

Screwdriver Experiments with MDC and IAM



TA2-WP1

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ILDG Building Blocks

Modular architecture → configurable/flexible, independently re-reusable, no vendor lock

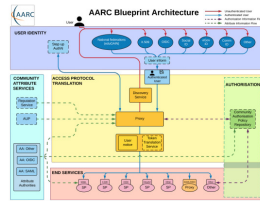
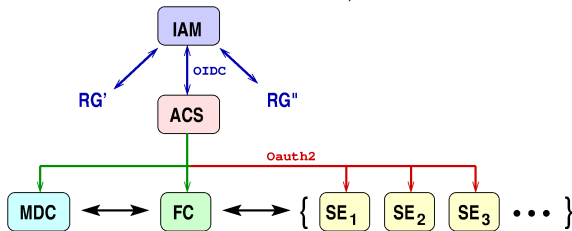
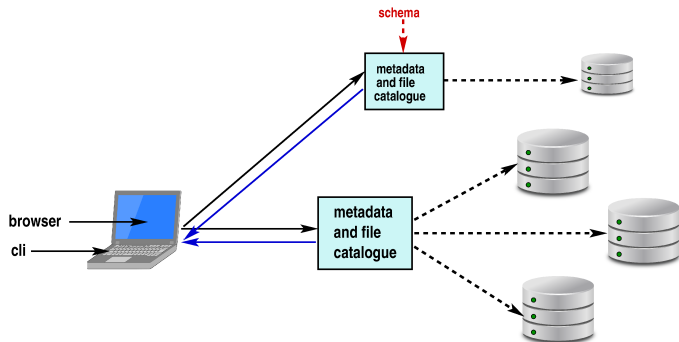


Figure 1: Component layers of the AARC Blueprint Architecture (AARC-BPA 2019)

- MDC supporting multiple metadata collections, each with freely configurable XML schema (XSD)
- Optional file catalog (FC) service
- Optional fine-grained access control (ACS)
- REST API and simple (containerized) deployment

Use Case

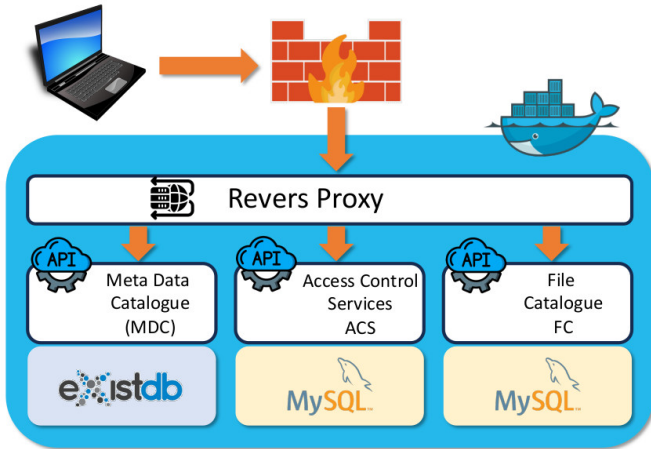


For hands-on experiments*), see:

- simple listings <https://www-zeuthen.desy.de/apc-cgi-bin/mdc-punch.cgi>
- wrapper scripts for curl <https://gitlab.desy.de/ildg/hands-on/try-client> (README)
- Swagger documentation of API of [MDC](#), [FC](#), and [ACS](#)

*) currently only read access to MDC is possible without grid cert and VO membership

Implementation of MDC, FC, and ACS



Instances: DESY Zeuthen, Uni Bielefeld, Japan, UK (planned)

Metadata Catalogue (MDC)

Purpose: (P)ID registration and metadata search

ID $\longleftrightarrow$ metadata

Features:

- Supporting multiple metadata collections, each with freely configurable XML schema (XSD)
- Xpath queries (powerful w3 standard, but complex)
- REST API and simple (containerized) deployment

Basic operations:

- * Search: query $\rightarrow$ list of IDs (supporting complex Xpath queries)
- * Retrieve: ID $\rightarrow$ MD (XML)
- Validate, insert, update, delete, ...

Documentation: [Swagger UI](#) (to be completed)

File Catalogue (FC)

Provides: functional (many-to-one) relation

$$\boxed{\text{FC: } \text{SURL} \longrightarrow \text{LFN}}$$

for efficient look-up for inverse relation $\text{LFN} \rightarrow \{\text{SURL}\}$

Basic operations:

- * list entries (SURL) by LFN
- list by other criteria (SURL, Access Control Attributes)
- insert, count, delete, ...

Documentation: [Swagger UI](#) (to be completed)

Demo (1)

See [TA2 Meeting 4.12.2023](#)

- download example XML
- verify that it validates
- modify as preferred
- verify whether it still validates
- download XSD schema
- adjust XSD schema
- reconfigure MDC with new schema

Demo (2)

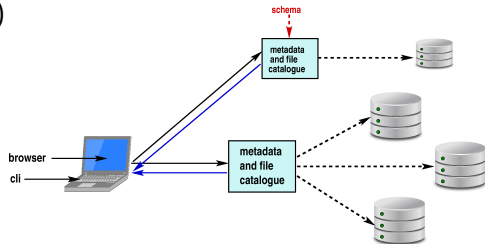
- **MDC Index** → simple listings
(CGI scripts accessing MDC of each regional grid)

- public read access by **test scripts** using curl

```
try-mdc --get-properties  
try-mdc -c demo --schema  
try-mdc -c demo --list -c demo  
try-mdc -c demo --get <id>  
try-mdc -c demo --validate <xml>
```

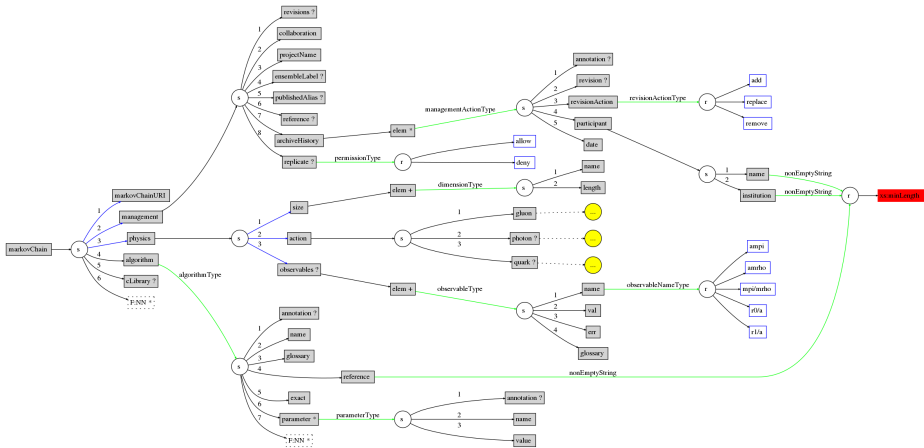
- operations with access restrictions (require **grid environment** and **VO membership**)

```
voms-proxy-init -voms ildg  
try-mdc -c demo --insert <xml>  
try-fc --match-surl srm://  
try-fc --list-lfn <lfn>  
gfal-ls -l <surl>
```

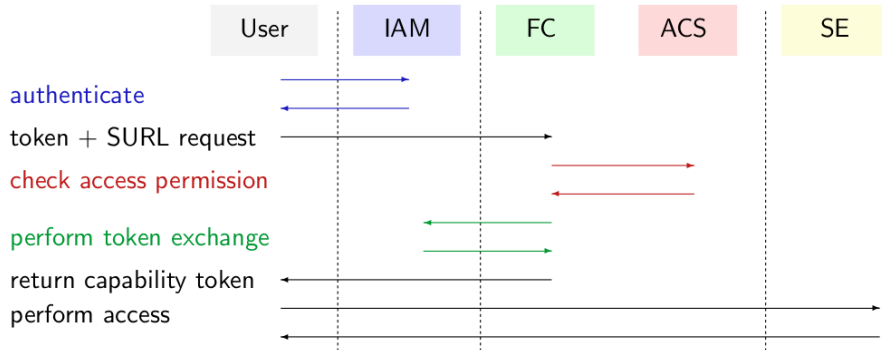


Complex Xpath Queries

Requires knowledge of structure of Metadata Schema (XSD), e.g.



Tokens from IAM for Access Control in ILDG 2



- ACS must not store user/group information (GDPR!)
- ACS might cache privileges and access tokens