mEDRA

Multilingual European DOI Registration Agency

mEDRA Web Service Documentation

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mEDRA

1. Introduction

mEDRA provides two web service for the management of DOIs:
- *mEDRA WS* allows to:
  o deposit DOI and DOICitations in mEDRA;
  o query the mEDRA database to get metadata record of a DOI;
- *mEDRA2CR WS* allows to:
  o deposit DOI and DOICitations in mEDRA and in Crossref;
  o query the Crossref database (cross-linking and cited-by query).

The DOI records can be deposited in Crossref only if they are compliant to ONIX for DOI 2.0 format, published at URL:
http://www.medra.org/schema/onix/DOIMetadata/2.0/ONIX_DOIMetadata_2.0.xsd

2. mEDRA WS

mEDRA WS allows you to deposit DOI and DOICitations in mEDRA and to query the mEDRA database to get the metadata with a DOI.
The web service is published at the end point
https://www.medra.org/servlet/ws/medraWS
and includes the following operations:
- *upload*, to upload DOI metadata;
- *citationsUpload*, to upload DOICitations records;
- *viewMetadata*, to download the metadata of a DOI.

2.1. Operation UPLOAD

The operation *upload* allows you to upload in mEDRA a XML file in the following formats:
- ONIX for DOI 1.0
  (cfr. http://www.medra.org/schema/onix/DOIMetadata/1.0/ONIX_DOIMetadata_1.0.xsd);
- ONIX for DOI 1.1
  (cfr. http://www.medra.org/schema/onix/DOIMetadata/1.1/ONIX_DOIMetadata_1.1.xsd);
- ONIX for DOI 2.0
  (cfr. http://www.medra.org/schema/onix/DOIMetadata/2.0/ONIX_DOIMetadata_2.0.xsd).

The envelope of the SOAPRequest must have the following structure:

```
<soapenv:Envelope
      xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
      xmlns:soapenv="http://www.medra.org">
   <soapenv:Header/>
   <soapenv:Body>
      <med:upload>
         <contentID href="cid:metadata"></contentID>
      </med:upload>
   </soapenv:Body>
</soapenv:Envelope>
```

where the attibute href will refer to the contentID of the file in attachment.

In case of success the SOAPResponse will have the following structure:

```xml
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
    <soapenv:Header/>
    <soapenv:Body>
        <uploadResponse>
            <returnCode>success</returnCode>
            <submissionID>DEMO_20110201163921_en</submissionID>
        </uploadResponse>
    </soapenv:Body>
</soapenv:Envelope>
```

where the element submissionID will contain the ID assigned by mEDRA to the submission.

In case of failure the SOAPResponse will have the following structure:

```xml
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
    <soapenv:Header/>
    <soapenv:Body>
        <soapenv:Fault>
            <faultcode>SOAP:Server</faultcode>
            <faultstring>uploaded file is not valid cvc-enumeration-valid: Value '15' is not
facet-valid with respect to enumeration '[06, 07]'. It must be a value from the
enumeration.</faultstring>
            <faultactor>https://www.medra.org/servlet/ws/medraWS</faultactor>
        </soapenv:Fault>
    </soapenv:Body>
</soapenv:Envelope>
```

- JATS (DTD 1.0, 1.1d2, 1.1d3)
  (http://jats.nlm.nih.gov/publishing/versions.html)

The envelope of the SOAPRequest must have the following structure:

```xml
<soapenv:Envelope
        xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:soapenv="http://www.medra.org">
    <soapenv:Header/>
    <soapenv:Body>
        <med:upload>
            <contentID href="cid:metadata"></contentID>
            <transformation>JATS</contentID>
        </med:upload>
    </soapenv:Body>
</soapenv:Envelope>
```

where the attibute *href* will refer to the *contentID* of the file in attachment. The *transformation* element is required to identify the format of the record file as different from ONIX for DOI and it suggests the transformation to be applied.
The web service does not apply any validation to the incoming JATS record at schema level and does not impose particular restrictions but continues to validate the generated ONIX record after the

transformation. Once the request is uploaded and the registration process is completed, the registrant is notified by email. The email used here is the one retrieved from the registrant's account.

The SOAPResponse, for both failed and successful cases, are the same as for the ONIX upload requests.

2.2. Operation CITATIONSUPLOAD

The operation *citationsUpload* allows to upload in mEDRA an XML file in format ONIX for DOICitations 2.0 (cfr. http://www.medra.org/schema/onix/DOIMetadata/2.0/ONIX_DOICitations_2.0.xsd).

The envelope of the SOAPRequest must have the following structure:

```
<soapenv:Envelope
        xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:med="http://www.medra.org">
    <soapenv:Header/>
    <soapenv:Body>
        <med:citationsUpload>
            <contentID href="cid:metadata"></contentID>
        </med:citationsUpload>
    </soapenv:Body>
</soapenv:Envelope>
```

where the attribute href will refer to the contentID of the file in attachment.
In case of success the SOAPResponse will have the following structure:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
    <soapenv:Header/>
    <soapenv:Body>
        <citationsUploadResponse>
            <returnCode>success</returnCode>
            <submissionID>cl_DEMO_20110201163921_en</submissionID>
        </citationsUploadResponse>
    </soapenv:Body>
</soapenv:Envelope>
```

where the element submissionID will contain the ID assigned by mEDRA to the submission.
In case of failure the SOAPResponse will have the following structure:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
    <soapenv:Header/>
    <soapenv:Body>
        <soapenv:Fault>
            <faultcode>SOAP:Server</faultcode>
            <faultstring>internal error: notValidXmlRequest :: parser error at line number 9 and
column number 18 :: cvc-complex-type.2.4.a: Invalid content was found starting with element
'DOICitations1'. One of '{"http://www.medra.org/DOIMetadata/2.0/Citations":DOICitations}' is
expected.</faultstring>
            <faultactor>https://www.medra.org/servlet/ws/medraWS</faultactor>
        </soapenv:Fault>
    </soapenv:Body>
</soapenv:Envelope>
```

2.3. Operation VIEWMETADATA

The operation *viewMetadata* allows to get the metadata record a DOI deposited in mEDRA.

The envelope of the SOAPRequest must have the following structure:

```
<soapenv:Envelope
       xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
       xmlns:med="http://www.medra.org">
   <soapenv:Header/>
   <soapenv:Body>
      <med:viewMetadata>
         <doi>10.111/222</doi>
      </med:viewMetadata>
   </soapenv:Body>
</soapenv:Envelope>
```

where the element doi will contain the DOI which you want to have the metadata.

In case of success the SOAPResponse will have the following structure:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
   <soapenv:Header/>
   <soapenv:Body>
      <viewMetadataResponse>
         <contentID href="cid:result">result</contentID>
      </viewMetadataREsponse>
   </soapenv:Body>
</soapenv:Envelope>
```

where the element contentID will contain the ID of the attachment containing the DOI record in XML format.

In case of failure the SOAPResponse will have the following structure:

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
   <soapenv:Header/>
   <soapenv:Body>
      <soapenv:Fault>
         <faultcode>SOAP:Client</faultcode>
         <faultstring>Invalid argument<faultstring>
         <faultactor>https://www.medra.org/servlet/ws/medraWS</faultactor>
      </soapenv:Fault>
   </soapenv:Body>
</soapenv:Envelope>
```

3. mEDRA2CR WS

The mEDRA2CR Web Service allows to use the Crossref Citations Service made available by mEDRA (deposit of DOI and DOICitations in Crossref and query to the Crossref database).
The web service is published at the endpoint:
https://www.medra.org/servlet/ws/CRProxy

and involves the following operations:
- *deposit*, for the deposit (creation/update) of DOI in mEDRA and in Crossref;
- *citationsDeposit*, for the deposit (creation/update) of DOICitations in mEDRA and in Crossref;
- *query*, to query Crossref database.

This web service should only be used if you want to store DOI or DOICitations both in mEDRA and in Crossref.
Before sending them to Crossref, the web service will deposit the DOI and/or the DOICitations in mEDRA, following the same logic as mEDRA WS (see Chapter 2).
On the contrary, if you want to deposit DOI or DOICitations only in mEDRA, you must use the mEDRA WS (see Chapter 2).

It was decided to implement the Crossref service on a second web service endpoint, to ensure users that are not CR-enabled to continue using the usual mechanisms for registration and, at the same time, provide users CR-enabled a number of additional options to improve the quality of service.
In particular:
- you can now specify inside the SOAPRequest the registration mode (synchronous or asynchronous) and the preferred language (only 'eng' at the moment);
- in the SOAPResponse are now included additional information on the constraints violated and on the recommendations not adhered.

Next paragraphs describe in more details the SOAPRequest and SOAPResponse messages.

3.1. SOAPRequest Message

The envelope of the SOAPRequest message must have the following structure:

```xml
<soapenv:Envelope
        xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
        xmlns:med="http://www.medra.org">
    <soapenv:Header/>
    <soapenv:Body>
        <med:operation>
            <med:accessMode></med:accessMode>
            <med:language></med:language>
            <med:contentID></med:contentID>
        </med:operation>
    </soapenv:Body>
</soapenv:Envelope>
```

where:
- <med:*operation*> is replaced with the desired operation:
  o <med:*deposit*> to deposit the DOI in mEDRA and Crossref;
  o <med:*citationsDeposit*> to deposit the DOICitations in mEDRA and Crossref;
  o <med:*query*> to query Crossref database.
- <med:*accessMode*> (optional element) contains value '01' (default) if you want to work in asynchronous mode, '02' if you want to work in synchronous mode. By now, it is supported only the synchronous mode (01);
- <med:*language*> (optional element) contains the code of the preferred language, only 'eng' at the moment.
- <med:*contentID*> (mandatory) contains the label associated to the XML file (it replaces the

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attribute href of the element <contentID> of the SOAPRequest for the operation upload of the mEDRA WS).

3.1. SOAPResponse Message

The SOAPResponse message has been enriched, with respect to the one returned by mEDRA WS, with a section containing detailed information about the submission.

This section can be of one of the two following XML format (the cardinality of the elements are indicated in brackets):

a – deposit of DOI and DOICitations

```
<depositUploadResponse contentID=""> [1..1]
    <statusCode></statusCode> [1..1]
    <submissionID></submissionID> [0..1]
    <messageNumber></messageNumber> [0..1]
    <errorsNumber></errorsNumber> [1..1]
    <warningsNumber></warningsNumber> [1..1]
    <error> [0..n]
        <code></code> [1..1]
        <reference></reference> [1..1]
        <description></description> [1..1]
    </error>
    <warning> [0..n]
        <code></code> [1..1]
        <reference></reference> [1..1]
        <description></description> [1..1]
    </warning>
</depositUploadResponse>
```

b – query to Crossref:

```
<queryUploadResponse contentID=""> [1..1]
    <statusCode></statusCode> [1..1]
    <submissionID></submissionID> [0..1]
    <messageReferenceNumber></messageReferenceNumber> [0..1]
    <errorsNumber></errorsNumber> [1..1]
    <warningsNumber></warningsNumber> [1..1]
    <error> [0..n]
        <code></code> [1..1]
        <reference></reference> [1..1]
        <description></description> [1..1]
    </error>
    <warning> [0..n]
        <code></code> [1..1]
        <reference></reference> [1..1]
        <description></description> [1..1]
    </warning>
</queryUploadResponse>
```

where:
- attribute *contentID* contain the value of the element <med:contentID> of the SOAPRequest;
- the value of element <*statusCode*> is SUCCESS or FAILURE, depending on the result of the upload;
- <*submissionID*> contains the ID assigned by mEDRA to the submission;
- <*messageNumber*> (or <*messageReferenceNumber*>, in case of query) contains the ID

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assigned by the user to the submission;
- *<errorsNumber>* contains the number of violated constraints in the sending to Crossref (*<error>* elements);
- *<warningsNumber>* contains the number of recommendations not followed in the sending to Crossref (*<warning>* elements);
- *<error>* and *<warning>* describe, respectively, a constraint or a recommendation for sending of DOI, DOICitations or query to Crossref, that have not been followed. Their structure is similar:
  o *<code>* code of the constraint/recommendation not followed (see the site mEDRA for the set of possible error codes);
  o *<reference>* description of the item that violates the constraint/recommendation;
  o *<description>* textual description of the constraint/recommendation violated.

Please note that a status code SUCCESS does not mean that the deposit of the DOI or DOICitations is successful, but only that the upload of the attached file was successful and that the file itself was properly queued in the system for mEDRA processing.

4. Web Service Client

The web service client has been modified to allow the correct management of the new operations.
It can be used in two ways:
- via command line
- as java library

Regarding the command line mode, the syntax is as follows (where the parentheses indicate a choice between several options, brackets an optional item):
java -jar medraClient.jar ((-u | -cu | -q) <file> | -v <doi>) [-transform <label>] [-validate] [-url <WS-URL>] [-username <name> -password <word>] [-debug] [-crossref] [-amode (01|02)] [-lang (eng)]

The parameters can be grouped into two categories:
1) operation type
       -u = asynchronous deposit of DOIs metadata (upload)
       -cu = asynchronous deposit of DOICitations (upload)
       -q = submission of query to Crossref
       -v = download of DOI metadata records
2) options
       -transform (optional) = identification label of the transformation
       -validate (optional) = if it is present, the web service client validates the file before sending it
       -url (optional) = the URL of the web service to which send the request
       -username (optional) = the userid for authentication
       -password (optional) = the password for authentication
       -debug (optional) = if it is present, the web service client will be executed in debug mode
       -crossref (optional) = if it is present, the deposit will be sent also to Crossref. It can be used only in combination with the operations: -u, -cu or –q
       -amode (optional) = access mode. It can only be used in combination with the '-crossref'.

Allowed values: 01=asynchronous, 02=synchronous
-lang (optional) = language. It can only be used in combination with the '-crossref'.
Allowed values: eng=English.

For the installation and use of the Web Service Client, please refer to the document
mEDRA_Web_Service_Client_Tool.pdf.