

ESE-ERGO Achievements – (2) Metadata Editor [shortened version]



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Outline



- Introduction
- Metadata editor functions
 - Data entry and encoding
 - Validation interface
 - Thesaurus reports
 - Administrator functions
- Conclusion

Metadata editor



Metadata editing:

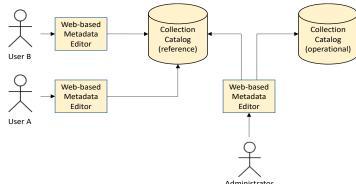
- Software as a service (online)
- Collection metadata: ISO19139-2 / OGC 17-084r1 (GeoJSON)
- Service metadata: ISO19139 / OGC 19-020r1 (GeoJSON)
- At least same functions as "current" Excel spreadsheet for "collections"

Integration with

- ESA Thesauri, GCMD Vocabularies (science keywords, platforms, instruments)
- 0 to *n* metadata catalogues

User roles

- Anonymous (no persistent workspace, no catalogue write access)
- Registered user (persistent workspace, preferences, ...)
- Administrator (add users, add catalogues, ...)



Metadata Editor



- Collection Metadata core formats
 - ISO19139:2007, ISO19139-2:2012
 - OGC 11-035r1, EO Product Collection, Service and Sensor Discovery using the CS-WebRIM Catalog [https://portal.opengeospatial.org/files/?artifact_id=53276]
 - Technical Guidance for the implementation of INSPIRE dataset and service metadata based on ISO/TS 19139:2007, version 2.0.1, 2017-03-02.
 - OGC 17-084r1 EO Collection GeoJSON(-LD) Encoding,
 https://docs.ogc.org/bp/17-084r1/17-084r1.html
- Service Metadata core formats
 - ISO19139:2007
 - OGC 19-020r1

Metadata editor



Catalogue interfaces versus metadata formats Catalogue Manual insertion (POST ISO) ISO Type I (ISO only) read **Atom** /ISO Geo Geo Catalogue ISO Geo read **JSON** JSON* JSON_ Web-based Type II Write to file Atom DIF10 ISO (ISO/GeoJSON) /ISO Geo Metadata Editor Write (future work) Read from file Catalogue ISO Type I Geo JSON* (ISO only) Geo JSON* ZIP Geo ZIP ISO ISO JSON* Catalogue ISO Geo JSON_ Type II ISO/GeoJSON

Collection and service metadata

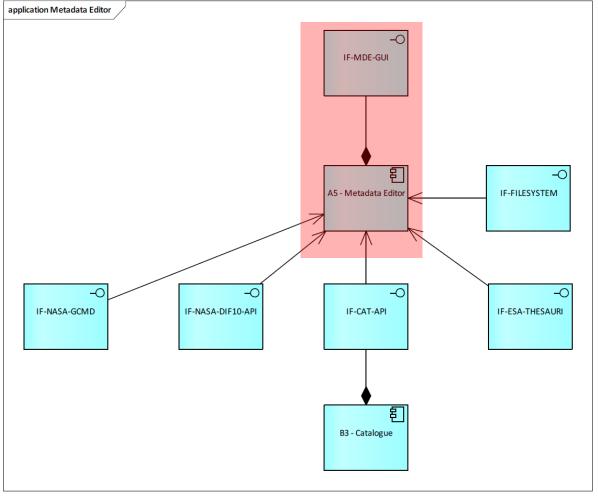


- Interface between Metadata Editor and Catalogue
 - Exploits OSDD rel="collection" and "service"
 - Retrieves Atom (ISO embedded) and resolves atom:link
 "alternate" (if available) to obtain also GeoJSON
 - Stores GeoJSON OGC17-084r1/OGC19-020r1 via GeoJSON (with embedded ISO metadata).
 - Combination of GeoJSON metadata and ISO metadata for collections and services. E.g. "offering" info more detailed in GeoJSON, online resources more detailed in ISO metadata.

Metadata Editor



Metadata Editor external interfaces



ESE-ERGO | Final Presentation | Achievements | MDE | 28

Figure 3: Metadata Editor Context diagram

Workspace | Create metadata



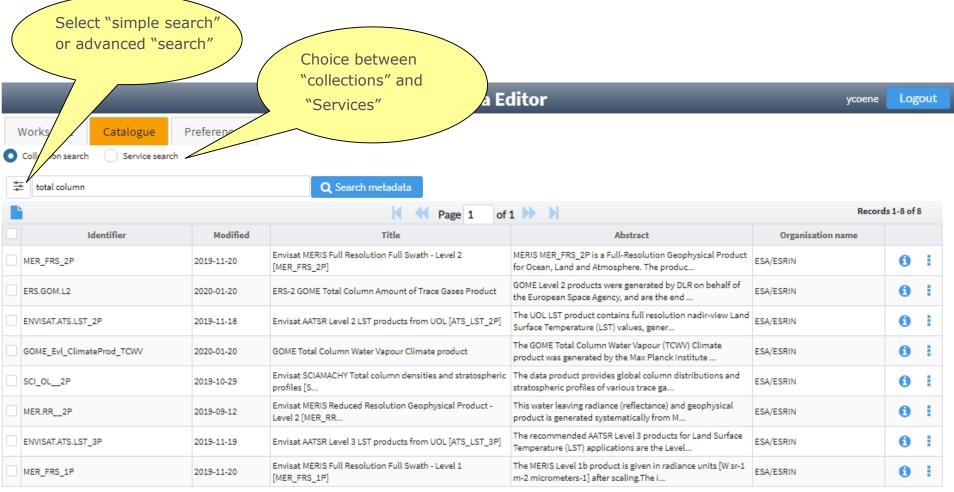
- Create new metadata records or start from a record in a connected OpenSearch catalogue or on local harddisk.
 - Can load/validate .zip file with 144 ESA metadata files... (21 seconds)
- Two resource types:
 - "Service" is generic shortname for Tool, Toolbox, Application, Service etc.
 - "Collection"



Catalogue | Search collection metadata



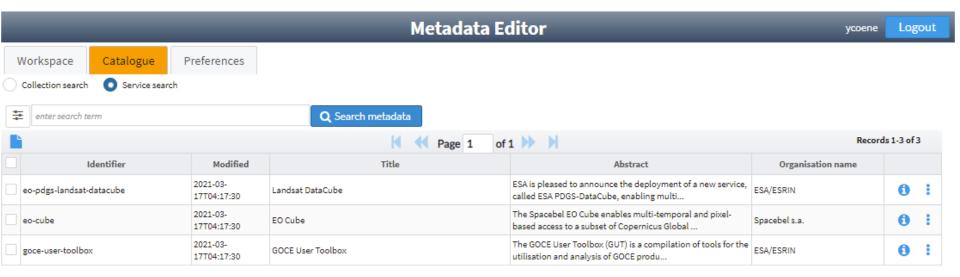
Get metadata from connected catalogues into workspace



Catalogue | Search service metadata



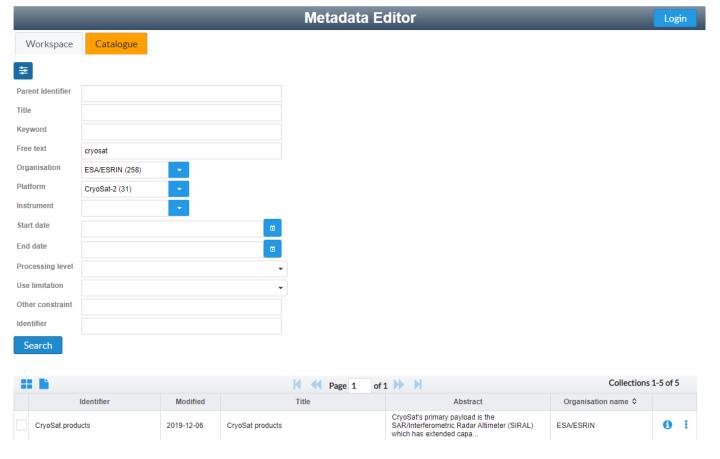
- Find collection or service metadata records
 - Metadata editor uses different URL template (rel="xxx") in OSDD depending on resource type (as per CEOS Best Practice).



Catalogue | Search metadata

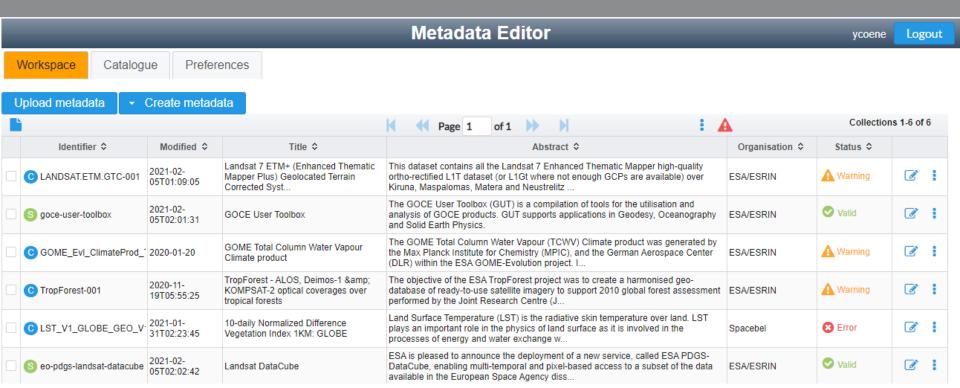


 Search records using free text search or any advertised OpenSearch parameter (from OSDD).



Workspace | List View



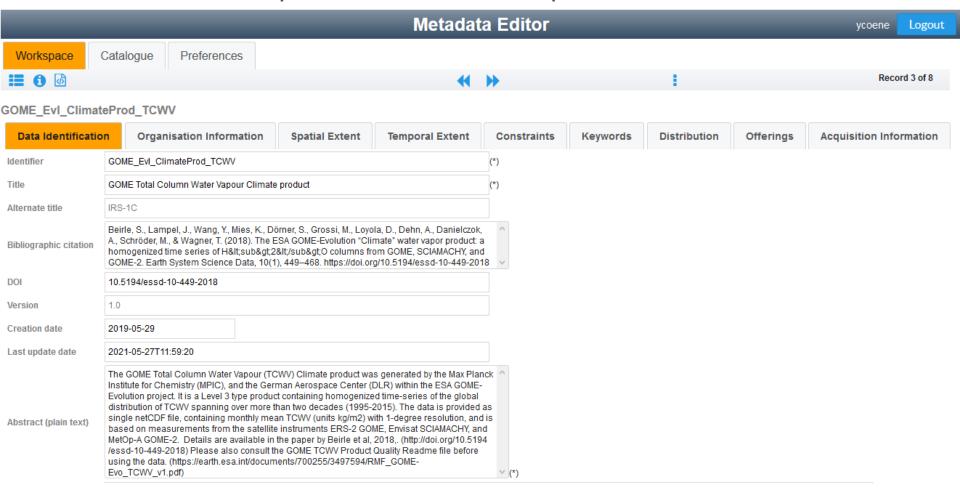


- "Status" column relates to "enabled checks" in Preferences
- "Resource type" icon for collections and services
- "thesauri update" warning triangle
- Metadata in workspace is enriched with GCMD at import.
- "Modified" automatic update of ISO "datestamp" (after "save")

Data identification



Edit records in private online workspace



Data identification | DOI / Citation

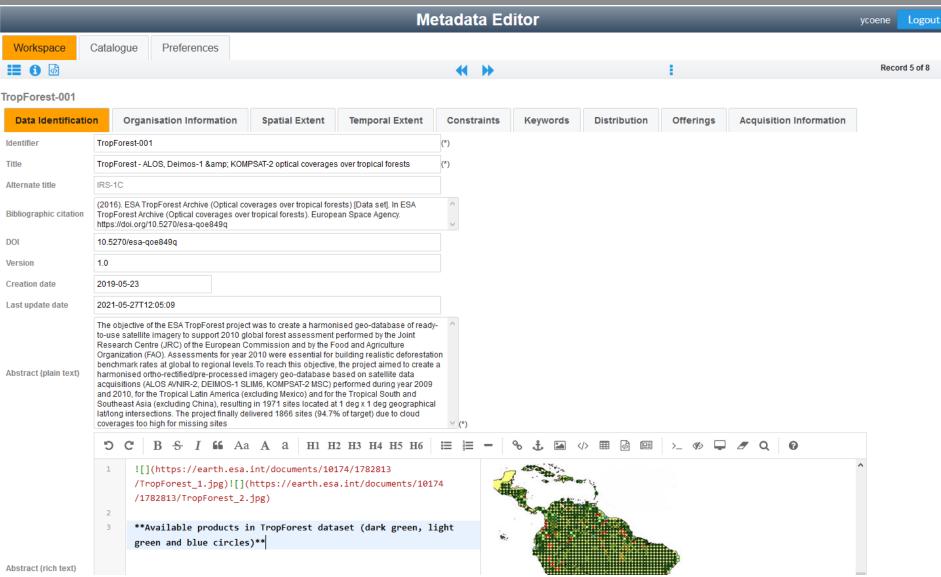


 DOI, gmd:edition and gmd:otherCitationDetails in both ISO and GeoJSON encoding.



Data identification | Rich text





Data identification | Rich text



 OGC 17-084r1 JSON schema extended with "resource bundles" and used for validation.

```
"abstract": {
    "text/markdown": ["![](https://earth.esa.int/documents/10174/1782813/TropForest_1.jpg)![]
    (https://earth.esa.int/documents/10174/1782813/TropForest_2.jpg)\r\n\r\**Available products in TropForest dataset (dark green, light green and blue circles)**"],
    "text/plain": "The objective of the ESA TropForest project was to create a harmonised geo-database of ready-to-use satellite imagery to support 2010 global forest assessment performed by the Joint Research Centre (JRC) of the European Commission and by the Food and Agriculture Organization (FAO). Assessments for year 2010 were essential for building realistic deforestation benchmark rates at global to regional levels.To reach this objective, the project aimed to create a harmonised ortho-rectified/pre-processed imagery geo-database based on satellite data acquisitions (ALOS AVNIR-2, DEIMOS-1 SLIMG, KOMPSAT-2 MSC) performed during year 2009 and 2010, for the Tropical Latin America (excluding Mexico) and for the Tropical South and Southeast Asia (excluding China), resulting in 1971 sites located at 1 deg x 1 deg geographical lat/long intersections. The project finally delivered 1866 sites (94.7% of target) due to cloud coverages too high for missing sites"

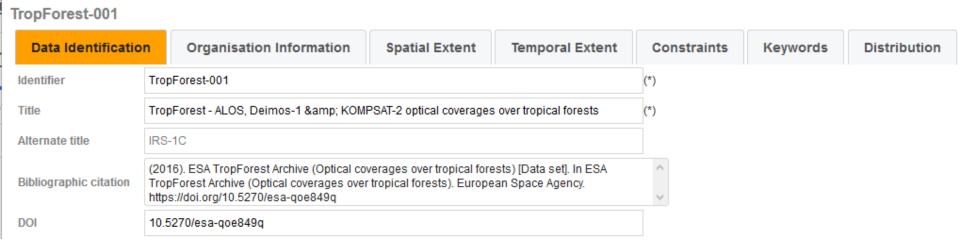
},

"title": "TropForest - ALOS, Deimos-1 & Deimos
```

- Use in catalogue responses:
 - ISO19139-2: text/plain to remain backward compatible
 - OGC 17-084r1, OGC 19-020r1: text/plain and text/markdown

Data identification | Citation | GeoJSON





Citation encoding as per OGC 17-084r1

```
"bibliographicCitation": "(2016). ESA TropForest Archive (Optical coverages over tropical forests) [Data set]. In ESA TropForest Archive (Optical coverages over tropical forests). European Space Agency. https://doi.org/10.5270/esa-qoe849q",

"doi": "10.5270/esa-qoe849q",
```

Data identification | Citation | ISO19139



- Encoding approach: http://usgin.github.io/usginspecs/USGIN ISO Metadata.htm
- http://repository.stategeothermaldata.org/metadata/record/98ddf901b9782a25982e01af3b0ec3ea/file/ implementationusgin_recommendationisometadata.pdf

Resource other citation details (O)	0-0	A complete recommended bibliographic citation should be specified in this element.
$identification Info/-\texttt{MD_Data} Identification/-citation/CI_Citation/-other Citation Details$		
		TO SO IN 1 0 10 0 10 0 1 1 1 5 5 5 1 0 0



USGIN U.S. Geoscience Information Network

Guidelines for implementation of USGIN metadata content recommendations in ISO 19139 XML metadata

Guidelines for implementation of USGIN metadata con metadata

Latest released version: http://repository.usgin.org/uri_gin/usgin/dlio/499

Title:
Guidelines for implementation of USGIN metadata content recommendations in ISO 19139 XML

Bibliographic citation

Published documents require a standard bibliographic citation (author, year, publisher, series, volume, page numbers, etc.) as specified by a publication style or guideline. Some example guidelines include USGS Suggestions to Authors and MLA Style Manual; the community will need to agree on any necessary conventions to use for citation syntax to improve interoperability. The citation authors should also appear in citation//CI_ResponsibleParty, the title will be in citation//title, and the publication date will be in citation/date (with dateType='publication'). In general, for web-accessible digital resources that are the typical items of interest that will be cited, full text searches are anticipated to be the most common use case. Unless clear examples of use cases requiring more disaggregated representation of citations in the metadata (e.g. separate attributes for publisher, larger work title, larger work editor, volume, issue number, etc...) we will stick to simple text blob citations.

<qmd:otherCitationDetails>

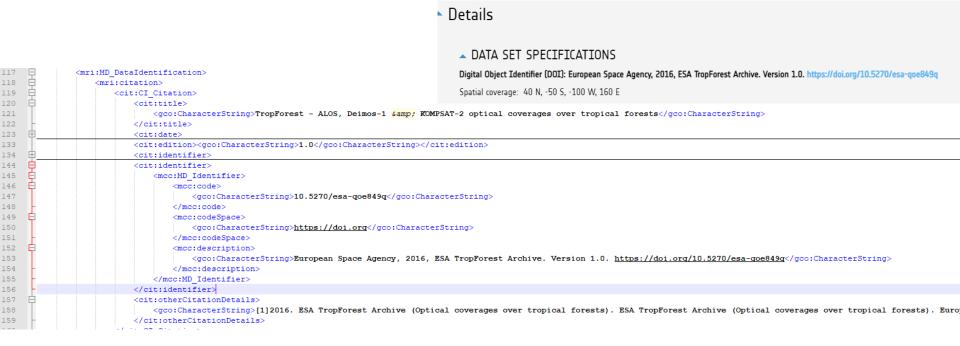
<gco:CharacterString>Franklin, Michael, Halevy, Alon, and Maier, David, 2005,
From databases to dataspaces: a new abstraction for information management: ACM SIGMOD Record, V. 34, No. 4, ISSN:0163-5808.

</gco:CharacterString>
</gmd:otherCitationDetails>

Data identification | Citation and DOI

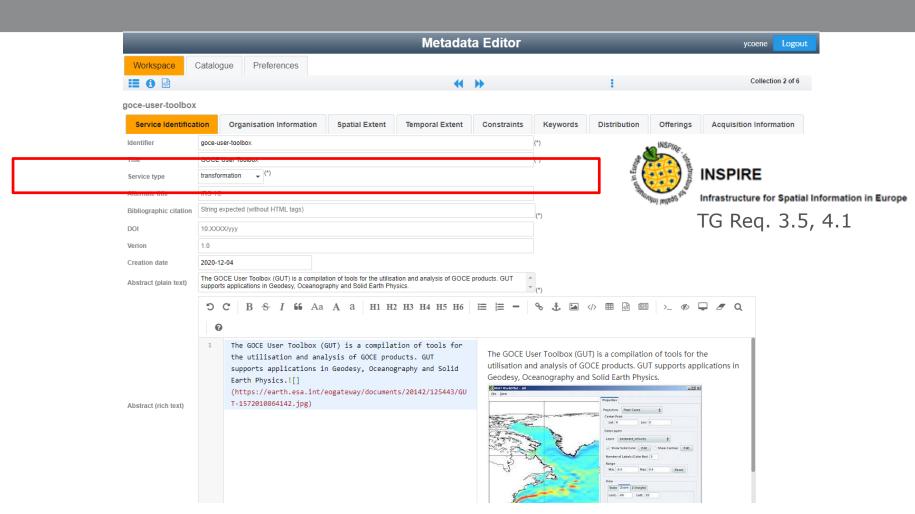


- Future work:
 - Allow multiple DOI and multiple citations (1 per DOI) and propose new ISO/GeoJSON metadata encoding. E.g. ISO19115-1/-3.



Service Identification





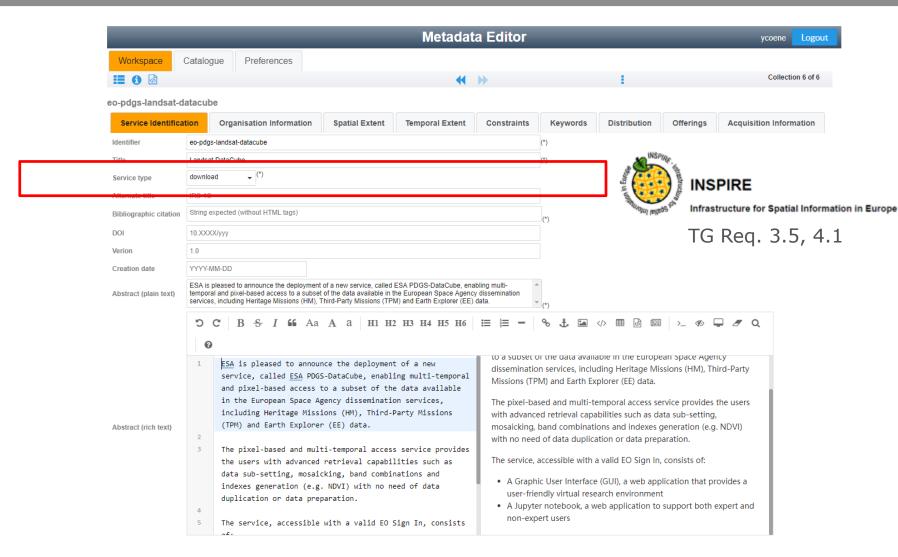
<srv:serviceType xmlns:srv="http://www.isotc211.org/2005/srv">
 <gco:LocalName codeSpace="http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType">transformation</gco:LocalName>
 </srv:serviceType>

155

157

Service Identification | Rich text





Service Identification | Encoding



Resource type

```
TG Reg. 3.1
      <gmd:fileIdentifier>
          <gco:CharacterString>goce-user-toolbox</gco:CharacterString>
                                                                                                 Infrastructure for Spatial Information in Europe
      </gmd:fileIdentifier>
      <gmd:language>
          <gmd:LanguageCode codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO 19139 Schemas/resources/codelist/ML gmxCodelists.xml#LanguageCode"</pre>
  codeListValue="eng">eng</gmd:LanguageCode>
      </gmd:language>
8
      <gmd:hierarchyLevel>
          <gmd:MD ScopeCode codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO 19139 Schemas/resources/codelist/ML gmxCodelists.xml#MD ScopeCode"</pre>
  codeListValue="service">service</gmd:MD ScopeCode>
      </gmd:hierarchyLevel>
      <gmd:hierarchyLevelName>
           <gco:CharacterString>Service</gco:CharacterString>
      </gmd:hierarchvLevelName>
```

Future work:

10

11



TG rea. 3.4 Infrastructure for Spatial Information in Europe

Requires using srv schema from JRC (INSPIRE) to be valid (gmx:Anchor).

TG Requirement 3.4: metadata/2.0/req/sds/sds-category

At least one Spatial Data Service category or subcategory for the described service shall be given using the language-neutral keyword values as defined in Part D 4 "Classification of Spatial Data Services" of [Regulation 1205/2008].

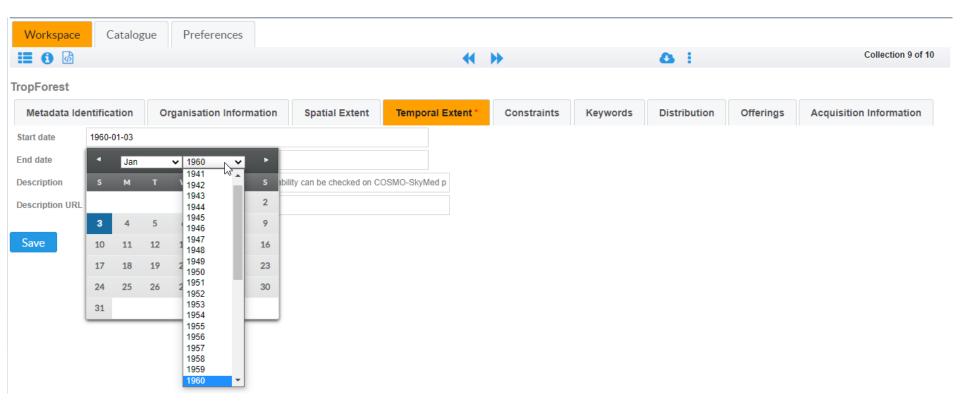
/gmd:MD Metadata/gmd:identificationInfo/srv:SV ServiceIdentification/gmd:descriptiveKeywords/g md:MD Keywords:

```
<gmd:MD Keywords>
   <gmx:Anchor xlink:href="http://inspire.ec.europa.eu/metadata-</pre>
codelist/SpatialDataServiceCategory/humanCataloqueViewer">humanCataloqViewer</qmx:Anchor>
 </gmd:keyword>
 <gmd:thesaurusName>
```

Temporal Extent

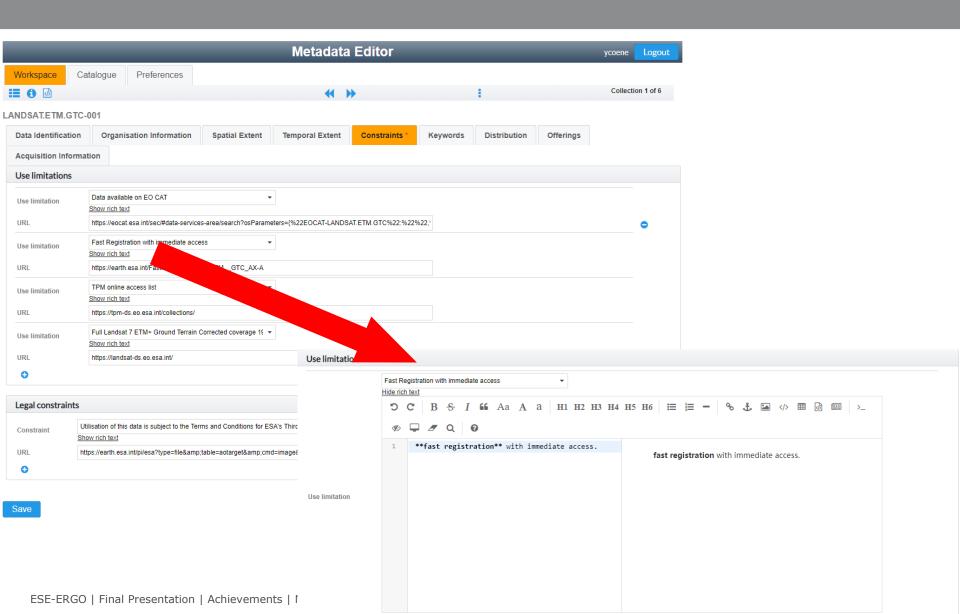


- To prevent a long list, the year drop-down list displays only 41 years (20 years ago, current year, 20 years later)
- When we select year, the range of year will be automatically updated



Constraints | Rich text





Constraints | Rich text



GeoJSON

```
"title": "GOME Total Column Water Vapour Climate product",
52
       "license": [
53
           "label": {
54
55
             "text/markdown": ["**fast registration** with immediate access."],
56
             "text/plain": "Fast Registration with immediate access https://earth.esa.int/FastRegistration/GOME-Evolution TCWV"
57
            'type": "LicenseDocument"
58
59
60
           "label": "This dataset is available as single netCDF file (224 MB) via FTP upon registration. https://earth.esa.int/FastRegistration/GOME-Evolution_TCWV",
61
62
           "type": "LicenseDocument"
63
64
           "label": "Details on the datasets currently distributed can be found in the ERS-2 GOME Products Availability Table.
  https://earth.esa.int/documents/10174/1855363/ERS_GOME_products_availability.pdf",
           "type": "LicenseDocument"
66
67
```

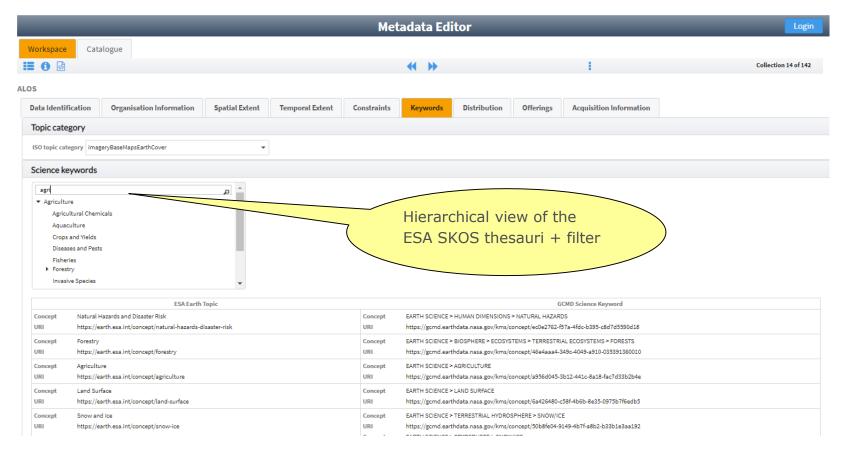
XML

```
359
                <gmd:resourceConstraints>
                    <gmd:MD LegalConstraints>
361
                        <gmd:useLimitation>
362
                            <gmx:Anchor xlink:href="https://earth.esa.int/FastRegistration/GOME-Evolution_TCWV">Fast Registration with immediate access</gmx:Anchor>
363
                       </gmd:useLimitation>
364
                        <gmd:useLimitation>
365
                            <gmx:Anchor xlink:href="https://earth.esa.int/FastRegistration/GOME-Evolution TCWV">This dataset is available as single netCDF file (224 MB)
    via FTP upon registration.</gmx:Anchor>
366
                       </gmd:useLimitation>
367
                        <gmd:useLimitation>
                            <gmx:Anchor xlink:href="https://earth.esa.int/documents/10174/1855363/ERS GOME products availability.pdf">Details on the datasets currently
    distributed can be found in the ERS-2 GOME Products Availability Table.
                        </gmd:useLimitation>
```

Keywords | Keyword selection



Insert/update ESA controlled keywords from ESA SKOS
 Thesauri and automatic mapping to GCMD.

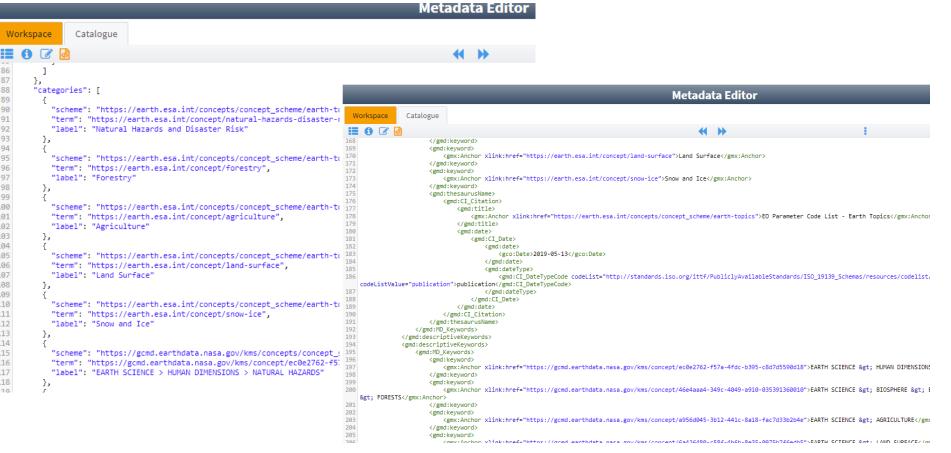


Keywords | Collection encoding



View DIF-10

- View encoding of (ALOS) collection metadaca.
 - ISO19139-2 (XML), OGC 17-084r1 (GeoJSON), DIF-10



Keywords | Collection encoding



View DIF-10

- View encoding of (ALOS) collection metadata.
 - ISO19139-2 (XML), OGC 17-084r1 (GeoJSON), DIF-10

```
Metadata Editor
 Workspace
                Catalogue
                              Preferences
1 <?xml version="1.0" encoding="UTF-8"?><DIF xmlns="http://gcmd.gsfc.nasa.gov/Aboutus/xml/dif/" xmlns:xsi="http://www.w3.org/2001/
   xsi:schemaLocation="http://gcmd.gsfc.nasa.gov/Aboutus/xml/dif/ https://gcmd.gsfc.nasa.gov/Aboutus/xml/dif/dif v10.2.xsd">
           <Short_Name>ALOS</Short_Name>
          <Version>NA</Version>
      <Entry_Title>Alos African Coverage ESA archive</Entry_Title>
      <Science Keywords>
          <Category>EARTH SCIENCE</Category>
          <Topic>HUMAN DIMENSIONS</Topic>
          <Term>NATURAL HAZARDS</Term>
10
     </Science_Keywords>
     <Science_Keywords>
13
        <Category>EARTH SCIENCE</Category>
          <Topic>BIOSPHERE</Topic>
          <Term>ECOSYSTEMS</Term>
          <Variable_Level_1>TERRESTRIAL ECOSYSTEMS</Variable_Level_1>
          <Variable_Level_2>FORESTS</Variable_Level_2>
      </Science Keywords>
      <Science_Keywords>
          <Category>EARTH SCIENCE</Category>
          <Topic>CRYOSPHERE</Topic>
          <Term>SNOW/ICE</Term>
     </Science_Keywords>
      <Science_Keywords>
          <Category>EARTH SCIENCE</Category>
          <Topic>TERRESTRIAL HYDROSPHERE</Topic>
          <Term>SNOW/ICE</Term>
      </Science_Keywords>
      <ISO_Topic_Category>IMAGERY/BASE MAPS/EARTH COVER</ISO_Topic_Category>
      <Ancillary_Keyword>Africa</Ancillary_Keyword>
      <Ancillary_Keyword>JAXA</Ancillary_Keyword>
      <Platform>
33
          <Type>Earth Observation Satellites</Type>
          <Short Name>ALOS</Short Name>
35
          <Long_Name>Advanced Land Observing Satellite</Long_Name>
          <Instrument>
```

Keywords | Service example



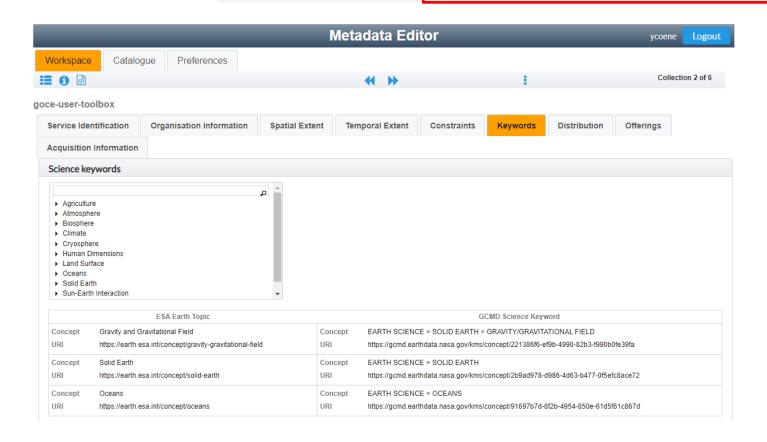
GOCE User Toolbox

Keywords: EGG GOCE

Gravity and Gravitational Field

Oceans Solid Earth

SSTI



Keywords | Service encoding



- View encoding of service metadata
 - ISO19139 (XML), OGC 19-020r1 (GeoJSON)

```
Metadat
                                                                                                                                                                                                         Metadata
 Workspace
                Catalogue
                               Preferences
                                                                                                                          Catalogue
                                                                                                                                         Preferences
                                                                                                          Workspace
: 0 📝 🖟
                </gmd:cltation>
                                                                                                                   type : catalogkecoru ,
89
                                                                                                                  "lang": "en",
                    gco:CharacterString>The GOCE User Toolbox (GUT) is a compilation of tools for the uti
                                                                                                                  "updated": "2020-12-04T12:00:00.000Z"
   Earth Physics.</gco:CharacterString>
                                                                                                        88
               </gmd:abstract>
                                                                                                        89
                                                                                                                "categories": [
92
               <gmd:descriptiveKeywords>
                                                                                                        90
93
                   <gmd:MD_Keywords>
                                                                                                        91
                                                                                                                    "scheme": "https://earth.esa.int/concepts/concept scheme/earth-topics",
94
                       <gmd:keyword>
95
                           <gco:CharacterString>Gravity and Gravitational Field</gco:CharacterString>
                                                                                                        92
                                                                                                                    "term": "https://earth.esa.int/concept/gravity-gravitational-field",
                                                                                                        93
                                                                                                                    "label": "Gravity and Gravitational Field"
                       <gmd:keyword>
                                                                                                        94
                           <gco:CharacterString>Solid Earth</gco:CharacterString>
                                                                                                        95
                       </gmd:keyword>
                                                                                                        96
                                                                                                                    "scheme": "https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords",
                       <gmd:kevword>
                                                                                                        97
                                                                                                                    "term": "https://gcmd.earthdata.nasa.gov/kms/concept/221386f6-ef9b-4990-82b3-f990b0fe39fa",
101
                           <gco:CharacterString>Oceans
                                                                                                        98
                                                                                                                    "label": "EARTH SCIENCE > SOLID EARTH > GRAVITY/GRAVITATIONAL FIELD"
                       </gmd:keyword>
                                                                                                        99
103
                       <gmd:thesaurusName>
                                                                                                        100
104
                           <gmd:CI Citation>
                                                                                                        101
                                                                                                                    "scheme": "https://earth.esa.int/concepts/concept_scheme/earth-topics",
                                                                                                                    "term": "https://earth.esa.int/concept/solid-earth",
                                   <gco:CharacterString>EO Parameter Code List - Earth Topics</gco:Charac</pre>
                                                                                                                    "label": "Solid Earth"
107
                                                                                                        104
108
                               <gmd:date>
                                                                                                        105
109
                                   <gmd:CI Date>
                                                                                                        106
                                                                                                                    "scheme": "https://gcmd.earthdata.nasa.gov/kms/concepts/concept scheme/sciencekeywords",
                                          <gco:Date>2020-09-23</gco:Date>
                                                                                                        107
                                                                                                                    "term": "https://gcmd.earthdata.nasa.gov/kms/concept/2b9ad978-d986-4d63-b477-0f5efc8ace72".
                                       </gmd:date>
                                                                                                                    "label": "EARTH SCIENCE > SOLID EARTH"
                                       <gmd:dateType>
                                                                                                        109
                                          <gmd:CI_DateTypeCode codeList="http://standards.iso.org/ittf/P 110</pre>
114
   codeListValue="publication">publication</gmd:CI_DateTypeCode>
                                                                                                                     "scheme": "https://earth.esa.int/concepts/concept scheme/earth-topics",
                                       </gmd:dateType>
                                                                                                                    "term": "https://earth.esa.int/concept/oceans",
                                   </gmd:CI Date>
                                                                                                       113
                                                                                                                    "label": "Oceans"
                               </gmd:date>
                                                                                                       114
                                                                                                                  },
                           </gmd:CI Citation>
                                                                                                       115
                       </gmd:thesaurusName>
                                                                                                       116
                                                                                                                    "scheme": "https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords",
120
                   </gmd:MD_Keywords>
                                                                                                                    "term": "https://gcmd.earthdata.nasa.gov/kms/concept/91697b7d-8f2b-4954-850e-61d5f61c867d",
               </gmd:descriptiveKeywords>
                                                                                                                    "label": "EARTH SCIENCE > OCEANS"
                                                                                                       118
               <gmd:descriptiveKeywords>
                                                                                                        119
                   <gmd:MD Keywords>
                                                                                                        120
                           <gco:CharacterString>EARTH SCIENCE &gt; SOLID EARTH &gt; GRAVITY/GRAVITATIONAL 121
                                                                                                                    "scheme": "https://earth.esa.int/concepts/concept scheme/platforms",
                                                                                                                    "term": "https://earth.esa.int/concept/goce",
                       </gmd:kevword>
                       <gmd:keyword>
                                                                                                       123
                                                                                                                    "label": "GOCE"
```

Acquisition information



GOCE User Toolbox

Absent in gmd:MD_Metadata

Included in OGC 19-020r1 metadata.

```
Keywords: EGG GOCE
```

Gravity and Gravitational

Oceans Solid Earth

Service/application/tool

SST

Thesaurus in addition to platforms, instruments, earthtopics, ...

```
119
120
121
            "scheme": "https://earth.esa.int/concepts/concept scheme/platforms"
122
            "term": "https://earth.esa.int/concept/goce",
            "label": "GOCE"
123
124
125
126
            "scheme": "https://earth.esa.int/concepts/concept scheme/instruments",
127
            "term": "https://earth.esa.int/concept/ssti",
            "label": "SSTI"
128
129
130
            "scheme": "https://earth.esa.int/concepts/concept_scheme/instruments",
131
132
            "term": "https://earth.esa.int/concept/egg",
133
            "label": "EGG"
134
135
136
         "updated": "2021-02-05T02:01:31Z",
        "acquisitionInformation": [{
137
          "instrument": {
138
139
            "instrumentShortName": "EGG",
            "id": "https://earth.esa.int/concept/egg"
140
141
142
           "platform": {
            "platformShortName": "GOCE",
143
144
            "id": "https://earth.esa.int/concept/goce"
145
146
        }],
```

Keywords | Service encoding



- Limitation of ISO metadata for services to be resolved as future work:
 - Apply JRC service schema correction and generate gmx:Anchor –
 Note (1): https://inspire.ec.europa.eu/draft-schemas/inspire-md-schemas/srv/1.0/
 - Migrate to ISO19115-1/-3 Note (2)
 - (1) NOTE Currently, the gmx namespace is not included in the referenced schema for [ISO 19119]. Consequently, all elements defined in the gmx namespace (e.g. gmx:Anchor) are not valid according to this schema. This issue has been raised with OGC¹⁰. Until the OGC agrees to host a version of the xml schema that fixes the known problems, these will be hosted by JRC¹¹.
 - (2) NOTE ISO 19115:2003 has been recently replaced by the new Standard named 19115-1:2014, describing general-purpose metadata. This new revision is a part of an overall ISO standard 19115 on geographic metadata, along with 19115-2, regarding the extensions for acquisition and processing, and 19115-3 defining the XML schema implementation of metadata fundamentals. In relation with the issues addressed in this document, the main changes in the new standard are the following:
 - The concept of 'Core metadata' was removed and was translated into the normative Annex
 F (of [ISO 19115-1]) describing the discovery metadata for geographic resources (datasets,
 series and services);
 - · Metadata for services deriving from ISO 19119 was included;
 - Metadata concerning data quality was moved to the new specific Standard ISO 19157.

It was decided in the MIWP-8 sub-group that new versions of the ISO 19115 standard were out of scope for this version of this specification. The future versions of this Technical Guidelines may be revised taking into account the new ISO 19115 family standards.



Technical Guidance for the implementation of INSPIRE dataset and service metadata based on ISO/TS 19139:2007

Title Technical Guidelines for implementing dataset and service metadata based on ISO/TS 19139:2007

Creator Temporary MIG subgroup for action MIWP-8

Date of publication 2017-03-0

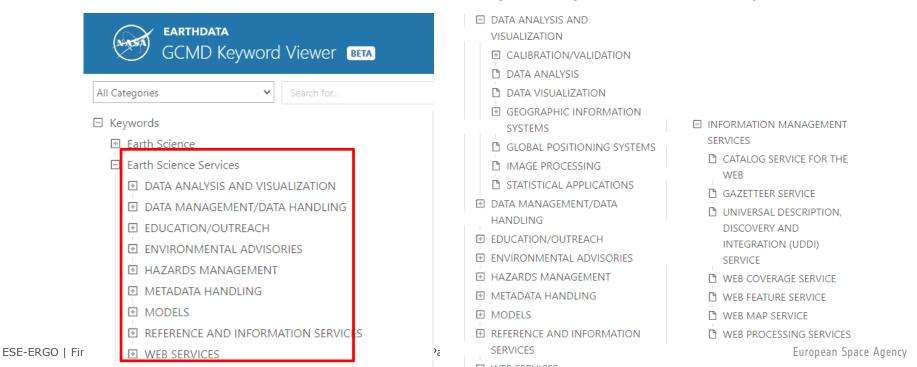
Keywords | Future work



- Use explicit service / application / tool (SKOS)
 thesaurus/taxonomy to organize and classify applications,
 tools, services ...
 - INSPIRE TG req. 3.4 "Spatial Data Service category"



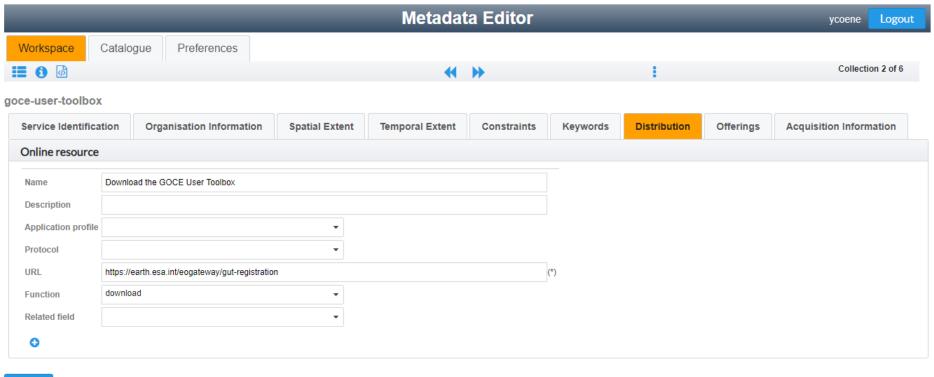
GCMD has candidate hierarchical (SKOS) thesaurus/keywords



Distribution



Applies to collections and services



Save

Distribution | Encoding



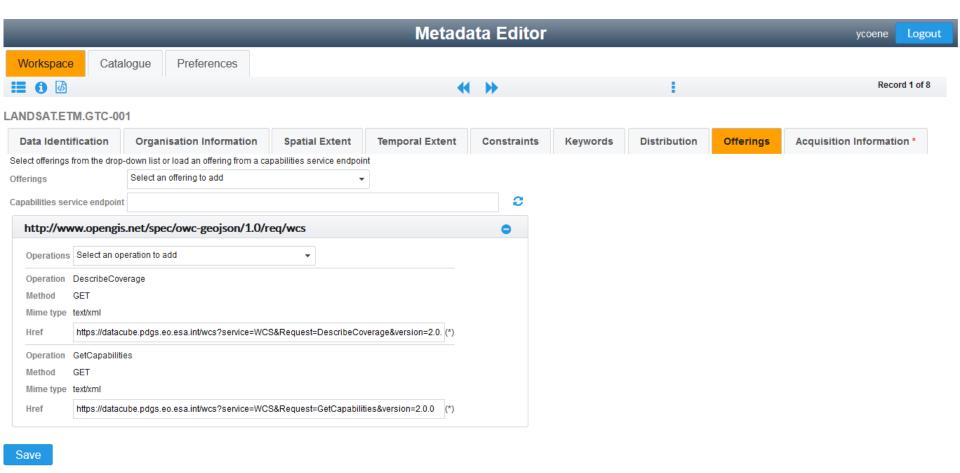
ISO and GeoJSON encoding

```
196
       <gmd:distributionInfo>
           <gmd:MD Distribution>
197
198
               <gmd:transferOptions>
199
                   <gmd:MD_DigitalTransferOptions>
200
                       <gmd:onLine>
201
                           <gmd:CI OnlineResource>
202
                               <gmd:linkage>
203
                                  <gmd:URL>https://earth.esa.int/eogateway/gut-registration/gmd:URL>
204
                               </gmd:linkage>
205
                               <gmd:name>
                                  <gco:CharacterString>Download the GOCE User Toolbox</gco:CharacterString>
206
207
                               </gmd:name>
208
                               <gmd:function>
                                  <gmd:CI OnLineFunctionCode</pre>
209
   codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/codelist/ML_gmxCodelists.xml#CI_OnLineFunctionCode"
   codeListValue="download"/>
210
                               </gmd:function>
                          </gmd:CI OnlineResource>
211
212
                       </gmd:onLine>
213
                   </gmd:MD_DigitalTransferOptions>
214
               </gmd:transferOptions>
215
           </gmd:MD Distribution>
           "kind": "http://purl.org/dc/dcmitype/Service",
  45
           "links": {
             "data": [{
                "href": "https://earth.esa.int/eogateway/gut-registration",
                "title": "Download the GOCE User Toolbox"
             }],
```

Offerings



"Offerings" apply to collection and service metadata



Offerings



GeoJSON and ISO metadata encoding

ERGO-MDE-FC-202060 I2

N/A

The Metadata Editor shall support entry of "offering" information for a collection metadata record representation in OGC 17-084r1 and allow selection of offering codes (at least for WMS, WMTS, WCS, WFS) and operation codes (as defined in OGC 14-055r2 and OGC 12-084r2⁷) from a drop-down list.

Note: operation codes shall match offering codes.

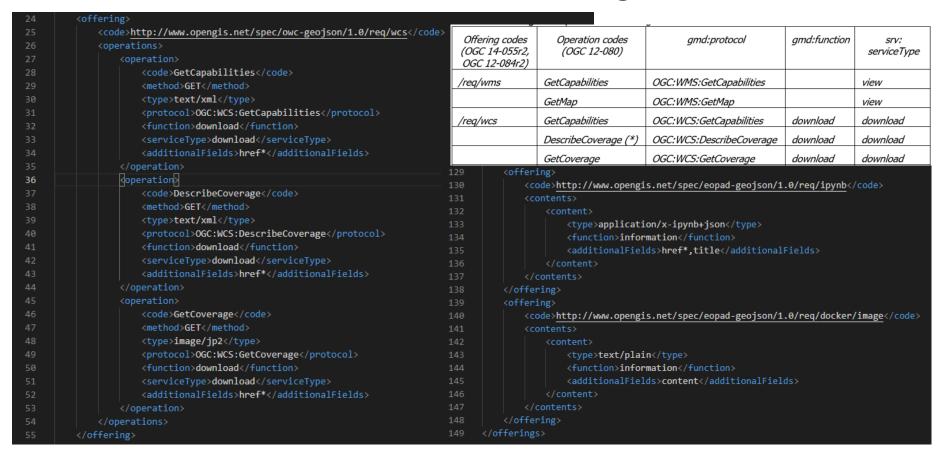
Table 3: Offering and operation encodings

Offering codes (OGC 14-055r2, OGC 12-084r2)	Operation codes (OGC 12-080)	gmd:protocol	gmd:function	srv: serviceType	
/req/wms	GetCapabilities	OGC:WMS:GetCapabilities		view	
	GetMap	OGC:WMS:GetMap		view	
/req/wcs	GetCapabilities	OGC:WCS:GetCapabilities	download	download	
	DescribeCoverage (*)	OGC:WCS:DescribeCoverage	download	download	
	GetCoverage	OGC:WCS:GetCoverage	download	download	
/req/wmts	GetCapabilities	OGC:WMTS:GetCapabilities		view	
	GetTile	OGC:WMTS:GetTile		view	
/req/wfs GetCapabilities		OGC:WFS:GetCapabilities	download	download	
	GetFeature	OGC:WFS:GetFeature	download	download	
/req/wps	GetCapabilities	OGC:WPS:GetCapabilities		transformation	

Offerings



- Offerings support in Editor is configurable
 - Allows to add more without software changes.



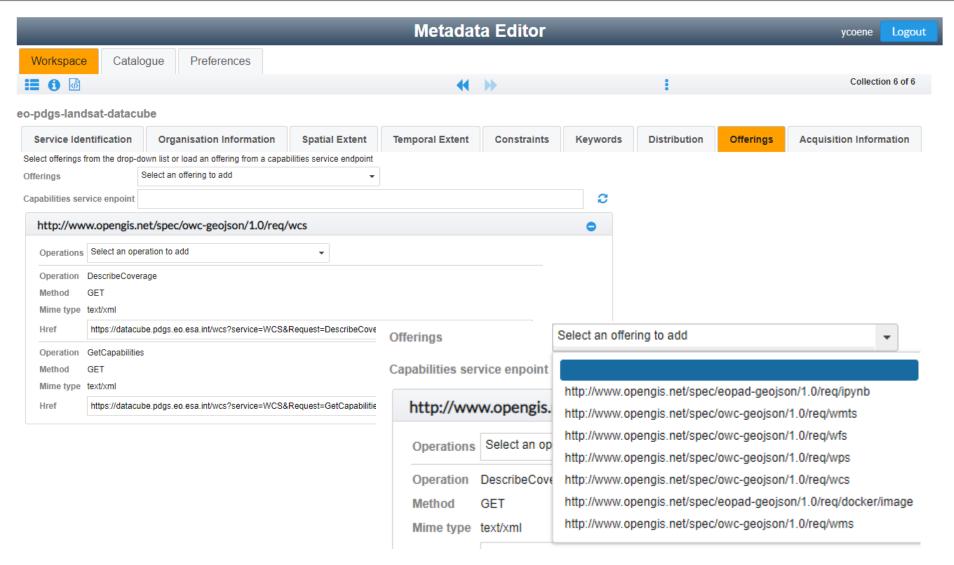
Offerings | Encoding



```
624
                         <gmd:onLine>
625
                             <gmd:CI OnlineResource>
626
                                 <gmd:linkage>
627
                                     <gmd:URL>https://datacube.pdgs.eo.esa.int/wcs?service=WCS&amp;Request=DescribeCoverage&amp;version=2.0.0&amp;CoverageId=LE7 RGB</pmd:URL>
628
                                 </gmd:linkage>
629
                                 <gmd:protocol>
630
                                     <gco:CharacterString>OGC:WCS:DescribeCoverage</gco:CharacterString>
631
                                 </gmd:protocol>
632
                                 <gmd:name>
633
                                     <gco:CharacterString>DescribeCoverage</gco:CharacterString>
634
635
                                 <gmd:function>
636
                                     <gmd:CI_OnLineFunctionCode</pre>
    codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO 19139 Schemas/resources/codelist/ML gmxCodelists.xml#CI OnLineFunctionCode"
    codeListValue="download"/>
637
                                 </gmd:function>
638
                             </gmd:CI_OnlineResource>
639
                         </gmd:onLine>
640
                         <gmd:onLine>
641
                             <gmd:CI OnlineResource>
642
                                 <gmd:linkage>
643
                                     <gmd:URL>https://datacube.pdgs.eo.esa.int/wcs?service=WCS&amp;Request=GetCapabilities&amp;version=2.0.0/gmd:URL>
644
                                 </gmd:linkage>
645
                                 <gmd:protocol>
                                     <gco:CharacterString>OGC:WCS:GetCapabilities</gco:CharacterString>
647
648
649
                                     <gco:CharacterString>GetCapabilities</gco:CharacterString>
650
                                 </gmd:name>
651
                                 <gmd:function>
652
                                     <gmd:CI OnLineFunctionCode</pre>
    codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO 19139 Schemas/resources/codelist/ML gmxCodelists.xml#CI OnLineFunctionCode"
    codeListValue="download"/>
653
                                 </gmd:function>
654
                             </gmd:CI OnlineResource>
655
                         </gmd:onLine>
656
                     </gmd:MD DigitalTransferOptions>
657
                </gmd:transferOptions>
658
            </gmd:MD Distribution>
659
        280
                                "offerings": [{
                        281
                                  "code": "http://www.opengis.net/spec/owc-geojson/1.0/req/wcs",
                        282
                                  "operations": [
                        283
                        284
                                      "code": "DescribeCoverage",
                        285
                                      "method": "GET",
                        286
                                      "href": "https://datacube.pdgs.eo.esa.int/wcs?service=WCS&Request=DescribeCoverage&version=2.0.0&CoverageId=LE7 RGB",
                        287
                                      "type": "text/xml"
                        288
                        289
                                      "code": "GetCapabilities",
                        290
                                      "method": "GET",
                        291
                        292
                                      "href": "https://datacube.pdgs.eo.esa.int/wcs?service=WCS&Request=GetCapabilities&version=2.0.0",
                        293
                                      "type": "text/xml"
                        294
                        295
```

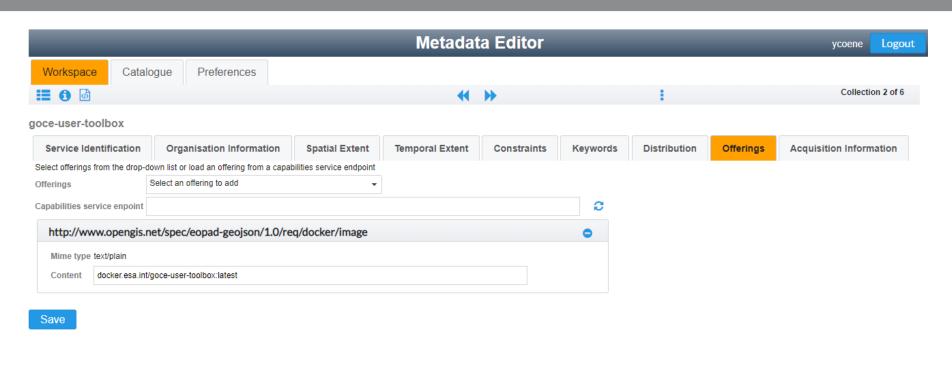
Offerings | Services example





Offerings | Services example



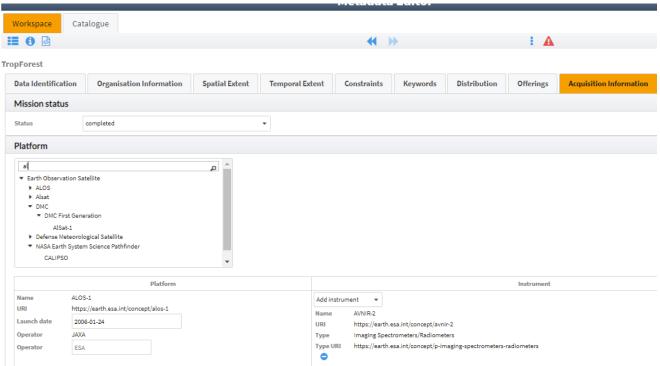


```
"offerings": [{
    "code": "http://www.opengis.net/spec/eopad-geojson/1.0/req/docker/image",
"contents": [{
    "type": "text/plain",
    "content": "docker.esa.int/goce-user-toolbox:latest"
}]
```

Acquisition information



- Annotate metadata records with ESA controlled vocabularies for platforms, instruments. Proposes only instruments "hosted" by platform.
- Automatic insertion of equivalent GCMD platform/instrument keywords in metadata.



Acquisition information | Service example



			Metada	ta Editor				усоепе	Logout
Workspace Catalo	ogue Preferences								
1 0	#	>				Collecti	ion 2 of 6		
oce-user-toolbox									
Service Identification	Temporal Extent	Constraints	Keywords	Distribution	Offerings	Acquisition Inform	mation		
Mission status									
Status		•							
Platform									
➤ Space Station/Manned S									
Name GOCE	Platform					Instrument			
URI https://earth.esa.int/concept/goce Launch date YYYY-MM-DD Operator ESA			Add instrument Name EGG URI https://e	arth.esa.int/concept/eg	99				
			Name SSTI URI https://e	arth.esa.int/concept/ss	sti				

Save

Preferences | Registered User



Metadata Editor

ycoene

Logout

Workspace

Catalogue P

Preferences

Profile

Username ycoene

Password Change password?

Metadata formats

Configure the list of metadata formats which should be allowed to be viewed (in source code View), downloaded and proposed for metadata validation:

Collection

✓ ISO 19139-2 (XML) schema validation

✓ OGC 17-084 (GeoJSON) schema validation

000 17-004 (Geosgory) scrienta validation

DIF-10 completeness check and validation against NASA validation endpoint

Service

✓ ISO 19139 (XML) schema validation

OGC 19-020 (GeoJSON) schema validation

Enable/disable validations.

Save

Catalogues

Name	FedEO (nttps://ergo.spacebei.be/)
OSDD URL	https://ergo.spacebel.be/api?httpAccept=application/opensearchdescription%2Bxml
Provider	Copyright 2016-2020, European Space Agency.
Description	Provides interoperable access, following ISO/OGC interface guidelines, to Earth Observation metadata
Collection metadata	Read / Write
Service metadata	Read / Write

Version info of currently used Thesauri files (ESA, GCMD).

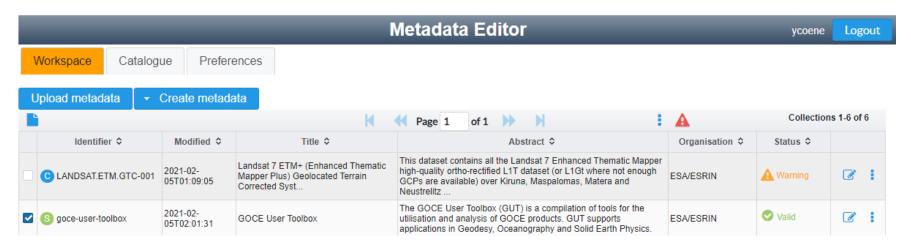
Thesaurus

Title ESA Thesaurus	Uri https://earth.esa.int/concepts/concept_scheme/earth-topics	Version 1.5	Modification date 2021-05-05
ESA Thesaurus	https://earth.esa.int/concepts/concept_scheme/instruments	1.5	2021-05-05
ESA Thesaurus	https://earth.esa.int/concepts/concept_scheme/platforms	1.5	2021-05-05
Global Change Master Directory (GCMD). 2021 Earth Science Keywords. Version 10.1	https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords	10.1	2021-05-17
Global Change Master Directory (GCMD). 2021 Instrument Keywords. Version 10.1	https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/instruments	10.1	2021-05-12
Global Change Master Directory (GCMD). 2021 Platform Keywords. Version 10.1	https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/platforms	10.1	2021-05-10
COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata Part D4 105/2006 Classification of Spatial Data Services tation ACNIEVEMENTS MDE: 28/05/2006	http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceCategory		2015-08-18

Validation interface



"Warning" or "error" icon in "Status" column...



Only shown if "enabled" in Preferences view...



Validation interface



Validation report available from the menu



Thesaurus reports | auto-correction

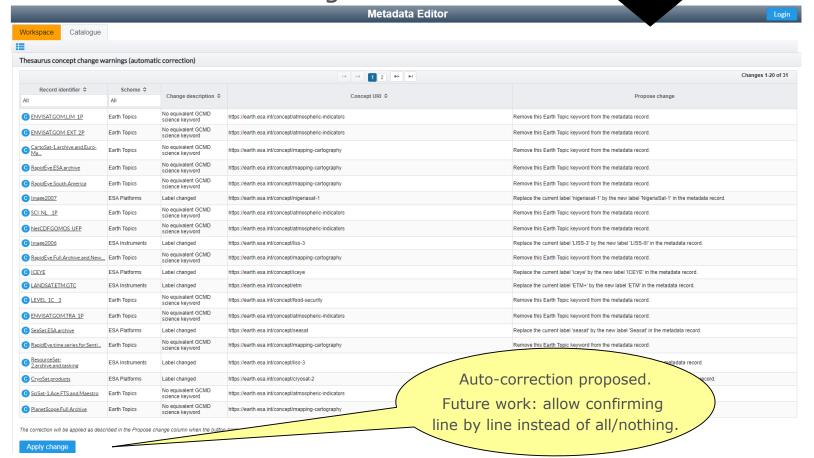


Upload metadata

Create metadata

Page 1 of 1 by Collections 1-9 of 9

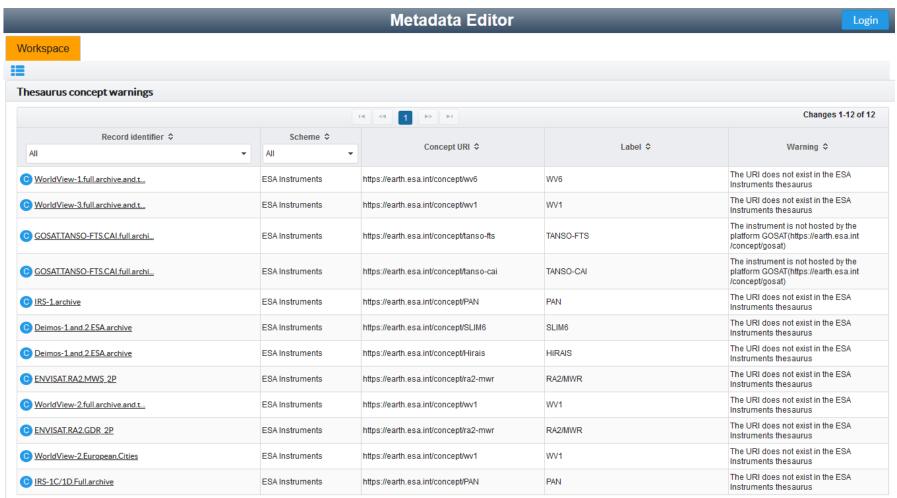
Thesauri change icon in workspace provides access to list of inconsistencies and changes



Thesaurus reports | other issues



Additional issues to be checked manually are reported as well



Administrator / Preferences



	Metadata Editor administrator Logou								
Workspace	Catalogue	Preferences	Manage users	Manage catalogues					
Profile									
Username admin	strator								
Password Chang									
Metadata forn	nats								
Configure the list of	of metadata formats v	vhich should be allowed	to be viewed (in source co	ode View), downloaded and prop	osed for metadata validation:				
Collection				Service					
_	(XML) schema valid			✓ ISO 19139	(XML) schema validation				
=	(GeoJSON) schema		validation and point	=	0 (GeoJSON) schema validation				
	neteness check and t	validation against NASA	validation endpoint						
Save									
Catalogues	FedEO ▼								
Name	FedEC	(https://ergo.spacebe	l <u>.be/)</u>						
OSDD URL	https://	/ergo.spacebel.be/api?h	httpAccept=application/ope	nsearchdescription%2Bxml					
Provider	Copyri	ight 2016-2020, Europe	an Space Agency.						
Description	Provid	les interoperable access	s, following ISO/OGC interf	ace guidelines, to Earth Observa	ation metadata.				
	Allow	access to anonymous u	sers						
Thesaurus									
Title				Uri		Version	Modification	n date	
EO Parameter Code List - Earth Topics		https://earth.esa	int/concepts/concept_scheme/earth-topics	1.0	2020-09-23				
EO Parameter Code List - Instruments		https://earth.esa	/earth.esa.int/concepts/concept_scheme/instruments 2.21, 13/02/2019		2021-02-10				
EO Parameter Code List - Platforms		https://earth.esa	https://earth.esa.int/concepts/concept_scheme/platforms 2.21, 13/02/2018		2020-11-17				
Global Change Master Directory (GCMD). 2021 Earth Science Keywords. Version 9.1.5		https://gcmd.ear	https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords 9.1.5		2021-02-12				
Global Change Master Directory (GCMD). 2021 Instrument Keywords. Version 9.1.5		https://gcmd.ear	cmd.earthdata.nasa.gov/kms/concepts/concept_scheme/instruments 9.1.5						
Global Change Master Directory (GCMD). 2021 Platform Keywords. Version 9.1.5		https://gcmd.ear	//gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/platforms 9.1.5						
COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata, Part D 4, Classification of Spatial Data Services				europa.eu/metadata-codelist/SpatialDataServiceCategory		2015-08-18			

Administrator / Preferences



- Enable/disable synchronization with online thesauri files.
 - Assumption:
 - Access to Fuseki endpoint open (for access to ESA SKOS thesauri files).
 - Periodicity: is configurable (e.g. daily at 17h45).
 - Location defined in VoID configuration file.
 - Old (downloaded) versions kept (prefixed with date).



Administrator / Preferences



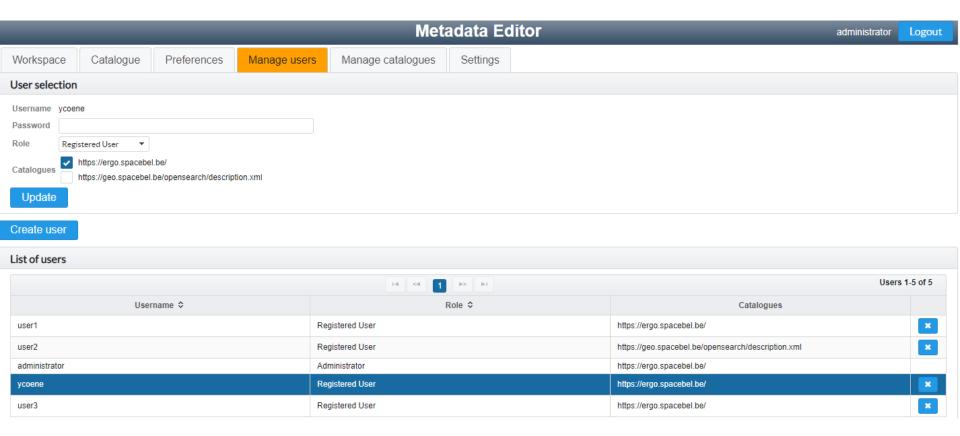
VoID configuration file used for a.o. synchronisation

```
<void:Dataset rdf:about="https://earth.esa.int/concepts/concept scheme/earth-topics">
     <rdfs:label>Earth Topics</rdfs:label>
     <dcterms:title>EO Parameter Code List - Earth Topics</dcterms:title>
     <dcterms:modified>2019-05-13</dcterms:modified>
     <void:dataDump rdf:resource="file://earth-topics.rdf"/>
     <void:dataDump rdf:resource="http://fedeo.spacebel.be:8080/thesaurus/data?"</p>
graph=default"/>
     <void:feature rdf:resource="http://www.w3.org/ns/formats/KDF_XML" />
     <void:uriSpace>https://earth.esa.int/concept</void:uriSpace>
  </void:Dataset>
  <!-- FSA Farth Instruments -->
  <void:Dataset rdf:about="https://earth.esa.int/concepts/concept scheme/instruments">
     <rdfs:label>Instruments</rdfs:label>
     <dcterms:title>EO Parameter Code List - Instruments</dcterms:title>
     <dcterms:modified>2019-07-25</dcterms:modified>
     <void:dataDump rdf:resource="file://instruments.rdf"/>
     <void:dataDump rdf:resource="http://fedeo.spacebel.be:8080/thesaurus/data?</p>
graph=default"/>
     <void:feature rdf:resource="http://www.w3.org/ns/formats/RDF_XML" />
     <void:uriSpace>https://earth.esa.int/concept</void:uriSpace>
  </void:Dataset>
```

Administrator / Manage users

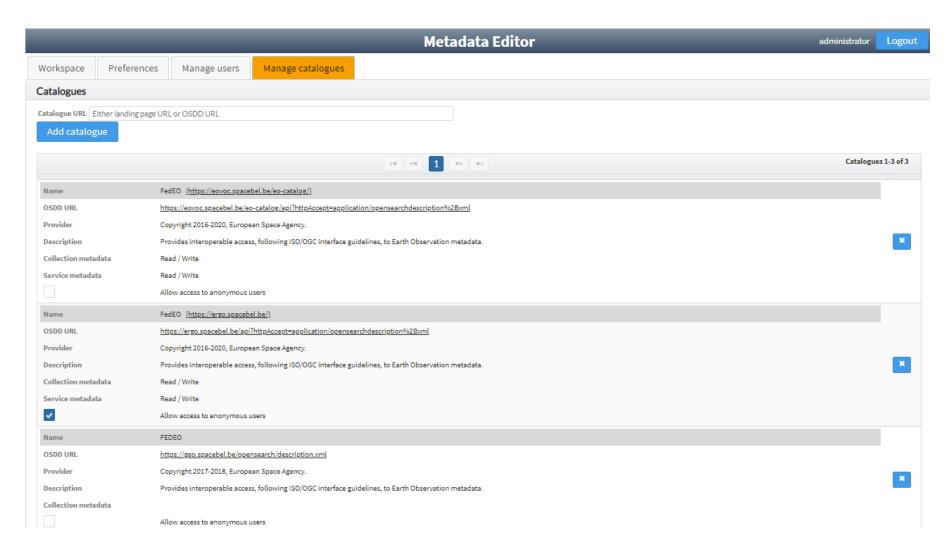


Show/hide catalogues for users



Administrator / Manage Catalogues





Administrator / Manage Catalogues

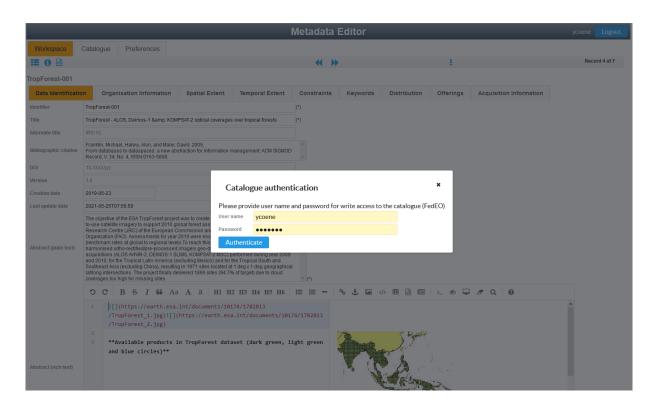


- Catalogues are added by the administrator providing either
 - Landing Page (OGC API Features)
 - Informs the editor that transactional i/F is available with RESTful interface, same URL for Read (GET) as Write (POST).
 - OSDD
 - Provides info about the Read (GET) interface to the editor.

Administrator / Manage Catalogues



"copy to catalogue" requires the user to know the credentials
 of the catalogue access which are unrelated to the Metadata
 Editor tool...



Conclusion



- Metadata Editor main characteristics
 - Fully interoperable with ESE-ERGO catalogue interfaces
 - Supports ISO19139(-2) and GeoJSON metadata encoding
 - Supports collection and service metadata
 - Integrated and synchronised with SKOS thesauri (GCMD, ESA)
- Feature-rich implementation
 - Solid basis for adding more functionality and simplifying maintenance and publication of metadata records.





- Software available on GitHub
 - https://github.com/spacebel/MDE
- Contacts
 - Yves.Coene@spacebel.be
 - Marc.Gilles@spacebel.be