



Technical interoperability between ORD services
and repositories in the ETH Domain

API Platform

Workshop, 29 June 2023 University of Bern
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- Problem description and solution
- What is the API Platform?
- How can the API Platform be used in the ORD context?
- Current and planned use
- Example functionalities

Problem description and solution

Initial situation

- Large amounts of **diverse and valuable open data** distributed **across various applications (silo view)**
- Single point of access for customers in **ETH-Bibliothek @ swisscovery**

Problem

- Appropriate **provision, enrichment, contextualization and discoverability** of our data and digital assets for **machine processing** in a documented, sustainable and publicly accessible form is not given.

Solution: Building an API Platform and Resource Information Bus

- The API Platform together with the RIB puts the focus on **enabling the ETH Library to make open data appropriately available in machine-readable form** for variously oriented post-use opportunities, including by **third parties, as well as creating services** around this enablement.

What is the API Platform (1/3)

The API Platform is a collection of **tools and processes** for managing **interfaces and data**. The main component of the API Platform is the **API Gateway**.

Main functionalities:

- Make APIs **visible, open accessible and documented**
- Allow **composition of aggregated/enriched datasets** from **different target endpoints and Linked Data sources** (creating virtual datasets)

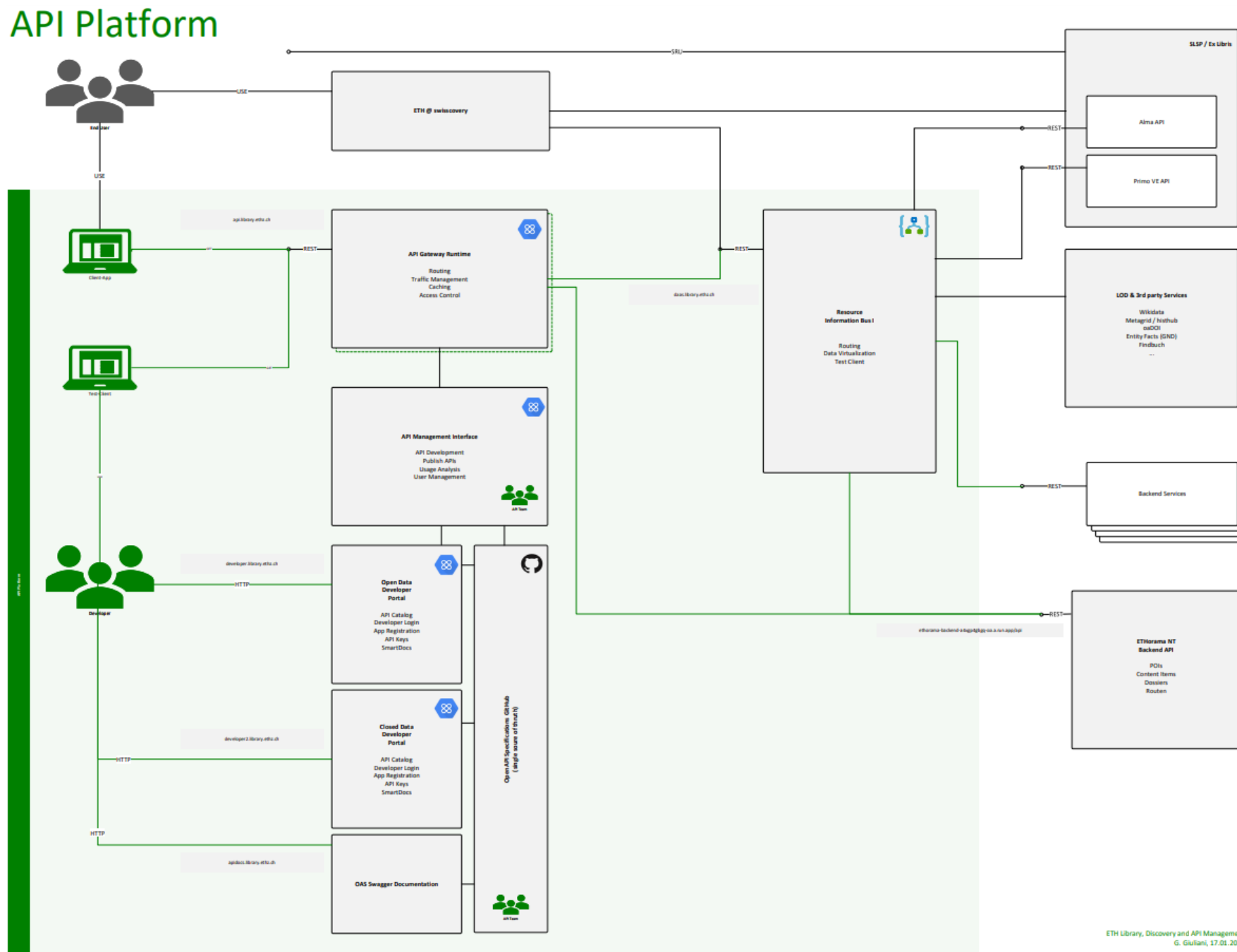
Other components are:

- | | |
|---|---------------------------|
| • Developer Portal | Google Apigee |
| • API Management Interface | Google Apigee |
| • Open API Specifications | Swagger UI / GitHub Pages |
| • Resource Information Bus (RIB) | Node.js |
| • Graph Database | Neo4j |

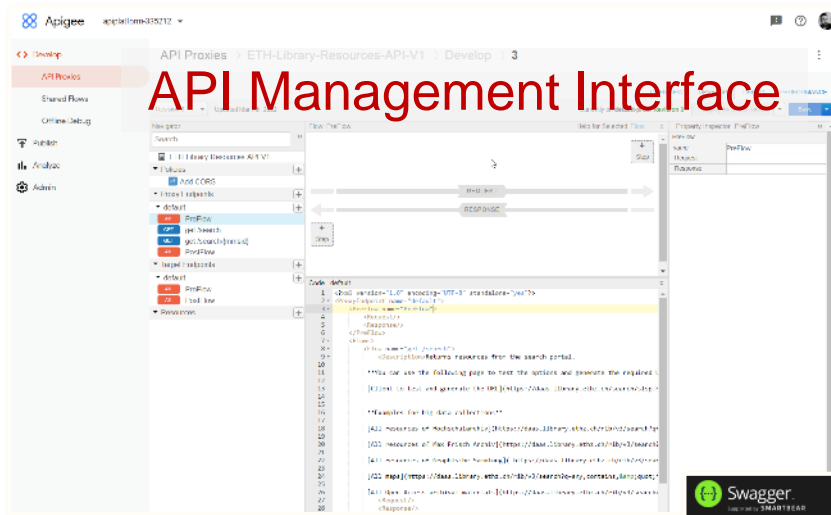
Customer group: developers (internal and external)

What is the API Platform (2/3)

Komponenten der API Platform



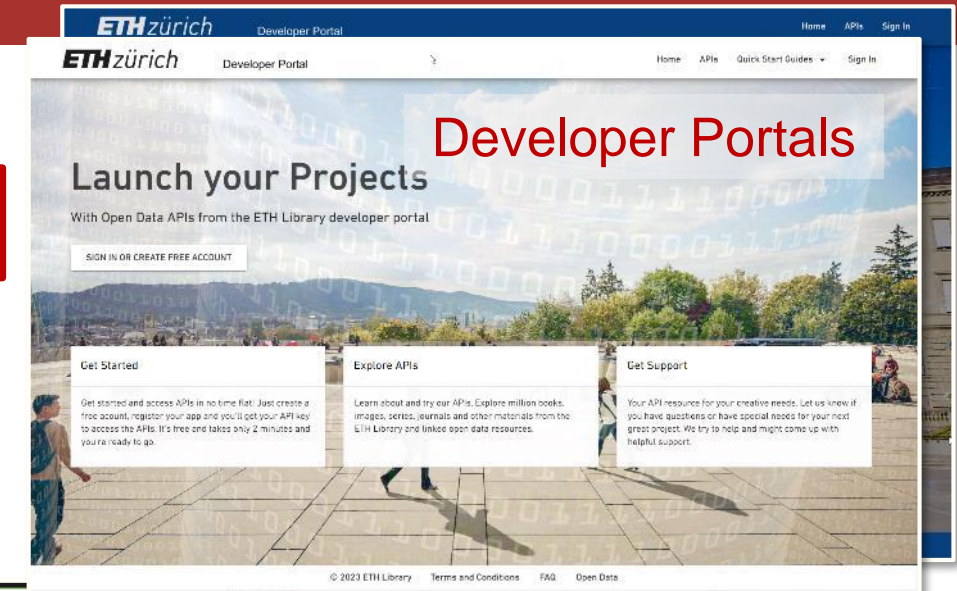
What is the API Platform (3/3)



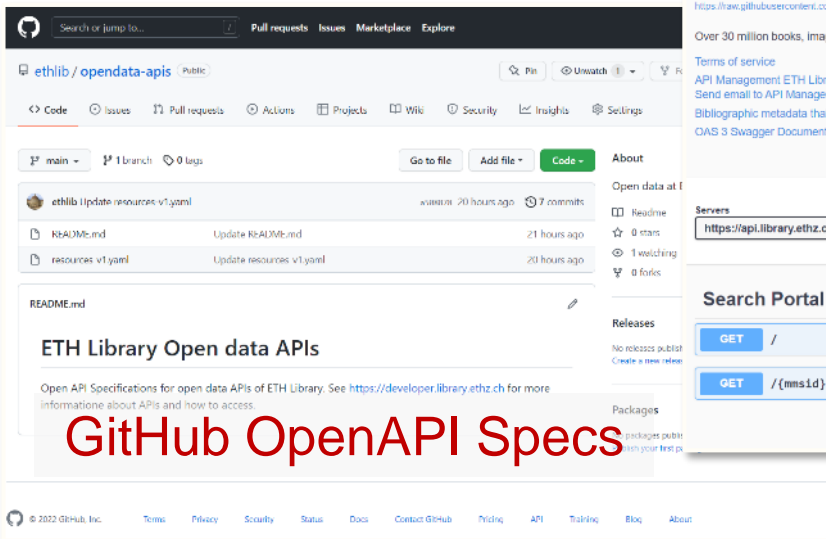
API Management Interface

Developer Portal
developer.library.ethz.ch

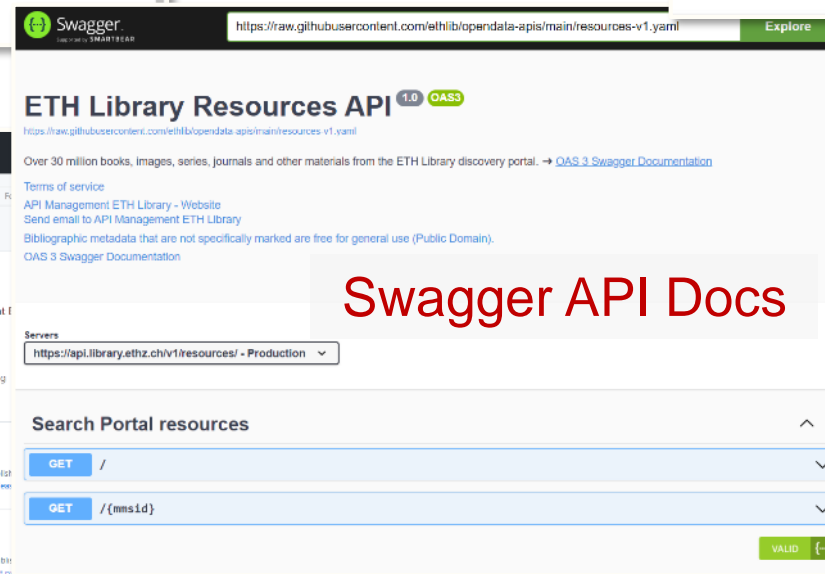
API Gateway
api.library.ethz.ch



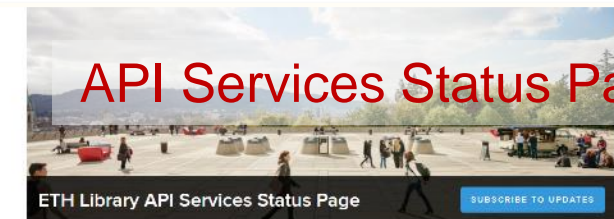
Developer Portals



GitHub OpenAPI Specs



Swagger API Docs



API Services Status Page

How can the API Platform be used in the ORD context?

1. Include existing API in API Platform (as target endpoint) and **pass it through 1:1. Add OAS and configure traffic management** functionality.
2. Integration of existing API for **integration/enrichment** of existing/other APIs. **Aggregation of virtual datasets.**

Basic requirements for binding:

- Open Data
- Rest or GraphQL
- Availability of Open API Specifications

Current and planned use

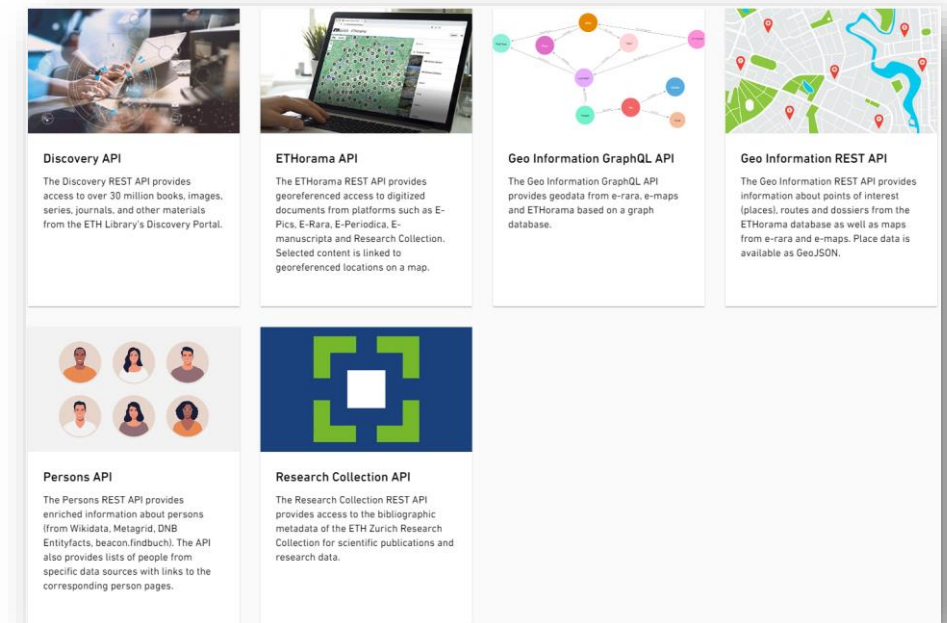
Current API Products

- Discovery API
- ETHorama API
- Geo Information GraphQL API
- Geo Information REST API
- Persons API
- Research Collection API

ETH Explorable Graph Project (Proof of Concept)

API Platform will provide data from the Research Collection for the initial version of an ETH 'Explorable Graph' that provides an overview of the research of ETH academic staff.

A project run by the Scientific IT Services supported by the Digital Transformation Office.



Example 1: Discovery: Download link

Name	Status
<input type="checkbox"/> libkey?doi=10.1093/nar/gkz956	200
<input type="checkbox"/> oadois?doi=10.1093/nar/gkv1...	200

Example 2: AngularJS + API

```
* Module {@Link ETH.ethUnpaywallModule}<br>
*
*
*/
export const ethUnpaywallService = ['$http', '$sce', function($http, $sce){
  let baseUrl = 'https://daas.library.ethz.ch/rib/v3/enrichments/oadois';

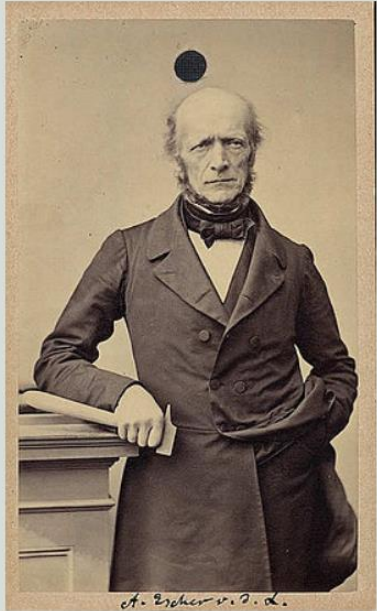
  function getOAResults(doi){
    let url = baseUrl + "?doi=" + doi;
```

```
// oaDOI/Unpaywall
// https://daas.library.ethz.ch/rib/v3/enrichments/oadois?doi=10.1093/nar/gks1195,10.1093/nar/gks1195
router.get('/oadois', async function(req, res, next) {
  if(!validateDOI(req, next))
    return;
  try{
    let urls = [];
    let aDoi = req.query.doi.split(',');

    aDoi.forEach(e => {
      urls.push('https://api.unpaywall.org/v3/' + encodeURIComponent(e) + '?email=');
    });
  }
});
```

Example 3: Person card

Arnold Escher von der Linth: More information about the person



Information from Wikidata and the GND

Geologe

Swiss geologist (1807-1872)

Born: 8. Juni 1807, Zürich

Died: 12. Juli 1872, Zürich

Schweizer Geologe

Information regarding the license status of embedded media files [Wikimedia Commons](#)

[Search for this Person](#)

Links in Archive

[ETH Zurich University Archives \(Inventarnummer: CH-001807-7: Fonds_Escher_Arnold\)](#)

Links from Wikidata

[Wikidata](#)

[Wikimedia Commons](#)

[Historisches Lexikon der Schweiz](#)

[GND \(Gemeinsame Normdatei der Deutschen Nationalbibliothek\)](#)

[Library of Congress](#)

Links from Metagrid

Links powered by Metagrid

[Historical Dictionary of Switzerland](#)

[Sudoc \(Système Universitaire de Documentation\)](#)

[Bibliography on Swiss History](#)

[Editions- und Forschungsplattform hallerNet](#)

[Swiss elites database](#)

[Alfred Escher letters edition](#)

[Helveticat](#)

Links from beacon.findbuch

Links from the SeeAlso-Service [pnd-aks](#), which is based on [BEACON](#)

[Personenseite in der Deutschen Digitalen Bibliothek \(7\)](#)

[Deutsche Biographie](#)

Students or doctoral students (from Wikidata)



Johann Jakob Egli (Swiss geographer (1825-1896), Born: 1825-05-17)

Example 4: Computer Science Textbook Collection, organized by lectures

Bachelor

1st Semester ^

Algorithms and Data Structures

Discrete Mathematics

Introduction to Programming

Linear Algebra

2nd Semester v

3rd Semester v


Master


Core Focus Courses


Elective Focus Courses


Interfocus Courses


Algorithms and Data Structures


 Markus Püschel,
David Steurer

 Autumn Semester

 Location: rack 1,
shelf 2


 VVZ-ID: 252-0026-
00L

 Lecture homepage




Concrete mathematics
A foundation for computer science
Ronald L. Graham, Donald E. Knuth, Oren Patashnik

✓ AVAILABLE
ONLINE VERSION



Algorithmen - eine Einführung
Thomas H. Cormen ... [et al.]

✓ AVAILABLE



Algorithmen und Datenstrukturen
Thomas Ottmann, Peter Widmayer

✓ AVAILABLE
ONLINE VERSION

The course provides the foundation of the design and analysis of algorithms. The material is introduced using

ETH zürich

ETH Library

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Example 5: GraphQL Geodata

Operation



Contributors

...

```
1 query Contributors {  
2   contributors {  
3     name  
4     lifetime  
5     gnd  
6     eRaraItems {  
7       title  
8       doi  
9       url  
10    }  
11  }  
12 }  
13  
14
```

Response



```
{  
  "data": {  
    "contributors": [  
      {  
        "name": "Ptolemaeus, Claudius",  
        "lifetime": "100-178",  
        "gnd": "118641786",  
        "eRaraItems": [  
          {  
            "title": "La geografia di Claudio Tolomeo Alessandrino",  
            "doi": "10.3931/e-rara-1861",  
            "url": "http://dx.doi.org/10.3931/e-rara-1861"  
          }  
        ]  
      },  
      {  
        "name": "Moletti, Giuseppe",  
        "lifetime": "1531-1588",  
        "gnd": "123073707",  
        "eRaraItems": [  
          {  
            "title": "La geografia di Claudio Tolomeo Alessandrino".
```

Bernd Uttenweiler, Germano Giuliani
Discovery and API Management
Digital Business Solutions, ETH Library

Developer Portal: <https://developer.library.ethz.ch>
Contact: api@library.ethz.ch

OpenAPI Specification & Documentation Workflow

