D4Science Catalogue

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IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-Mission 4 “Education and Research” - Component 2: “From research to business” - Investment 3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”

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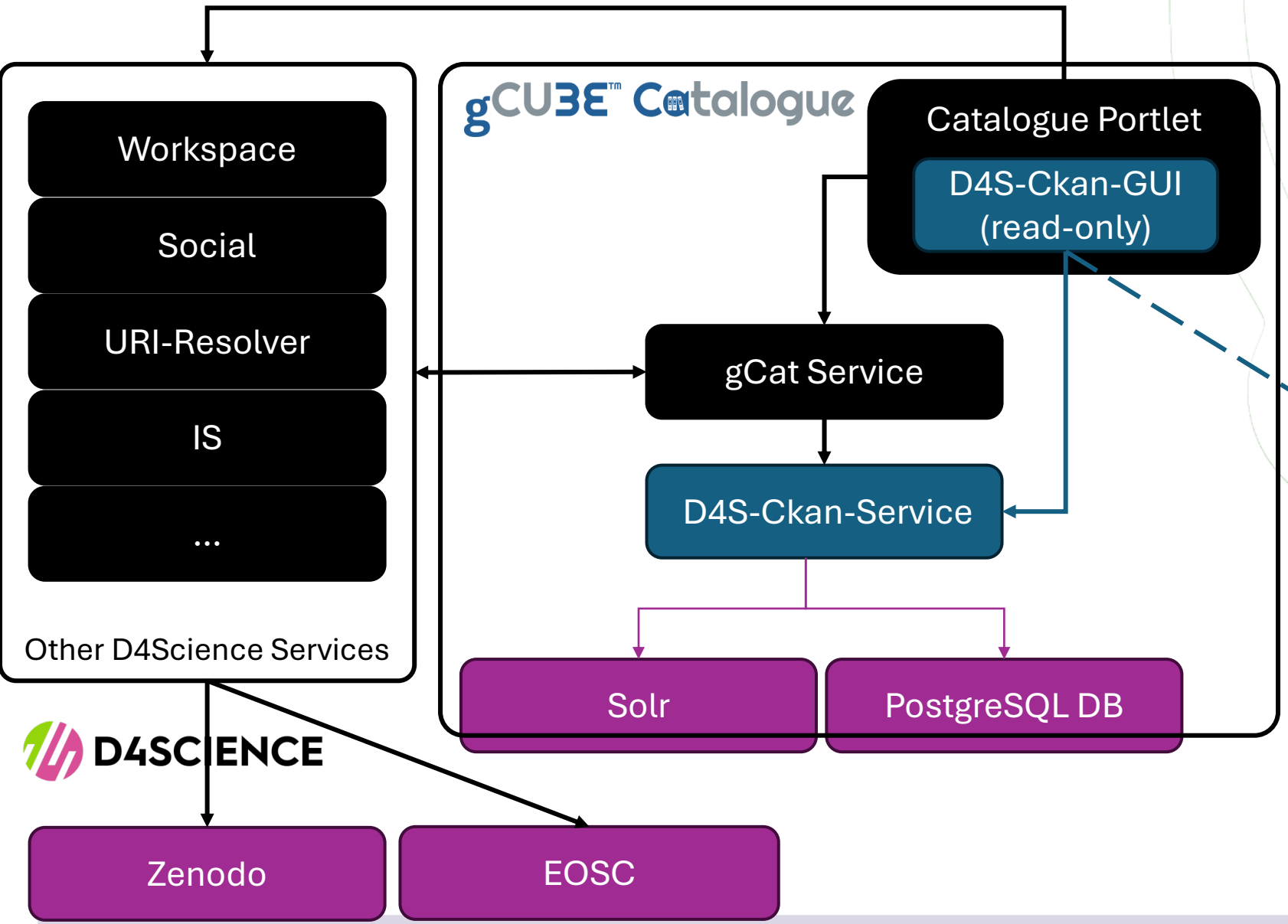
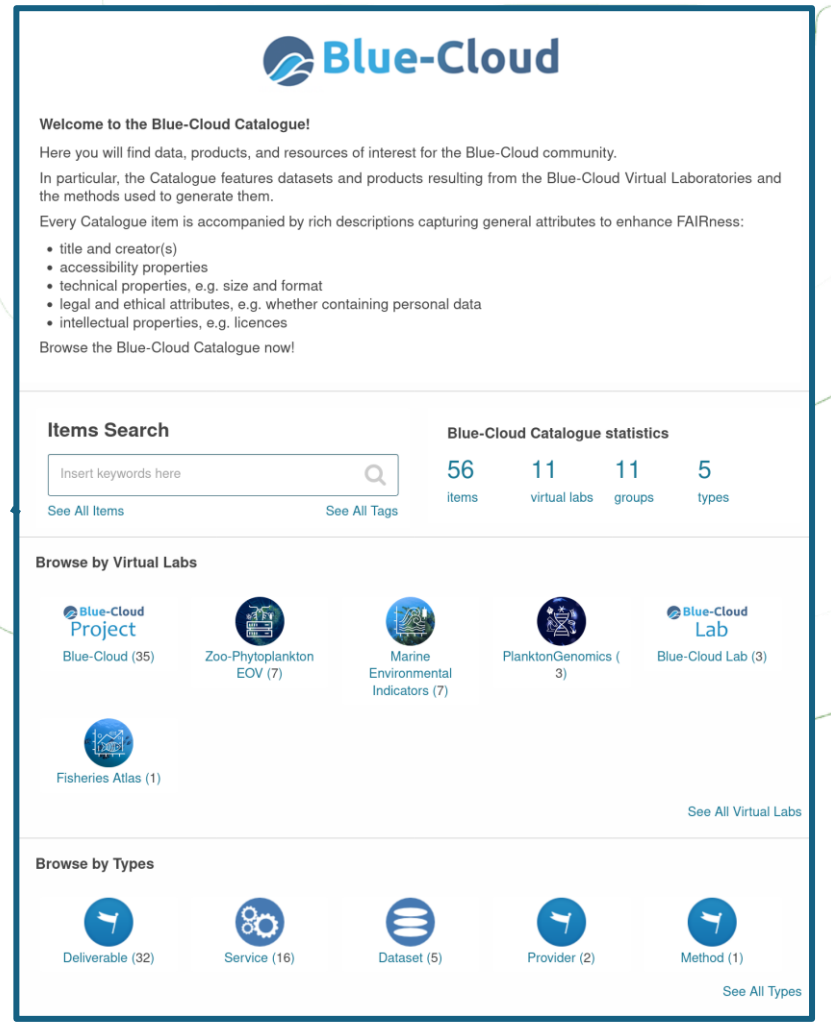
Summary

- Catalogue Architecture
- Item and Main Concepts
- Catalogue Integration in D4Science and External Services
- Moderated Catalogue
- gCat Service

Catalogue Architecture





Catalogue Roles

Any user has one or more roles in the catalogue. Only the VRE Manager can assign roles to VRE users. The catalogue uses the following hierarchic roles:

- **Catalogue-Member**: A user with such a role is mainly capable of listing and reading items;
- **Catalogue-Editor**: A user with such a role can manage the items he/she creates and capable of using other safe APIs;
- **Catalogue-Admin**: A user with such a role can administrate many aspects of the catalogue;
- **Catalogue-Manager**: A user with such a role can use all the APIs exposed by the service except item moderation APIs (e.g., approve, reject, …).

Another role that is not in the role hierarchy:

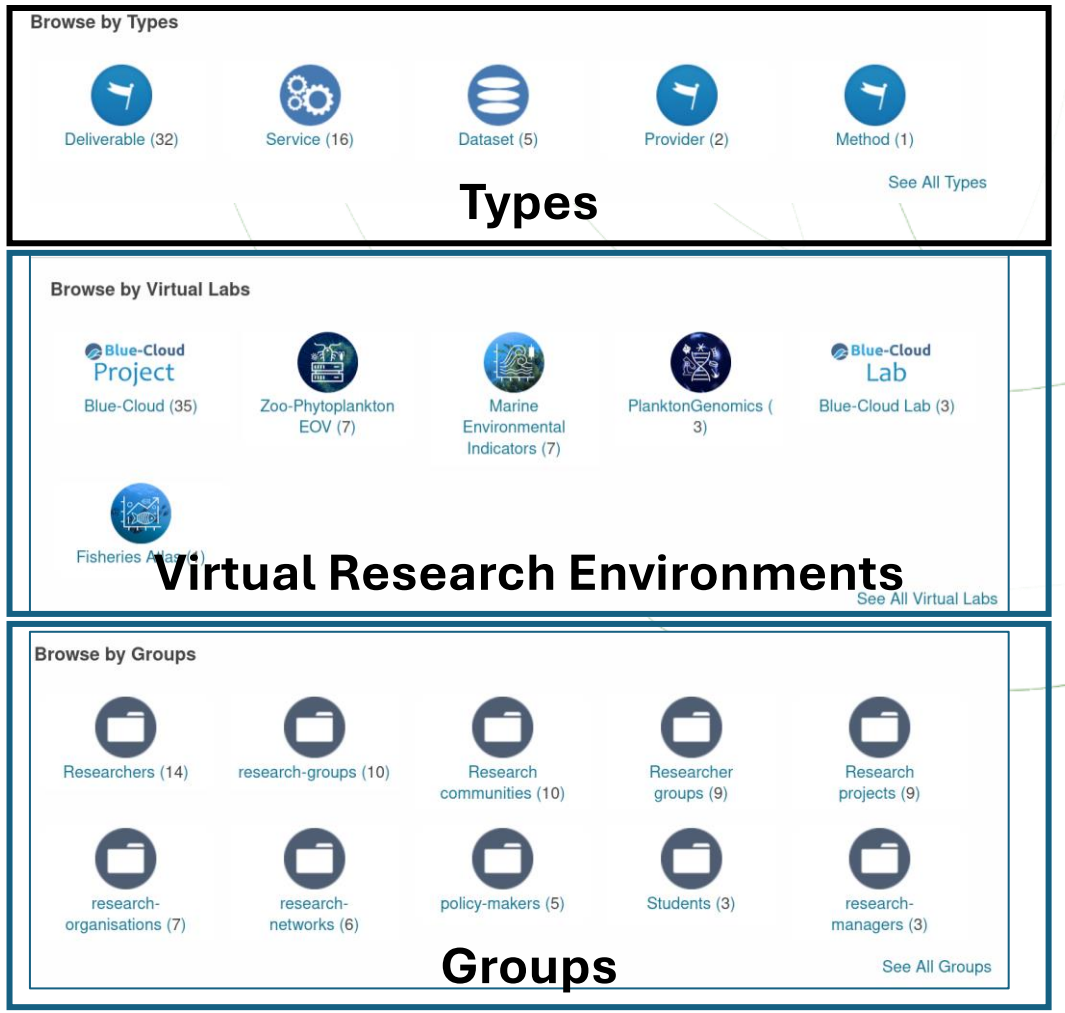
- **Catalogue-Moderator**: A user with such a role can invoke the item moderation APIs.

A Deposited Item Example

The Catalogue has been designed to publish Items, i.e., a digital objects.

Every **item** published in the catalogue:

- has a **Type**, which highlights its features:
  - each type is associated to a specific **Metadata** Profile (or schema).
- belongs to one (an only one) **VRE**(aka Ckan Organization);
- is associated with one or more **Groups** which is used to collect items by certain characteristics, e.g., subject, theme;



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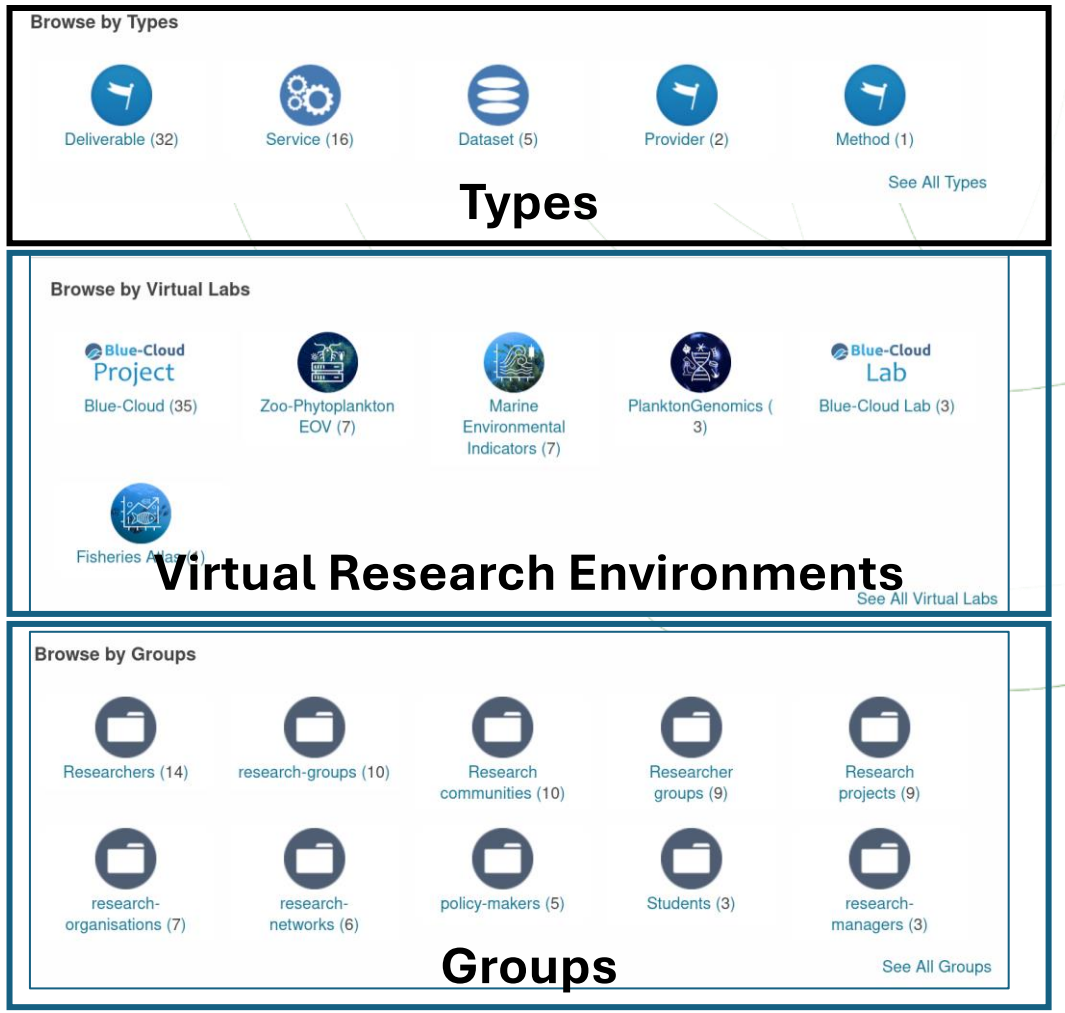

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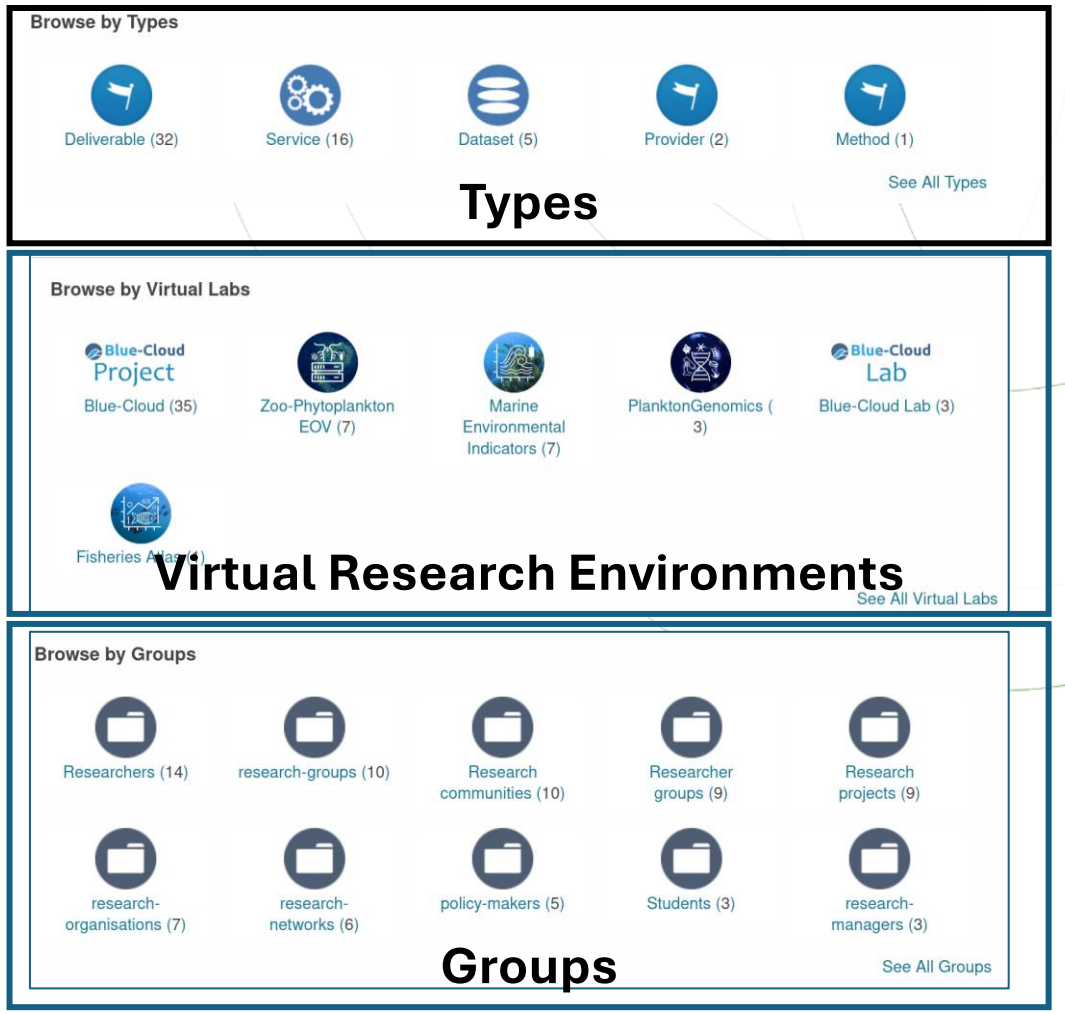
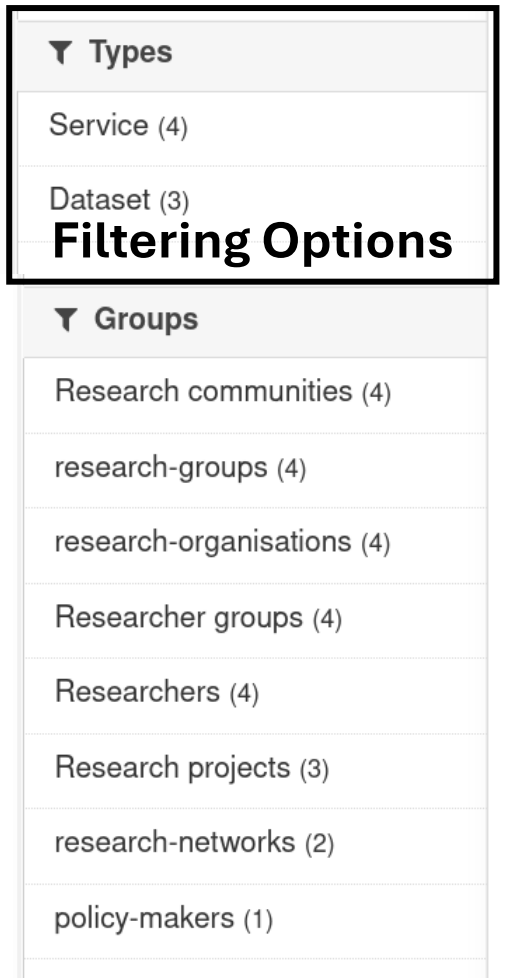
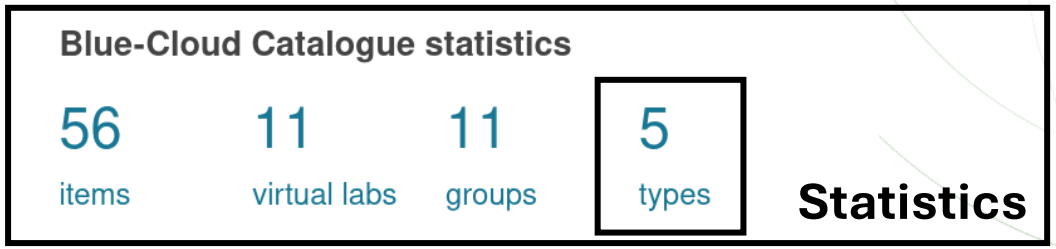
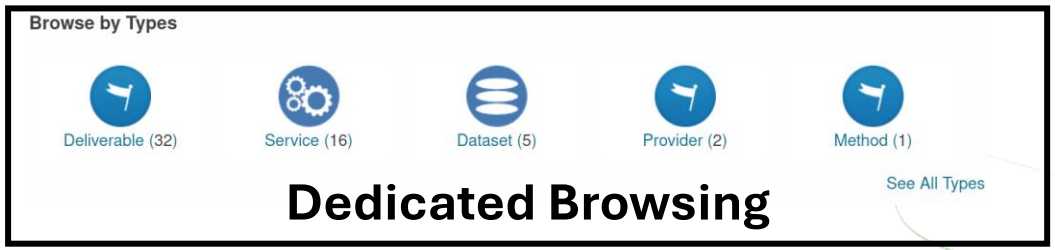
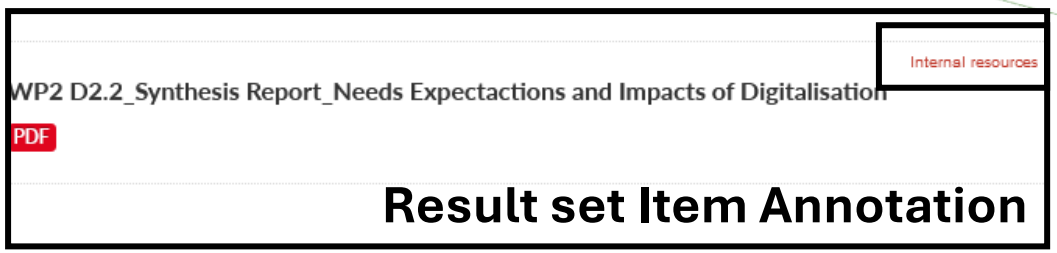


Item Types - First class concept







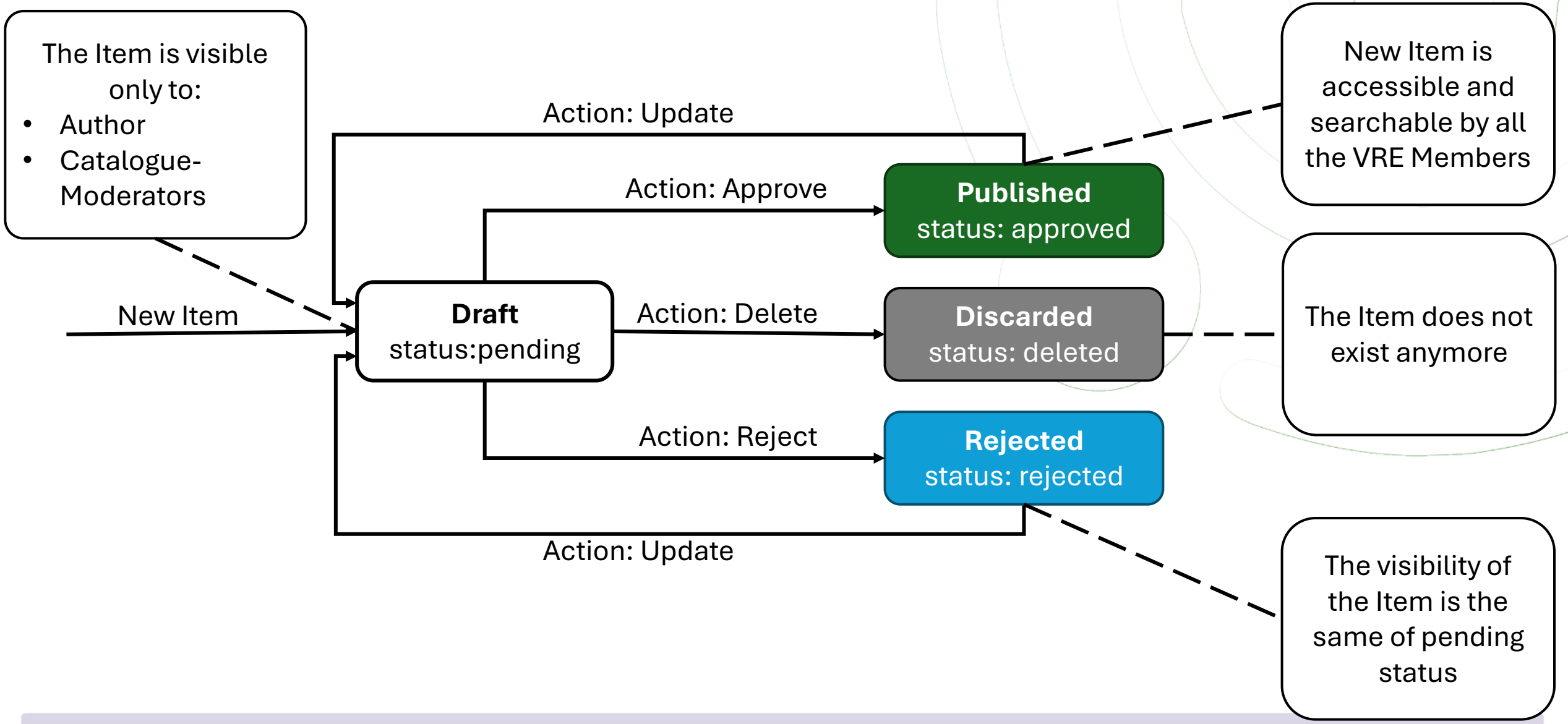


Item Type Schema Specification

https://wiki.gcube-system.org/gcube/GCat_Background

```
<metadataformat type="YOUR TYPE HERE">
    <metadatafield categoryref="category_id_#">
        <fieldName>Name of Metadata Field</fieldName>
        <mandatory>true|false</mandatory>
        <dataType>String|Time|Time_Interval|Times_ListOf|Text|Boolean|Number|GeoJSON</dataType>
        <maxOccurs>N|*</maxOccurs>
        <defaultValue>default value</defaultValue>
        <note>[the note is shown as a suggestion in the insert/update metadata form of Catalogue Publisher Widget]
                </note>
        <vocabulary isMultiSelection="true|false">
            <vocabularyField>field1</vocabularyField>
            <vocabularyField>field2</vocabularyField>
            <vocabularyField>field3</vocabularyField>
        </vocabulary>
        <validator>
            <regularExpression>a regular expression for validating values</regularExpression>
        </validator>
        <tagging create="true|false" separator="char_to_separate">onFieldName|onValue|onFieldName_onValue|onValue_onFieldName</tag
        <grouping create="true|false">onFieldName|onValue|onFieldName_onValue|onValue_onFieldName</grouping>
    </metadatafield>
</metadataformat>
```

Item Statuses in Moderated Catalogue



gCat REST Service

- Available at https://api.d4science.org/gcat
- Authorization JWT (Json Web Token) https://dev.d4science.org/how-to-access-resources
- General Documentation at https://api.d4science.org/gcat/docs/index.html
- REST APIs Documentation at https://api.d4science.org/gcat/api-docs/index.html

gCat REST Collections

The following collections are available to any user.
Only **Catalogue-Editor** or above can invoke Non-safe methods.

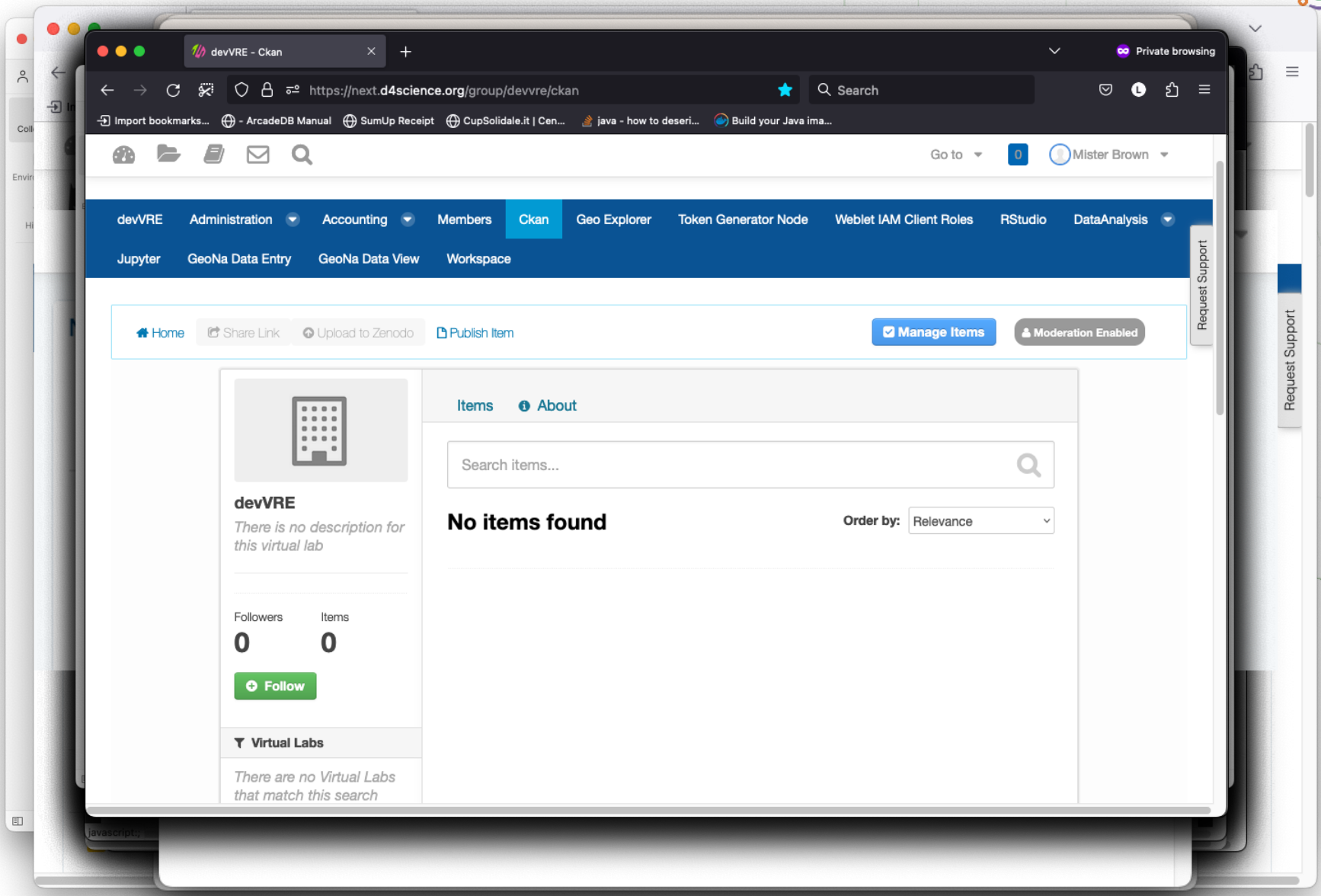
- **Item Collection**: Items CRUD+LPP (Create, Read, Update, Delete + Listing, Patch, Purge) and Moderation (Approve, Reject, Message);
- **Resource Collection**: Item's Resources CRUD+LP;
- **Profile Collection**: Types CRUD+L;
- **Trash Collection**: Listing and Delete;
- **License Collection**: Listing only;
- **Namespace Collection**: Listing Only.

https://api.d4science.org/gcat/api-docs/index.html

gCat REST Items Collection APIs

Operation	HTTP Method	URL	Min Required Role
List	GET	/items?limit=10&offset=0	Catalogue-Member
Count	GET	/items?count=true	Catalogue-Member
Bulk Delete	DELETE	/items	Catalogue-Editor (Catalogue-Editor can only delete own items)
Bulk Purge	PURGE	/items	
Create	POST	/items?social_post=true	Catalogue-Editor
Read	GET	/items/{NAME}	Catalogue-Member
Update	PUT	/items/{NAME}	Catalogue-Editor
Delete	DELETE	/items/{NAME}	Catalogue-Editor
Purge	PURGE	/items/{NAME}	Catalogue-Editor
Moderate (Approve, Reject, Message)	POST	/items/{NAME}	Catalogue-Moderator && Catalogue-Editor (Owner)

Moderated Catalogue Workflow Examples



Acknowledgement

Francesco Mangiacrapa

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