



# D4Science Catalogue

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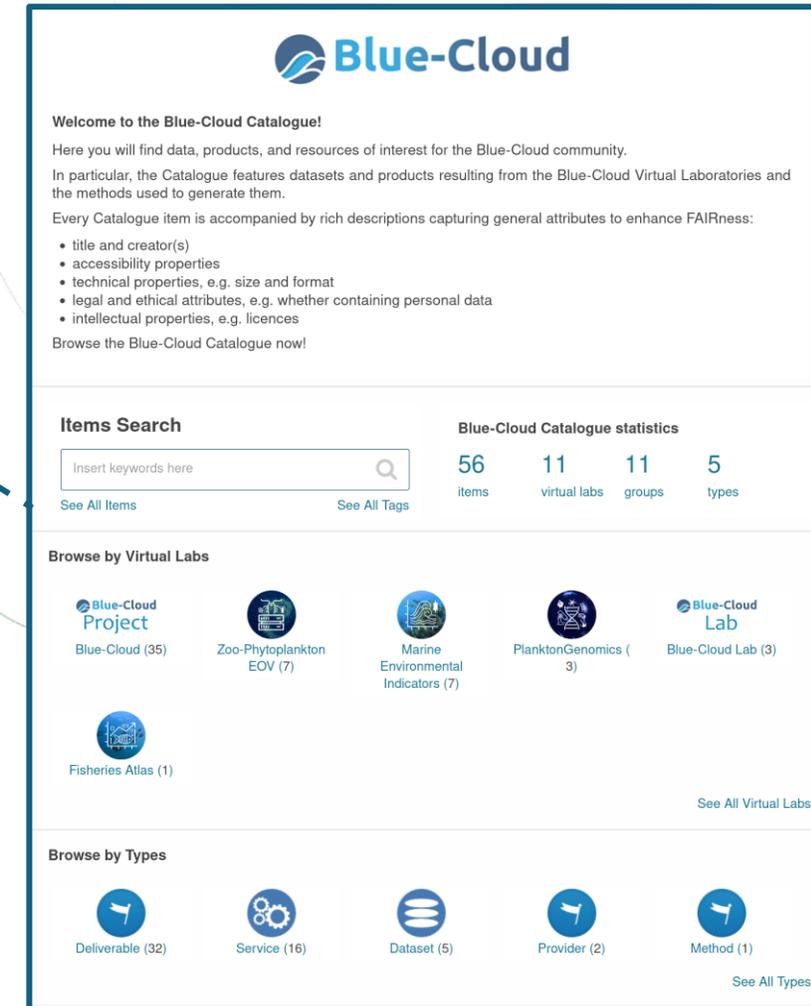
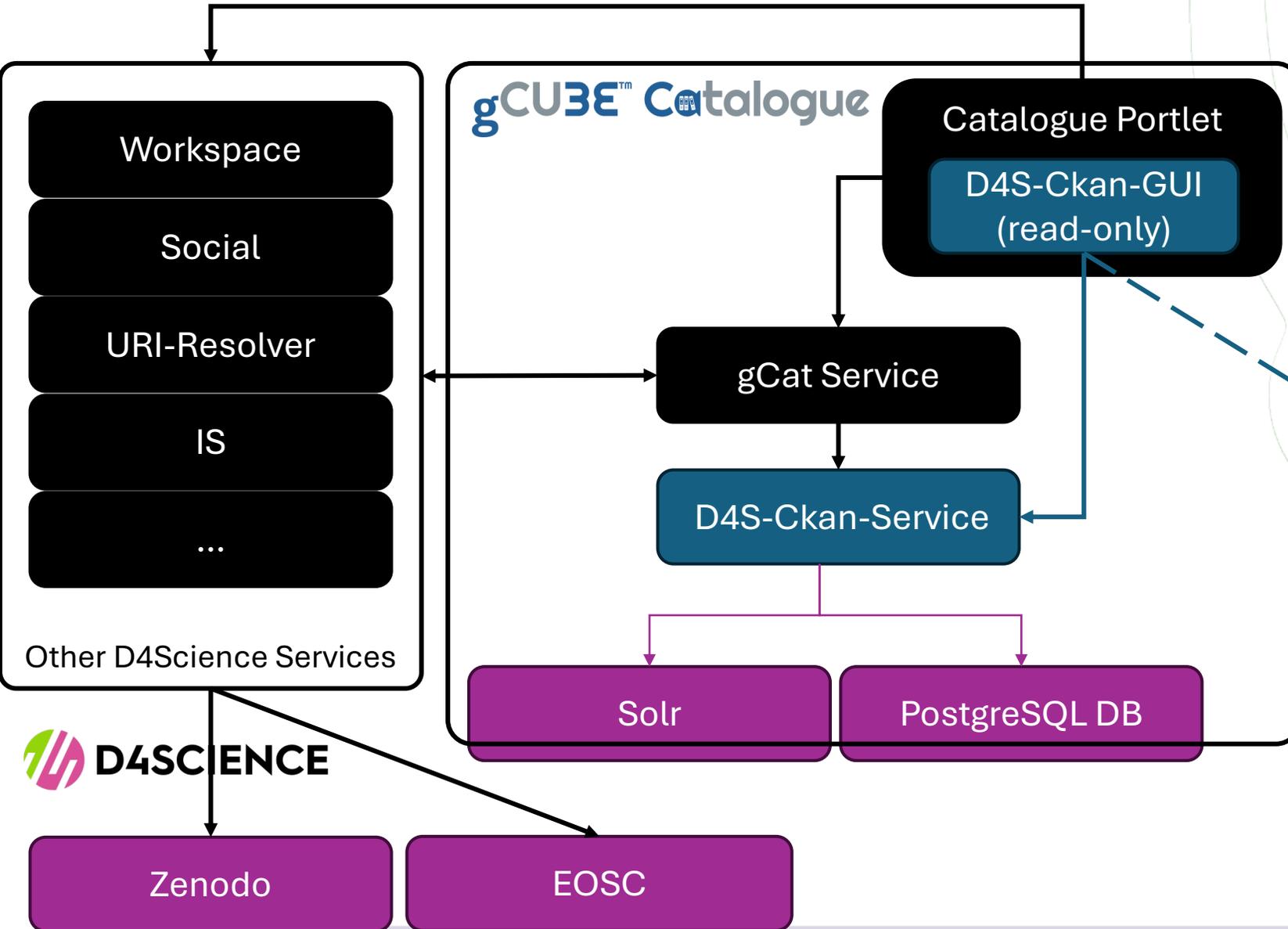
**IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System**  
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-  
Mission 4 “Education and Research” - Component 2: “From research to business” - Investment  
3.1: “Fund for the realisation of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



# 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:

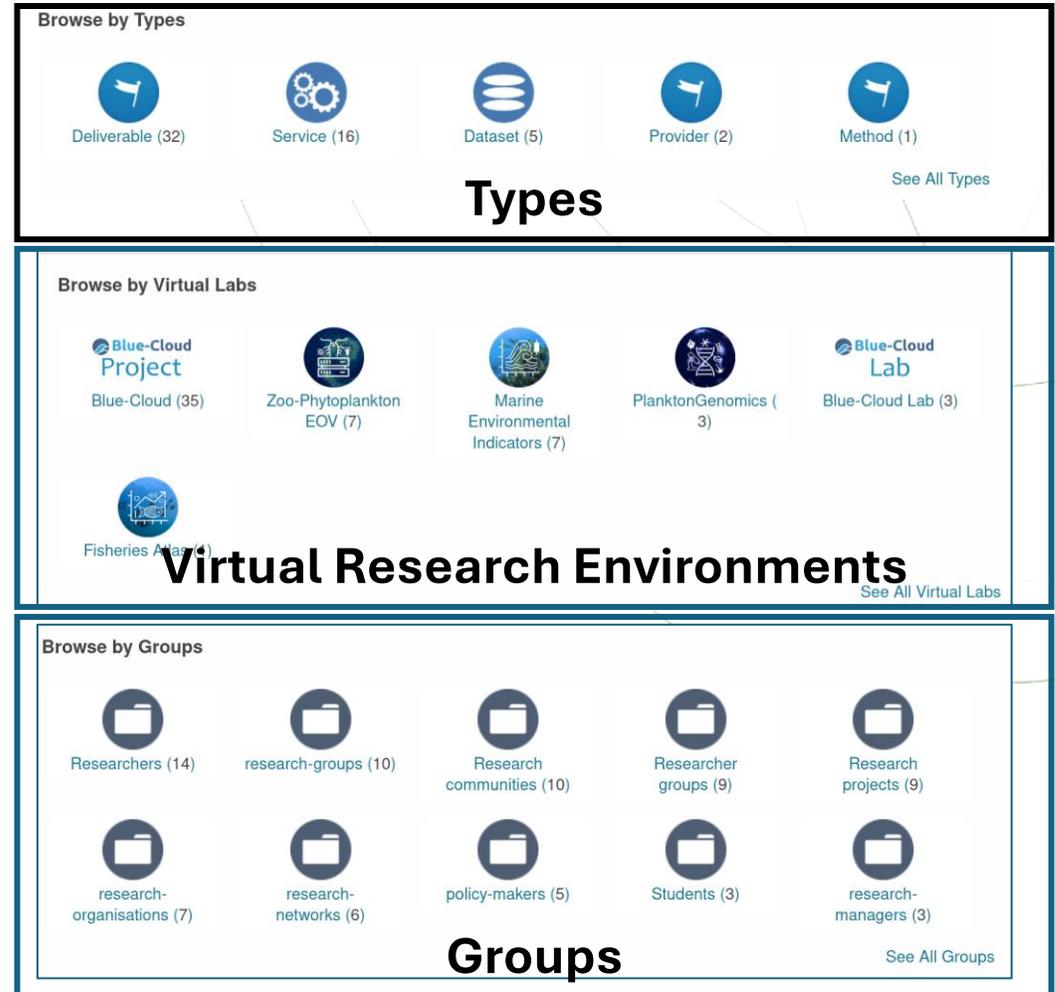
- **Catalogue-Moderator:** A user with such a role can invoke the item moderation APIs.

# 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;



The screenshot displays three distinct browsing sections in a vertical stack, each with a title and a grid of icons representing different categories and their counts.

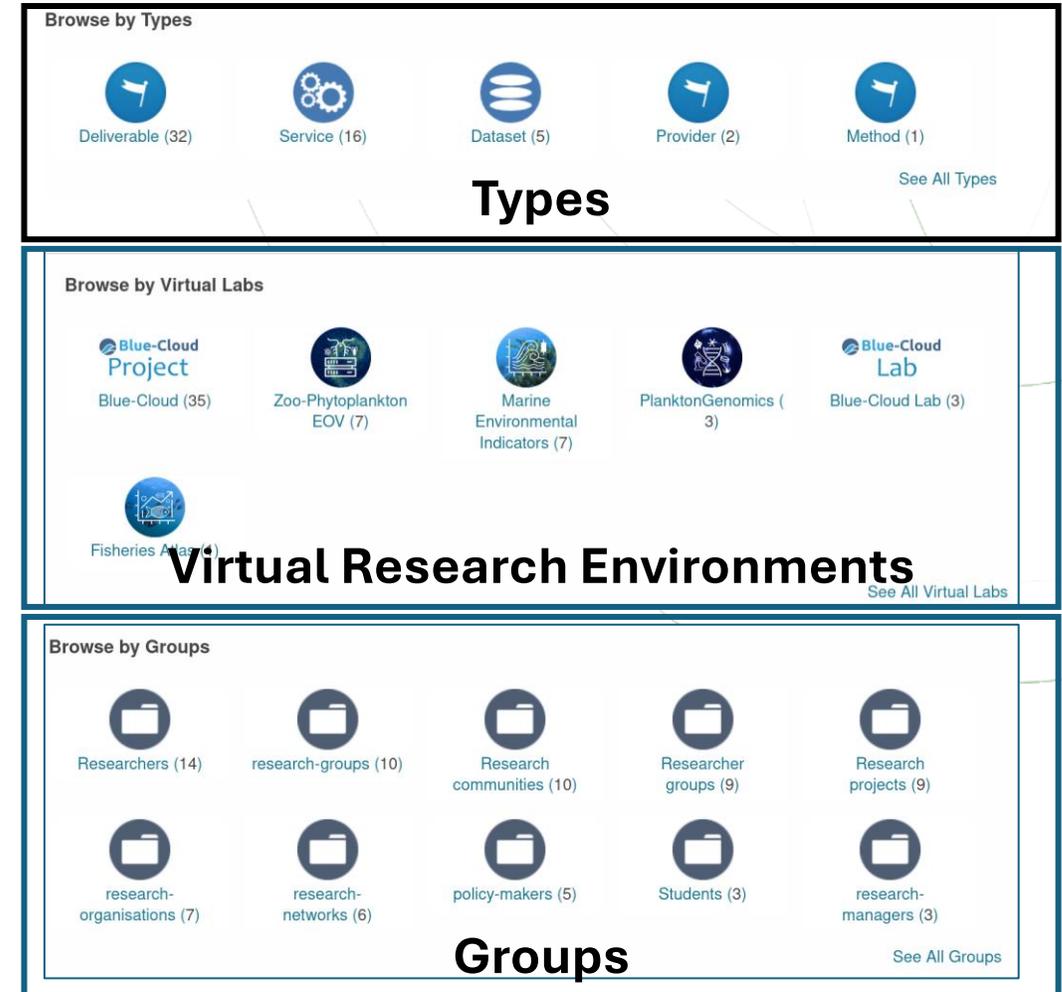
- Browse by Types:** This section features five icons: Deliverable (32), Service (16), Dataset (5), Provider (2), and Method (1). A "See All Types" link is located at the bottom right.
- Browse by Virtual Labs:** This section features six icons: Blue-Cloud Project (35), Zoo-Phytoplankton EOY (7), Marine Environmental Indicators (7), PlanktonGenomics (3), Blue-Cloud Lab (3), and Fisheries Atlas (4). A "See All Virtual Labs" link is located at the bottom right.
- Browse by Groups:** This section features ten icons arranged in two rows of five: Researchers (14), research-groups (10), Research communities (10), Researcher groups (9), Research projects (9), research-organisations (7), research-networks (6), policy-makers (5), Students (3), and research-managers (3). A "See All Groups" link is located at the bottom right.

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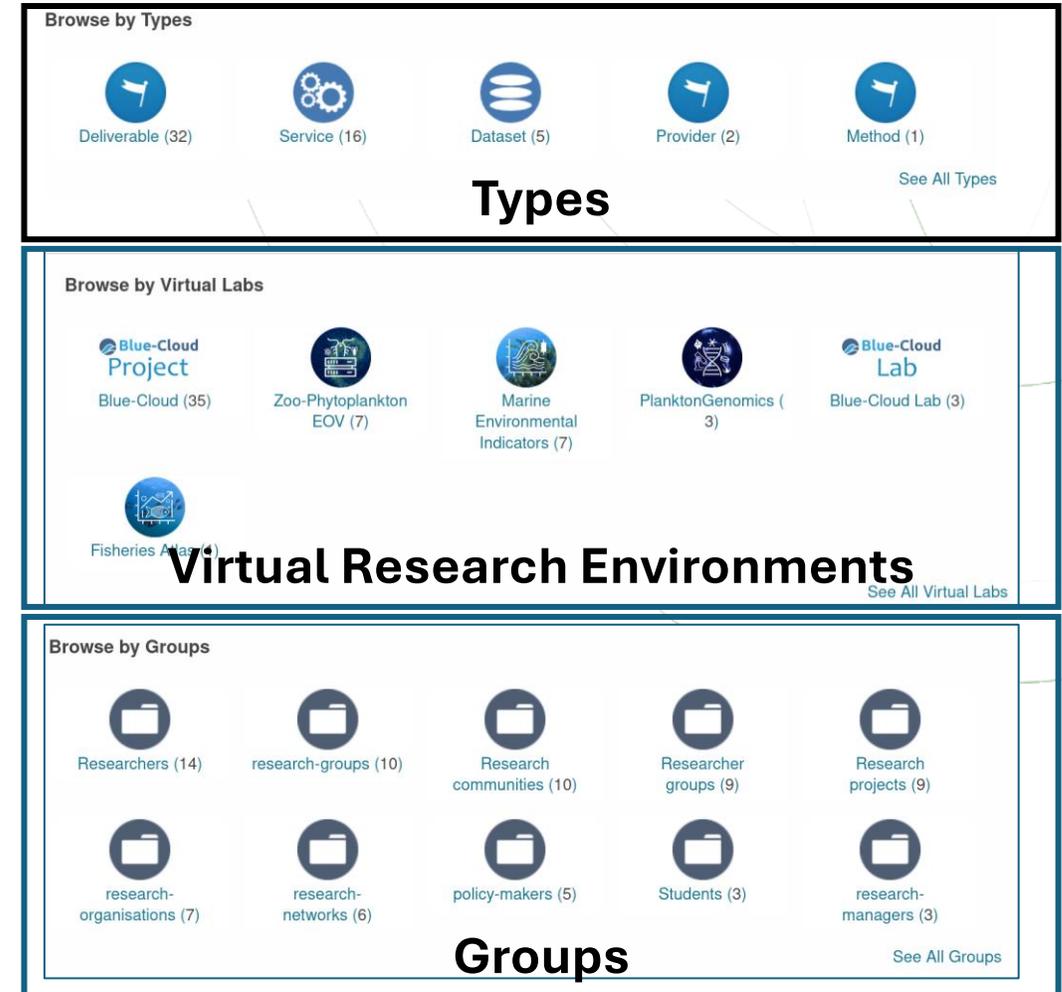
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# A Deposited Item Example

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The screenshot displays three distinct browsing sections in a vertical stack, each with a title and a grid of items represented by icons and text.

- Types:** Titled "Browse by Types", it features five icons: Deliverable (32), Service (16), Dataset (5), Provider (2), and Method (1). A "See All Types" link is located at the bottom right.
- Virtual Research Environments:** Titled "Browse by Virtual Labs", it features six icons: Blue-Cloud Project (35), Zoo-Phytoplankton EOY (7), Marine Environmental Indicators (7), PlanktonGenomics (3), Blue-Cloud Lab (3), and Fisheries Atlas (4). A "See All Virtual Labs" link is located at the bottom right.
- Groups:** Titled "Browse by Groups", it features ten icons arranged in two rows of five. The items are: Researchers (14), research-groups (10), Research communities (10), Researcher groups (9), Research projects (9), research-organisations (7), research-networks (6), policy-makers (5), Students (3), and research-managers (3). A "See All Groups" link is located at the bottom right.

# Item Types - First class concept

**Types**

- Service (4)
- Dataset (3)

**Filtering Options**

**Groups**

- Research communities (4)
- research-groups (4)
- research-organisations (4)
- Researcher groups (4)
- Researchers (4)
- Research projects (3)
- research-networks (2)
- policy-makers (1)

**Blue-Cloud Catalogue statistics**

56 items	11 virtual labs	11 groups	5 types
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**Statistics**

**Browse by Types**

 Deliverable (32)	 Service (16)	 Dataset (5)	 Provider (2)	 Method (1)
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**Dedicated Browsing**

[See All Types](#)

WP2 D2.2\_Synthesis Report\_Needs Expectations and Impacts of Digitalisation

**PDF**

**Result set Item Annotation**

[Internal resources](#)

# Item Type Schema Specification

[https://wiki.gcube-system.org/gcube/GCat\\_Background](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</tagging>
    <grouping create="true|false">onFieldName|onValue|onFieldName_onValue|onValue_onFieldName</grouping>
  </metadatafield>
</metadataformat>
```

# Item Statuses in Moderated Catalogue

The Item is visible only to:

- Author
- Catalogue-Moderators

New Item

**Draft**  
status:pending

Action: Update

Action: Approve

**Published**  
status: approved

Action: Delete

**Discarded**  
status: deleted

Action: Reject

**Rejected**  
status: rejected

Action: Update

New Item is accessible and searchable by all the VRE Members

The Item does not exist anymore

The visibility of the Item is the same of pending status

# 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>

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

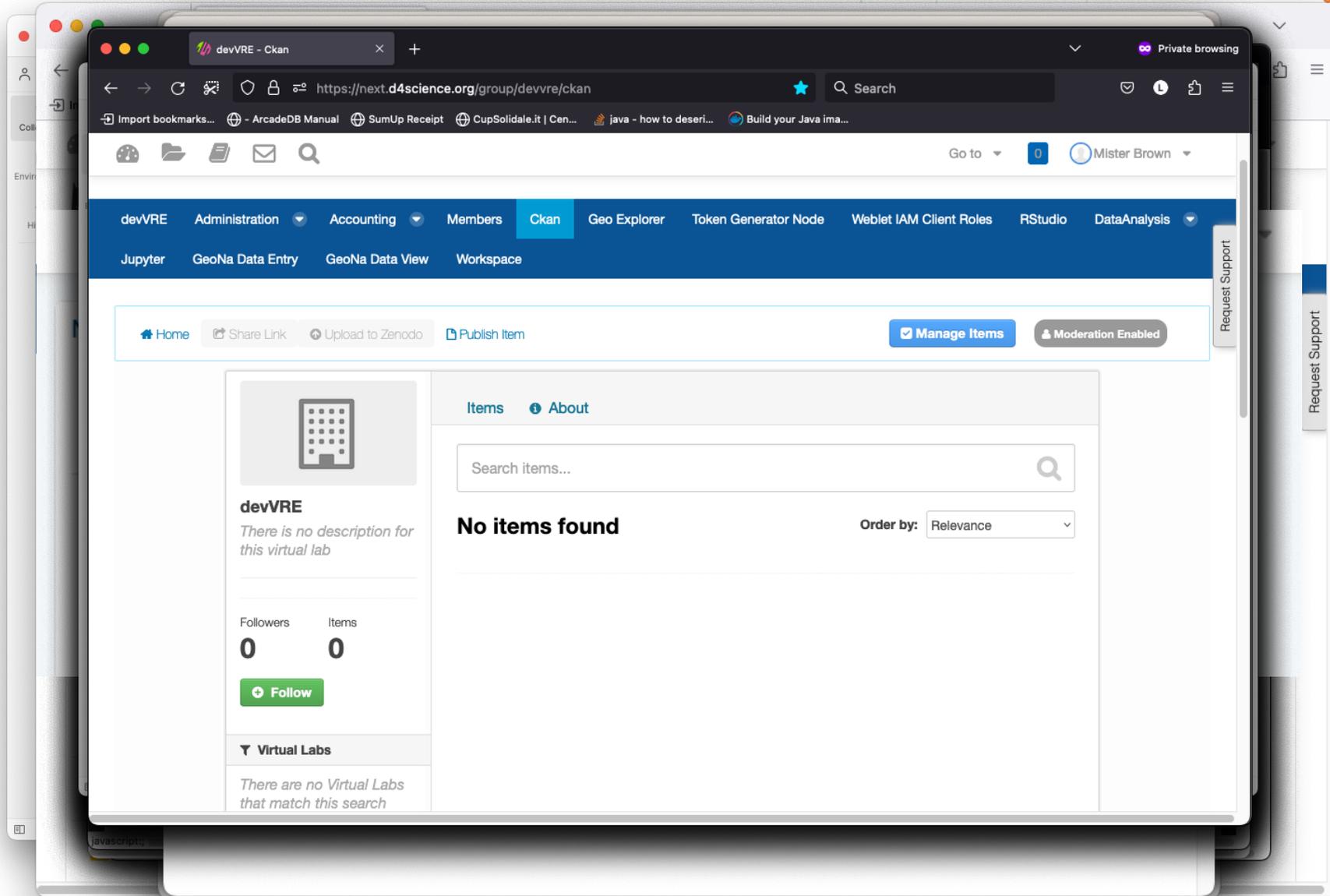
- **Item Collection:** Items CRUD+LPP (Create, Read, Update, Delete + Listing, Patch, Purge) and Moderation (Approve, Reject, Message);
- **Resource Collection:** Item's Resources CRUD+LP;
- **Profile Collection:** Types CRUD+L;
- **Trash Collection:** Listing and Delete;
- **License Collection:** Listing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

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

# gCat REST Items Collection APIs

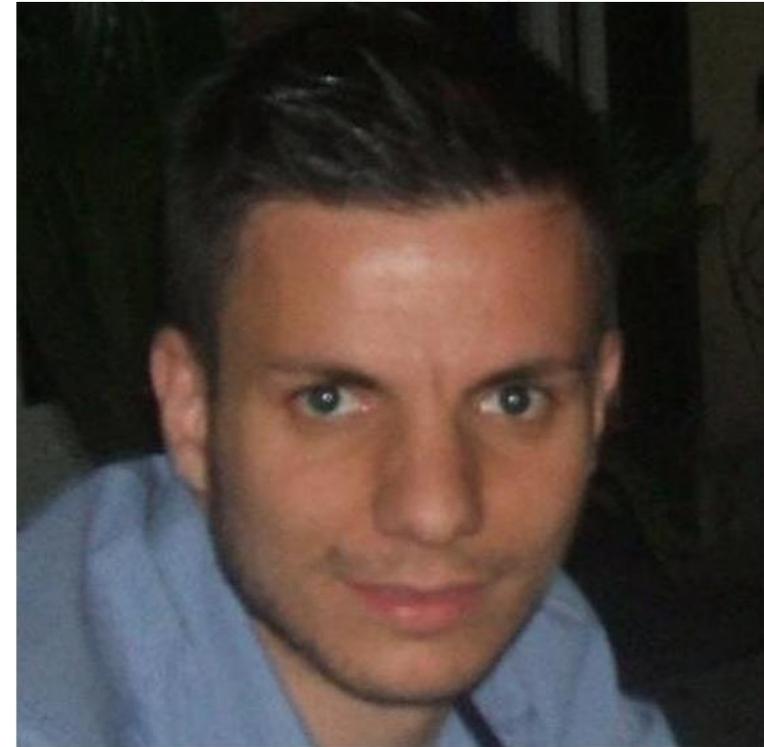
Operation	HTTP Method	URL	Min Required Role
List	GET	/items?limit=10&offset=0	Catalogue-Member
Count	GET	/items?count=true	Catalogue-Member
Bulk Delete	DELETE	/items	Catalogue-Editor (Catalogue-Editor can only delete own items)
Bulk Purge	PURGE	/items	
Create	POST	/items?social_post=true	Catalogue-Editor
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**  
ISTI -CNR





# THANKS!

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