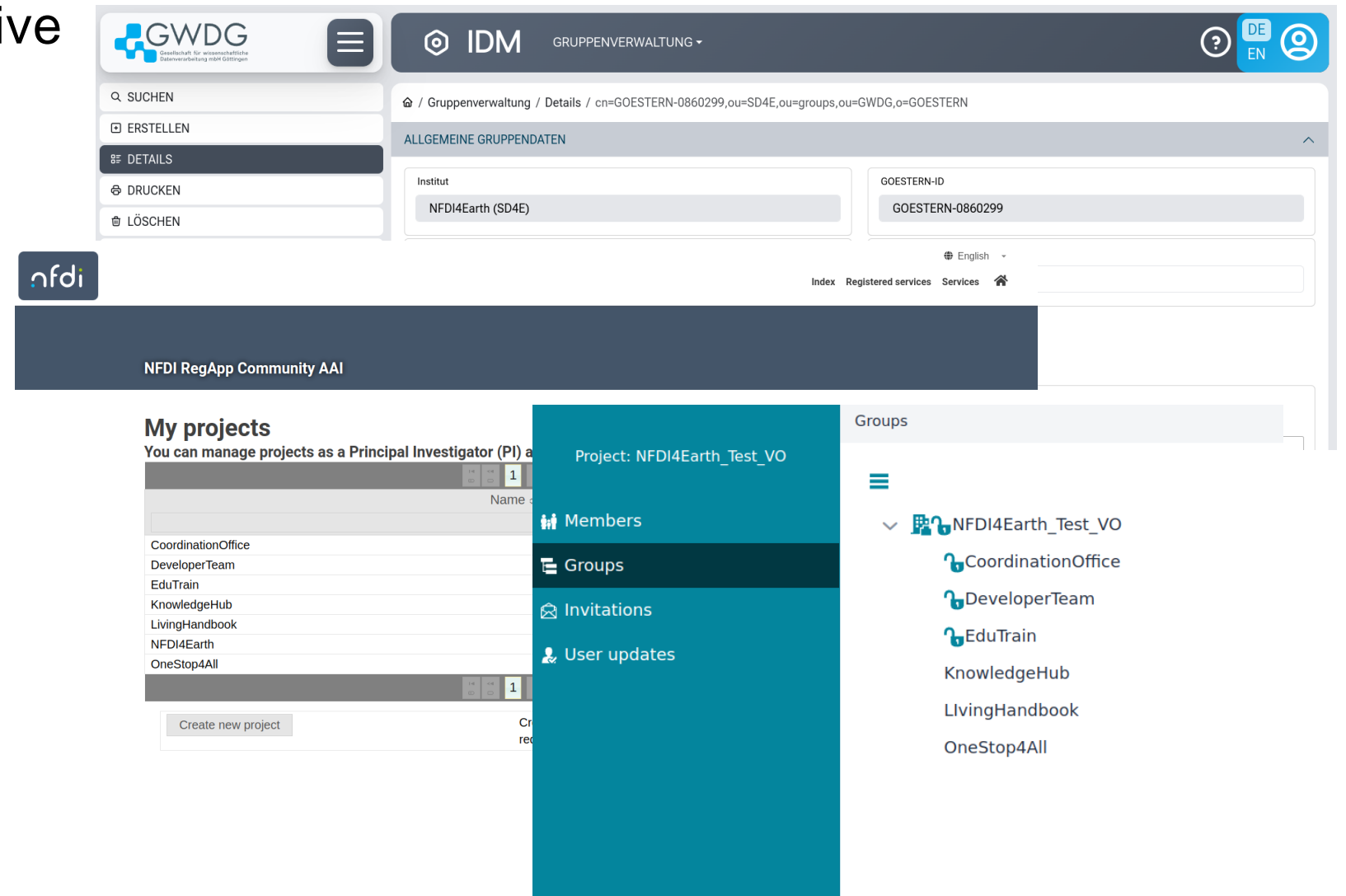


The image shows a screenshot of the Python Social Auth documentation page and its GitHub repository. The documentation page is titled "Welcome to Python Social Auth's documentation!" and describes the project's goals and initial codebase. The GitHub repository page shows the project name "NFDI Social Auth" and a list of files including README.md, MANIFEST.in, LICENSE, AUTHORS.rst, .gitignore, and nfdi\_social\_auth. A code snippet is shown below the repository page, defining the AcademicID0Auth2 class.

```
57
58
59 class AcademicID0Auth2(BaseAcademicID0Auth2API, BaseAcademicID0Auth2Backend):
60     """AcademicID 0Auth2 authentication backend"""
61
62     name = "academicid-oauth2"
63     REDIRECT_STATE = False
64     AUTHORIZATION_URL = "https://keycloak.sso.gwdg.de/realms/academiccloud/protocol/openid-connect/auth"
65     ACCESS_TOKEN_URL = "https://keycloak.sso.gwdg.de/realms/academiccloud/protocol/openid-connect/token"
66     ACCESS_TOKEN_METHOD = "POST"
67     REVOKE_TOKEN_URL = "https://keycloak.sso.gwdg.de/realms/academiccloud/protocol/openid-connect/revoke"
68     REVOKE_TOKEN_METHOD = "GET"
69     # The order of the default scope is important
70     DEFAULT_SCOPE = ["email"]
71     EXTRA_DATA = [
72         ("refresh_token", "refresh_token", True),
73         ("expires_in", "expires"),
74         ("token_type", "token_type", True),
75     ]
```

# Step 2 - Virtual Organisations

- Applied for administrative Accounts
- Tested
  - Handling of UI
  - Effect on "authentication attributes "



The screenshot displays the NFDI4Earth IDM Gruppenverwaltung interface. The top navigation bar includes the GWDG logo, a search bar, and the title 'IDM GRUPPENVERWALTUNG'. The main content area shows the details for a group with the ID 'GOESTERN-0860299'. The group name is 'NFDI4Earth (SD4E)'. Below this, there is a 'My projects' section with a list of projects: CoordinationOffice, DeveloperTeam, EduTrain, KnowledgeHub, LivingHandbook, NFDI4Earth, and OneStop4All. A 'Groups' sidebar on the right lists the same projects under the group 'NFDI4Earth\_Test\_VO'. A teal overlay menu is visible in the foreground, listing options: Members, Groups (highlighted), Invitations, and User updates.



# Step 3 – Decision on CAAI

- Find objective decision on 1 of the 3 tested CAAIs
- Comparison matrix with rating 1-5
- Decision process within consortium:
  1. Recommendation for one CAAI
  2. Proof of recommendation via internal group (responsible for "software decisions")
  3. Final decision via steering group

IAM4NFDI @ NFDI4Earth

Empfehlung zur Entscheidung für eine der angebotenen AAI Lösungen

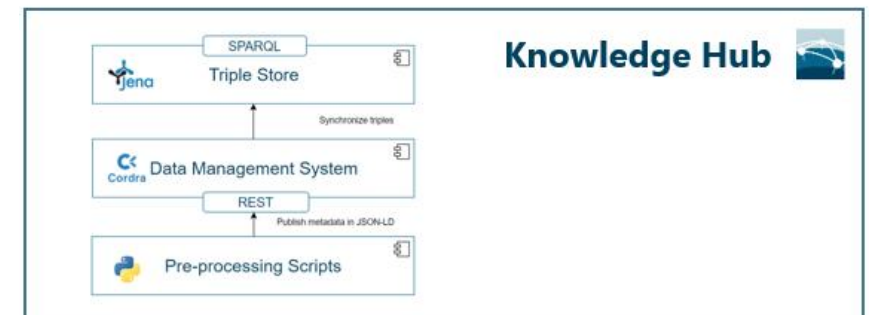
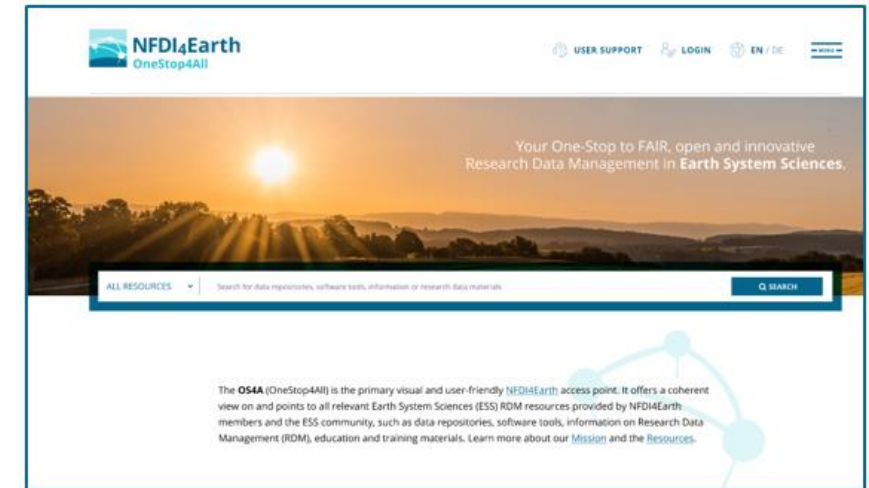
Grundlage

- IAM4NFDI a.k.a. "Identity and Access Management for the German National Research Infrastructure"
- Schafft Voraussetzungen, dass Nutzende aus unterschiedlichen Disziplinen Konzepte...

<b>Nutzersicht</b>					
Self-Service - Funktionsumfang	4	3	4		
Self-Service - Usability	4	2	5		
<b>OAuth-Client</b>					
Client Administration	3	-	-		
Client Documentation	4	2	2		
Client Support	4	5	3		
Client 2FA	4	4	5		
Organizational IdPs	5	4	4		
Social IdPs	3	2	1		
<b>Virtual Organisation</b>					
VO Administration - Funktionsumfang	4	3	5		
VO Administration - Usability	3	2	5		
Gruppenmanagement	4	3	4		
Nutzer einladen	3	2	5		
VO Documentation	5	1	5		
VO Support	4	5	2		
Mailinglisten	-	-	1		
Historie	-	-	3		
Export & Druck	-	-	2		
<b>Weitere Faktoren</b>					
Development & Maintenance an einem Ort	-	1	1		
Policy framework	5	3	4		
<b>Gesamtpunktzahl</b>	<b>59</b>	<b>42</b>	<b>61</b>		
Gesamteindruck	4	3	4		
<b>Bewertungsskala</b>					
	-				
	1	nicht gut			
	2	größere Einschränkungen			
	3	basics verfügbar			
	4	so wie es zu erwarten ist			
	5	hat features, die über die Grunderwartung hinaus gehen			
<b>Zusatzpunkte</b>					
	- es gibt Aspekte, die beschwerlich durch die Standardskala abbildbar sind				
	- darum habe ich mir damit beholfen, diese Kriterien durch Extrapunkte einfließen zu lassen				
	- es wurde bis zu 3 Punkte vergeben				

# Wrap up

- Getting first impression of IAM4NFDI
- Test usability and features of Community AAI
- Find decision process
- Decide for one Community AAI



*Thank You !*



<https://www.nfdi4earth.de/>

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Infrastructure (NFDI, <https://www.nfdi.de/>).