

Jure Dimec, Brane Leskošek

*Institute for Biomedical Informatics,
Faculty of Medicine, Ljubljana, Slovenia*

Data entry application for NMS partners

User manual

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Introduction

This user manual was written to help using the data entry application, which was developed to collect the bibliographic data about publications that belong to the ethics domains covered by the Eureth.net project.

The database into which data are being entered by this application is serving as an intermediary storage before the bibliographic records are transferred to the final Eureth.net database(s). In this intermediary database bibliographic records contributed by partners from NMS countries are being collected. They are mostly entered online. In some cases local bibliographic collections exist and data from them are downloaded, sent to the Institute for Biomedical Informatics (IBMI) where they are converted and uploaded to the database. The idea behind the development of this application and intermediary database was that by using this approach it would be much easier to ensure the conformity to common documentary standards, compared to any other possibility.

The data entry application is using WWW infrastructure for communication with users. There are good and not-so-good consequences of that decision. By not using the common client/server approach the potential problems with software installation and hardware/OS compatibility are avoided. The user needs no special software to use the application and nothing more powerful than moderately capable PC with Internet connection and Web browser. All the algorithms needed to collect and check data are part of Web pages and data are interchanged between user's browser and server's programs by using the simple HTTPS requests. On the other hand, relying on the Web infrastructure brings some clumsiness, compared to client/server systems. There is no permanent connection and programs and other data (thesauri...) cannot be stored on the user's workstation. Every byte of data must be sent to the user each time it is needed. The greatest challenge of application development becomes the minimisation of data transfer with maximisation of application power.

There is another complication inherent to data produced by NMS partners – character sets. All partners (with the exception of Bulgarian partner) are using Latin scripts but enriched with numerous "special" characters. There is no standard character set belonging to the ISO-8859 family that encompass all these characters, leaving us with only one possibility – the UNICODE.

The application runs on the Linux workstation with Apache Web server. Database is hosted with the MySQL DBMS. Server-side processing, data entry forms generation, and export formatting is done by Perl scripts while the JavaScript scripts are used for the browser-side processing. Converters are written in Java.

Most of the programming was done by Brane Leskošek, PhD, database structures planning, programming of converters, output formats, and this manual were done by Jure Dimec, PhD, both from IBMI.

How to...

enter record

After entering username and password the first window with Eureth.net logo and pointers to project's important addresses appears (part of it is shown in Figure 1).¹ This window will remain open during the use of the application. There are four buttons in this window, the left pair leading to the **data entry** and **search and edit** lines of work. Pressing the right pair of buttons brings this manual and dynamically created overview of database contents with simple statistical data, respectively. The value for a creator field and the user's name are also displayed.

Bibliographic data entry for Euroethics and Endebit databases

creator: IBMI
user: jure



Figure 1. Part of the application's first window.

By pressing the [Data entry] button the "working window" opens. All the data entry, searching and editing forms will be presented in this window.



Figure 2. Beginning of the data entry work: determining the database and primary document type.

Data entry starts with selecting from two selection lists in order to determine the most general attributes of a future record – the database into which the record will go and the primary document type. Regarding the database there are three possibilities to choose from (each of the Eureth.net databases and both) and seven primary document types.

[New record] button will bring the appropriate data entry form, but only if database and primary type have been selected. Button [close] would close the working window and bring the starting window into focus.

fill the web form

There are 7 different data entry forms, one for each primary document type. Each form consists of three types of fields – text fields, selection fields, and checkboxes. Selection fields and checkboxes are convenient ways of data entry when possible values are known in advance – selection fields when only one value can be chosen (i.e. with the *country of publication* field), and checkboxes for multiple selections

¹ The overall design and pointers on this page are prescribed by the Eureth.net web design group and are not developed with the data entry application.

(i.e. the *language of document* field). Simple keyboard entering is used for text fields.

Some additional data is presented on each form: database name, username, creator's name, creation date, document ID, and date when this version of a form was introduced into the application. The primary document type of a record is shown as the form's title. Document ID is a unique, un-changeable number that this record has in the application's database. Figure 3 shows the part of a typical form.

Figure 3: Screen form of the document type 'analytic' with some data filled in.

Not all text fields are equal in form and treatment. Some are very long (i.e. abstract), some of medium size (i.e. titles) and some short (i.e. 4 chars in the case of publication year). Some textual fields are numeric in nature (i.e. publication year, collation...) and are converted as such prior to entering the database. Into some fields structured data have to be entered – dates have to be in a 'dd-mm-yyyy' format²; e-mail addresses and URLs have their own rules to obey.

Several field names in the form's left column are marked with asterisks. These are mandatory fields that must be entered. Without values in these fields the web form could not be submitted.

There is an extensive help files system accessible from each data entry form. Each

² Documentary standards expect different format, but in the data entry form more human-readable date format is used. The date format that actually enters the database is Documentary standards compliant.

field name serves as a hypertext pointer. Clicking on the field name opens new window with the text clarifying rules or possible problems regarding the data entry of this field (see Figure 4).

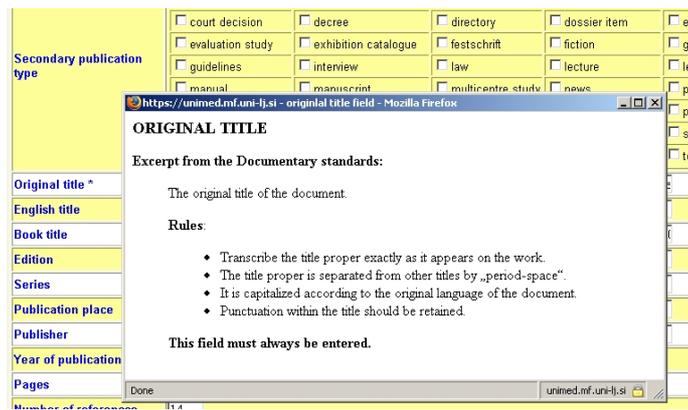


Figure 4. Help window, which opened after the user clicked on the Original title field name.

send data

After the data has been entered pressing the button [submit] will send them to the server and, if everything goes well, into the database tables. The role of the button [reset] is to forget all changes that were made since the user's PC received the form. If the form was received blank (the user is creating a new record) [reset] will empty it again; if the form was received filled with data (the user is editing an existing record) [reset] will discard all subsequent changes.

Data in many fields is automatically checked. Checking is performed twice – on the client's browser before sending the form to the server, and on the server before entering the record into database. Server-side checking doesn't produce any message to the user, while client-side checking does. Following are two typical messages that user have to obey in order to send the record to the server.



Figure 5. Messages informing user about the actions that the application expects him to do: enter the publication year in the first case and correct the data that were entered into the same field (and probably contain something else beside digits) in the second case.

After pressing [OK] the cursor is positioned on the field that caused the message.

Data is sent and the record is created in the database only if submit action succeeded. The success is confirmed with a note like the one shown on Figure 6.

The application is ready for entering authorship or subject description data to the record that was just created or changed (use the first row of buttons on Figure 6), or creating new record with basic data set as in the previous one (use the second row of buttons on Figure 6).

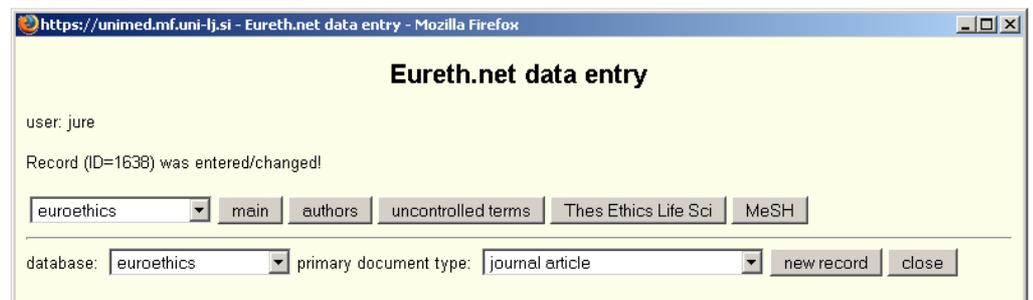


Figure 6: Confirmation of successful transfer and writing of record into a database.

cancel data entry If the user is entering new record the [submit] button would send it to the server, and [reset] button would forget changes or do nothing (if the form is empty). If the user realises that s/he doesn't want to create a new record the [close] button will end the data entry session without sending anything to the server.

enter author data To enter data about document's author(s) a separate data entry form has to be used. A form filled with data about three authors is shown on Figure 7.

This form is accessible by pressing the [authors] button after the main data were submitted or after the search was successfully performed.

Authority is a complex information. Besides the authors' names two other (non-mandatory) pieces of data is expected by Documentary standards – author's affiliation and author's e-mail address. According to Standards only the 1st author's affiliation and address is to be entered, but quite often it is not the 1st author of a document that the mail has to be sent to, therefore the application enables the user to enter these data for each or any author.

The order in which authors' names are presented in a bibliographic record of a (multi-authored) document is important. To ensure that the authors' positions will be preserved this information has to be entered to the field Ordinal position of author. The 1st author should have number 1 entered into the field Ordinal position, the 2nd one number 2, etc.

If, by mistake, the authors were not entered in the correct order, it is enough to change the numbers in their ordinal position fields. The correct order of authors' data will be restored after the form is submitted.

The Documentary standards include three fields denoting authorship, namely Author, Editor and Corporate author. In order to simplify data entry the same form is used for all three fields. An additional field Author's type is introduced to the form, having values author, editor and corporate author (see Figure 7). The user should enter the name of the authoring entity into the Author field and describe whether it is author, editor or corporate author in the Author's type field.

Figure 7: Data entry form for authority information. Three different types of author's roles are shown.

submit author data Each time the authors data entry form is called, be it for the first or nth time or during the data editing, there is place for one new author on the form. When data about this author is entered, pressing the [submit] button sends it to the server and the form is returned with the place for one more author. This data-entering cycle could be repeated as many times as needed. To interrupt it press the [close] button.

The application tests the value entered into the Author's e-mail field. It must obey a general form of an e-mail address.

For each author the Author (name), Author's type, and Ordinal position fields must be entered. With any of these fields empty the form can not be submitted. Author affiliation and Email fields are optional.

delete author data Each author's record that came from the database has a [delete] button associated. By pressing it (and confirming the decision) all data about the particular author are immediately deleted from the database. The form is recreated without the deleted record.

To delete values in fields of a new record that hasn't been submitted yet it is enough to press the [reset] button.

enter uncontrolled terms

To enter uncontrolled terms a separate data entry form has to be used. This form opens after pressing [uncontrolled terms] button from the data entry or search results window.

Besides the MeSH and Thesaurus Ethics in Life Sciences (TELS) descriptors the Documentary standards include several fields that could also be seen as subject description fields, i.e. Uncontrolled terms, Congress name as a subject, Personal name as a subject, etc. The Uncontrolled terms field is meant for keywords or key phrases coming from some local thesaurus, other than MeSH or TELS. To simplify data entry all these fields use the same data entry form.

An additional field Uncontrolled term's type is introduced to the form with a selection list including values keyword, personal name, institutional name, legal text, project name, and congress name (see Figure 8). Each of these values corresponds to a Documentary standards field of roughly the same name (e.g. 'Personal name as a subject').

The order of uncontrolled terms in a bibliographic record could be important. Often the record creator enters more important keywords first and the keywords that describe less important subjects come later. The information about the preferred order of keywords is maintained by entering their running numbers into the field Ordinal position of uncontrolled term. If, by mistake, the terms were not entered in the correct order, it is enough to change the numbers in their ordinal position fields. The correct order of data will be restored after the form is submitted.

Uncontrolled term	delete	Uncontrolled term's type	Ordinal position of uncontrolled term
psychiatry		keyword	1
emergency service		keyword	2
home visits		- choose one - congress name institutional name keyword legal text patent name personal name project name	

Figure 8: Data entry form for uncontrolled keywords. The selection list with values denoting term types is shown.

submit uncontrolled terms

Each time the form is opened there is place for one more uncontrolled term. Pressing the button [submit] sends data to the server and into the database. If data were successfully submitted, the form (with data entered so far) is resent to the user's PC and the user can enter another term. Button [close] terminates this cycle and closes the window.

The uncontrolled term cannot be submitted to the database without entering values in Uncontrolled term's type and Ordinal position fields.

delete uncontrolled terms Each uncontrolled term's record that came from the database has a [delete] button associated. By pressing it (and confirming the decision) all data about the particular term are immediately deleted from the database. The form is recreated without the deleted record.

To delete values in fields of a new record that hasn't been submitted yet it is enough to press the [reset] button.

enter MeSH terms Thesaurus MeSH (Medical Subject Headings, National Library of Medicine, U.S.) is a part of the data entry application and the user is able to select terms and include them into the bibliographic record.

The form for entering the MeSH terms consists of a query field, two selection lists and a number of buttons, as is shown in Figure 9. The user selects the terms that are describing the document's content in the left list and place them to the right list using the [>] button. It would be very un-practical and time-consuming to transfer the whole MeSH to the user's PC each time s/he opens this form. To limit the amount of data transferred, the user first enters a string that s/he thinks is included in MeSH term(s) that describe the particular aspect of a document's subject. This string has to be entered into the Search MeSH headings field and [search] button has to be pressed.

The Figure 9 shows results of a search with the string 'ethic'.

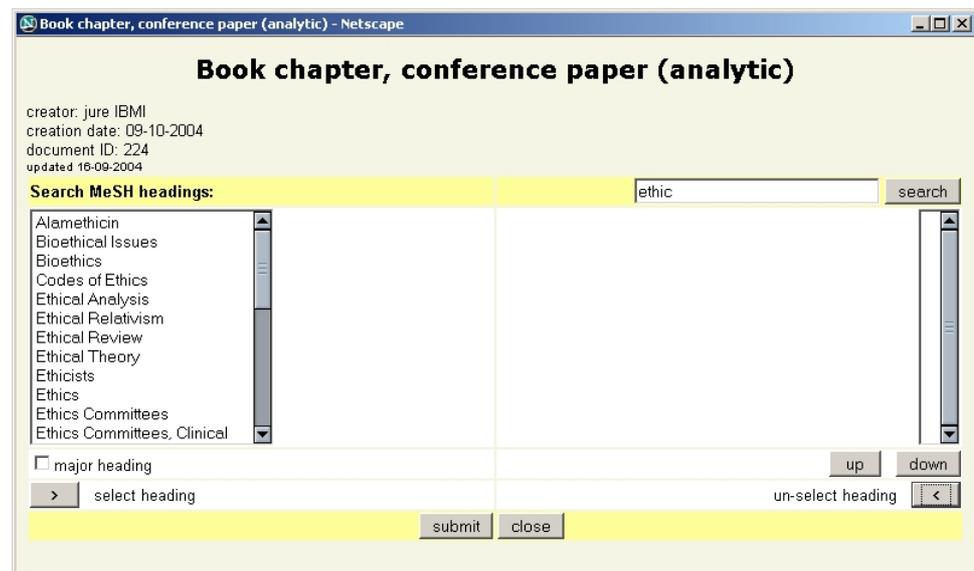


Figure 9: Data entry form for MeSH descriptors. User limited the thesaurus to terms that include the string 'ethic'.

The subset of MeSH that includes this string was transferred with the form and placed inside the left selection list. The user is free to select and transfer to the right list as many MeSH terms as needed. To complete the description of the document's subject, several repetitions of the searching through MeSH and selecting in the left selection list will probably be needed.

The Figure 10 shows the MeSH entry form with four descriptors in the right list. Two of them were selected from the MeSH subset made by searching with 'ethic' and two after searching with 'transpl'.

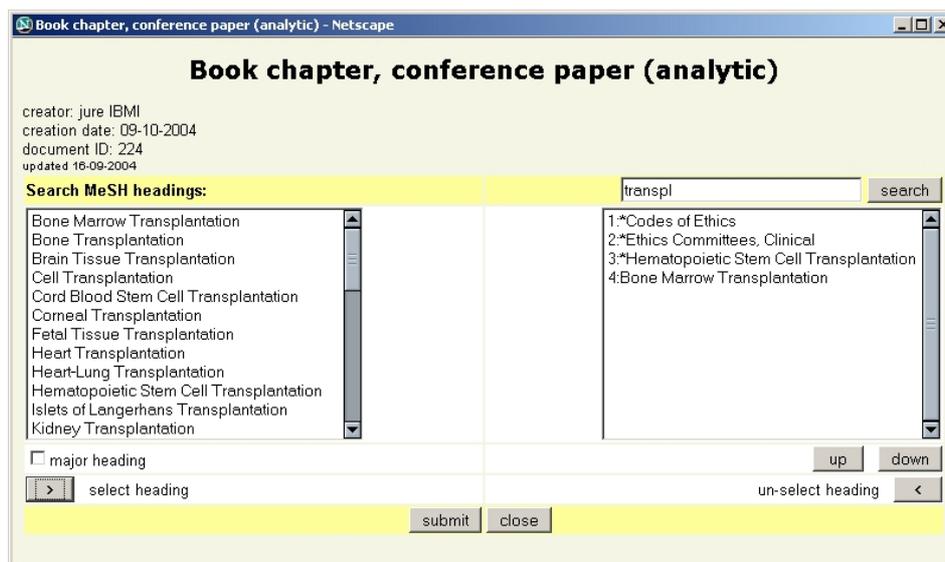


Figure 10: The second search string 'transpl' was used to make a new subset of MeSH and two new descriptors were selected (only one of them as important).

By pressing the button [submit] the list of terms that was compiled using this data entry form is transferred to the server and saved into the database. The form is closed by pressing the [close] button.

This data entry application provides no real orientation in the MeSH thesaurus. It is, of course, much easier to search and select the appropriate descriptors if one uses a proper MeSH browser. Our advice is to open additional web browser window and load MeSH browser located at <http://www.nlm.nih.gov/mesh/MBrowser.html> (NLM). The button [Navigate from tree top] on a MeSH browser's page shows thesaurus as a browsable hierarchical structure. However, it is not possible to transfer descriptors from NLM's MeSH browser into the data entry application.

mark MeSH terms as important

If the selected MeSH term represents the subject that is particularly important for the current document the user checks the 'major heading' check-box and the term, which is transferred to the right list after this, receives the '*' mark, as in the Figure 11 and Figure 10.

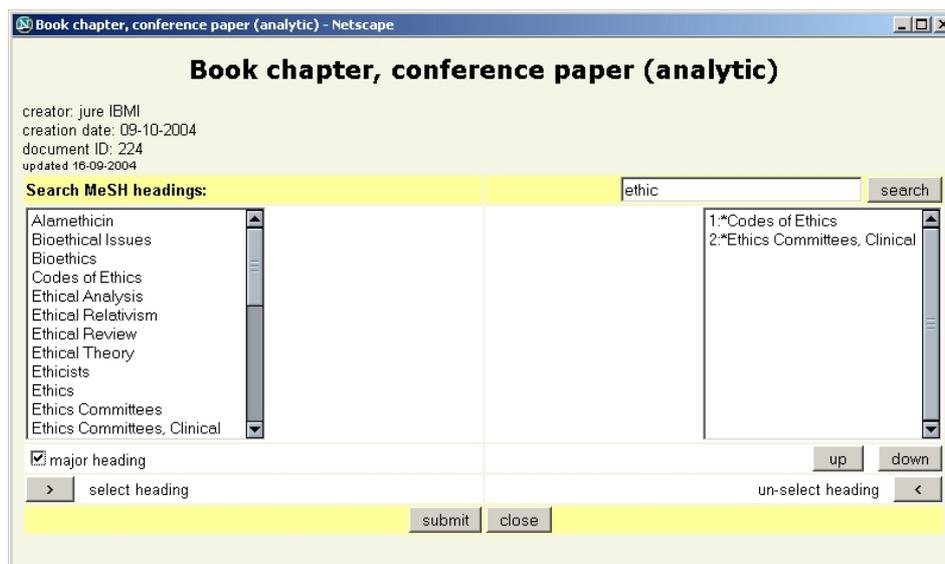


Figure 11: Selection of MeSH terms is done by copying terms from the left to the right column. Two terms were selected while the checkbox 'major heading' was checked.

delete MeSH terms

If a term was transferred to the right list by mistake the user should select it and delete by pressing the [<] button below the right list. The same action is needed if the term was marked as a major heading by mistake. It is not possible to un-mark the term in the right list. The term should be deleted first, the check-box major heading should be un-checked, and the term transferred again.

set the order of MeSH terms

As it was the case with authors and uncontrolled terms the order in which MeSH terms are placed into the bibliographic record could be important. Terms in the right list are numbered and their order could be changed by pressing the buttons [up] and [down]. Figure 12 illustrates the order of MeSH terms that was changed compared to the situation on Figure 10.

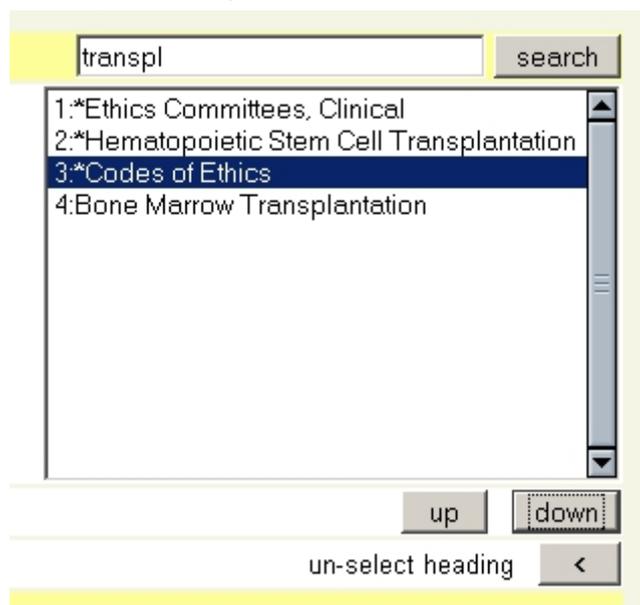


Figure 12: The descriptor 'Codes of Ethics' was transferred from the first to the third place by selecting it and pressing [down] twice.

enter terms from Thesaurus Ethics in the Life Sciences

Thesaurus TELS (Thesaurus Ethics in the Life Sciences) is a part of the data entry application and the user is able to select terms and include them into the bibliographic record. Please, find information about the TELS development at <http://www.drze.de/BELIT/thesaurus/einfuehrung.html?la=en>.

The form for entering the TELS terms consists of a query field, two selection lists and a number of buttons, as is shown in Figure 13. The user selects the terms that are describing the document's content in the left list and place them to the right list using the [>] button. It would be very un-practical and time-consuming to transfer the whole TELS to the user's PC each time s/he opens this form. To limit the amount of data transferred, the user first enters a string that s/he thinks is included in TELS term(s) that describe the particular aspect of a document's subject. This string has to be entered into the Search Thesaurus Ethics in the Life Sciences field and [search] button has to be pressed.

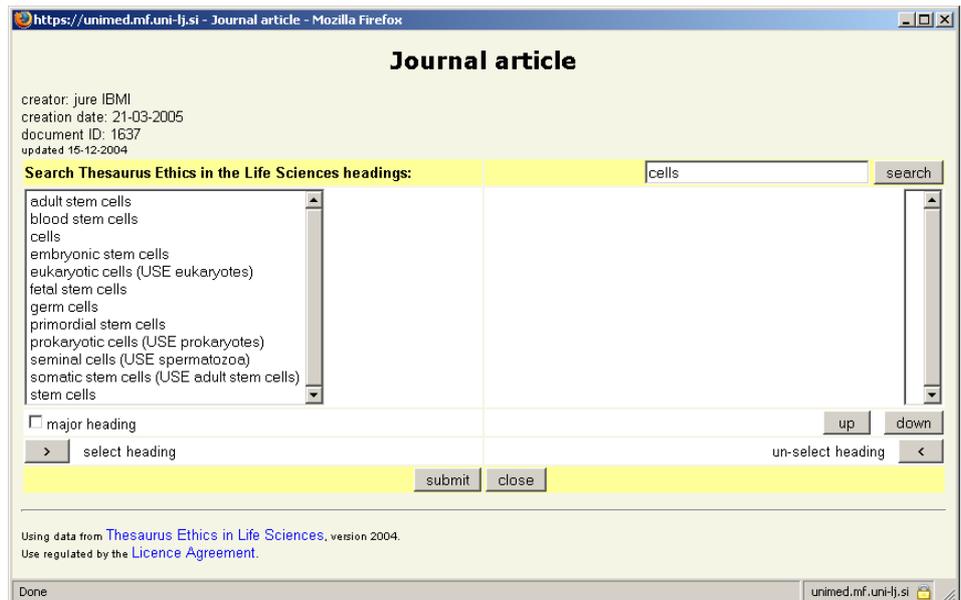


Figure 13. Data entry form for TELS descriptors. User limited the thesaurus to terms that include the string 'cells'.

The subset of TELS that includes this string was transferred with the form and placed inside the left selection list. The user is free to select and transfer to the right list as many TELS terms as needed. To complete the description of the document's subject, several repetitions of the searching through TELS and selecting in the left selection list will probably be needed.

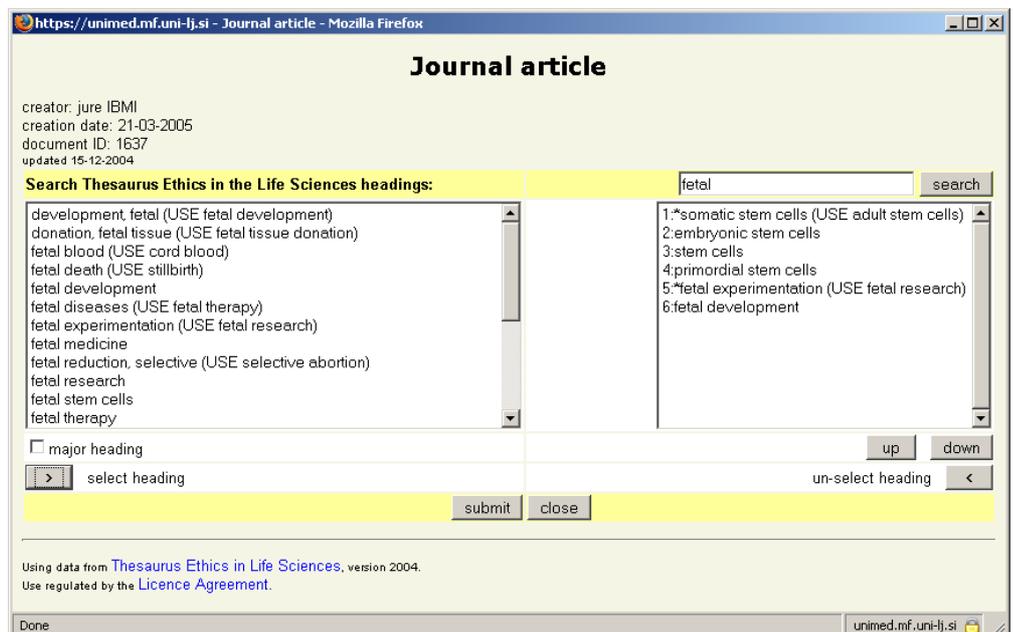


Figure 14. Four TELS terms were selected after searching with 'cells' and two after second searching with 'fetal'. Terms #1 and #5 are synonyms of preferred terms and will be translated to them after submission of form.

The Figure 14 shows the TELS entry form with six descriptors in the right list. Four of them were selected from the TELS subset made by searching with 'cells' and two after searching with 'fetal'. Searching through TELS results in the subset of descriptors and synonyms that include the searched string. Synonyms could be recognized because they include the '(USE...)' string. Terms #1 and #5 in the right list of Figure 14 are such synonyms and will be automatically translated into their

preferred forms (descriptors) after the form will be submitted.

By pressing the button [submit] the list of terms that was compiled using this data entry form is transferred to the server and saved into the database. The form is closed by pressing the [close] button.

This data entry application provides no real orientation in the TELS thesaurus. It is, of course, much easier to search and select the appropriate descriptors if one uses a proper thesaurus browser. Our advice is to open additional web browser window and load TELS browser located at DRZE

(http://www.drze.de/BELIT/thesaurus/index_html?la=en). The link Thesaurus Online Version brings you to the browsable hierarchical representation of the thesaurus. It is not possible to transfer descriptors from TELS browser into the data entry application.

mark TELS terms as important

If the selected TELS term represents the subject that is particularly important for the current document the user checks the 'major heading' check-box and the term, which is transferred to the right list after this, receives the '*' mark.

delete TELS terms

If a term was transferred to the right list by mistake the user should select it and delete by pressing the [<] button below the right list. The same action is needed if the term was marked as a major heading by mistake. It is not possible to un-mark the term in the right list. The term should be deleted first, the check-box major heading should be un-checked, and the term transferred again.

set the order of TELS terms

As it was the case with authors, uncontrolled, and MeSH terms the order in which TELS terms are placed into the bibliographic record could be important. Terms in the right list are numbered and their order could be changed by pressing the buttons [up] and [down]. Figure 15 illustrates the order of TELS terms that was changed compared to the situation on Figure 14.

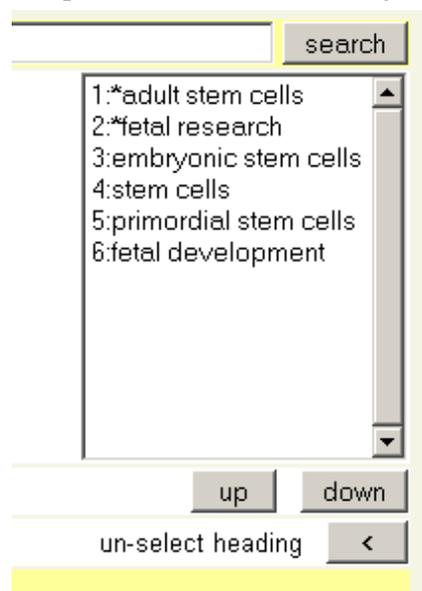


Figure 15. TELS terms from Figure 14 were reordered. The descriptor '*fetal research' was transferred from the 5th to the 2nd place by selecting it and pressing [up] three times.

edit existing record

To edit a record that was just saved (pressing [submit] button in the main form was the user's last action) is easy. Under the note with the confirmation of a successful saving of data there is a row of buttons (as in a Figure 6) that enables the user to bring back the main form, the author's form or any form with the subject description. Each form is transferred from the server to the user's PC with data that were entered for that record in previous session(s). Author and uncontrolled term forms have place for the next piece of data.

To edit a record that was entered sometimes before it is necessary that this record is found first. The searching facility should be used.

search for records

To change some field value in a particular record this record have to be found first. A part of a data entry application is a search form that can be used to locate a record or a number of records. The search form is accessible from the starting window (Figure 1).

The search form can be seen in Figure 16.

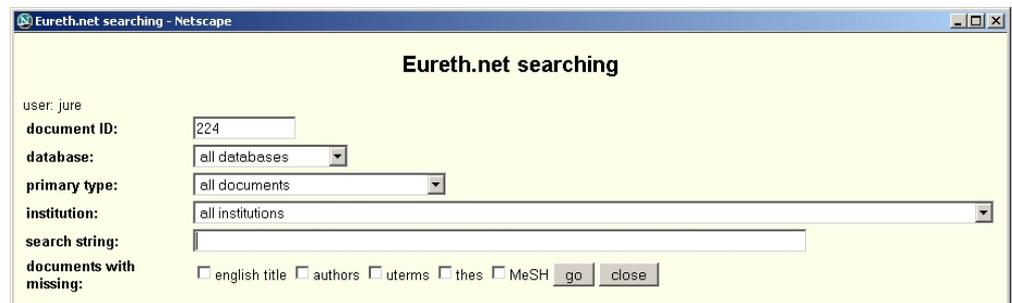


Figure 16: A search form with all selection fields, with the exception of the document number, empty.

The role of this search form is exclusively the selection of records that have to be edited; it is not meant to be an interface to some web search engine. Search fields that are present in a form were selected with this function in mind.

The button [go] starts searching. Result is a list of hits. This list could be as large as the whole database if [go] was pressed without any search criteria, or one record long if the search criterion was single document's unique identifier, or any other combination of search criteria that yields only one hit.

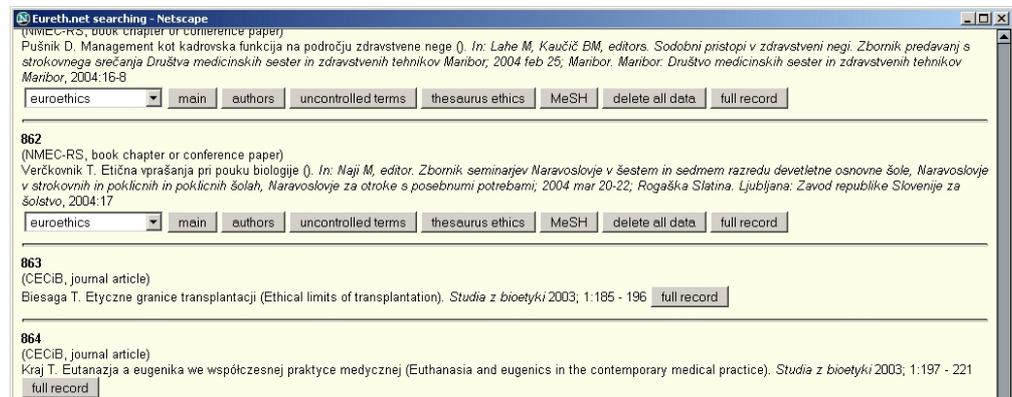


Figure 17: Not all search hits could be edited. In this part of a hits list the person that submitted the record #862 and the person that performed searching came from the same institution (creator), but this is not the case with records #863 and #864.

Among search hits some have buttons that call data entry forms and some have not,

as on Figure 17. The right to edit a record has only a person from the same institution (creator) that contributed the record, and only bibliographic entries of such records have buttons that allow editing. All fields in the search form are equal and connected with the operator AND when search is performed. If fields database and institution are filled with values 'euroethics' and 'IBMI' the hits set will be an intersection of both, i.e. containing only records made by IBMI and destined for the Euroethics database.

document ID This is a record's unique identifier in the application's database. Using it as a single value (one number) in the search request always brings at most one record. If we compose a search request with the value '347' in the document ID field and value 'NMEC-RS' in the institution field, the document #347 will not be found if it was created in some other institution, or there is no record with this ID in the NMS database.

Figure 18 shows results of a search with document ID as a query. The record found is ready for editing (buttons that bring web forms with data are visible) meaning that record's creator and a person that performed searching belong to the same creator institution.

The screenshot shows the 'Eureth.net searching' interface. At the top, it says 'user: jure'. Below that, there are several search criteria fields: 'document ID:' with the value '347', 'database:' with a dropdown menu set to 'all databases', 'primary type:' with a dropdown menu set to 'all documents', and 'institution:' with a dropdown menu set to 'NMEC-RS National Medical Ethics Committee, Republic of Slovenia'. There is also a 'search string:' field which is empty. Below these fields, there are checkboxes for 'documents with missing:' and 'english title', 'authors', 'uterns', 'thes', and 'MeSH'. There are 'go' and 'close' buttons. Below the search criteria, there is a summary line: '1 hits, items 1 - 1' followed by navigation buttons: 'first <<', 'previous <', '> next', and '>> last'. There are also buttons for 'bibliographic', 'full record', and 'XML'. Below the summary line, the record details are shown: '347 (NMEC-RS, book chapter or conference paper) Delooz HH. Etična vprašanja pri življenjsko ogroženih bolnikih - kriteriji za zdravljenje (Ethical issues in critical care: criteria for treatment). In: Bručan A, Gničar M, editors. Urgentna medicina. Izbrana poglavja 2. Zbornik 3. mednarodni simpozij o urgentni medicini; 1996 jun 26-29; Portorož. Ljubljana: Slovensko združenje za urgentno medicino, 1996:147-64'. At the bottom, there are buttons for 'euroethics' (dropdown), 'main', 'authors', 'uncontrolled terms', 'This Ethics Life Sci', 'MeSH', 'delete all data', and 'full record'.

Figure 18. Record with ID 347 was found and is ready for editing.

It is possible to enter document ID as an interval of numbers in the form 'number hyphen number' (e.g. '500-800') leading to a longer list of search hits. Blank spaces around hyphen are optional³.

database This is one of the search fields that can be used for making a subset of records. Possible values for a field are 'all databases', 'euroethics', 'endebit' and 'euroethics, endebit'. Selecting 'euroethics' will find all records belonging to this database as well as those that belong to both databases. Selecting 'euroethics, endebit' will find only those records that belong to both databases; the opposite is 'all databases'.

³ In the previous versions of the data entry application only single number in the document ID field was allowed.

user: jure
document ID:
database:
primary type:
institution:
search string:

Figure 19: Limiting the subset of records using the database name. Possible values of a database search field can be seen.

Database name as a search criterion could be combined with other criteria.

primary type Using documents' primary types as search criteria limits the database to the subset of the same document type.

institution Using institution name (creator name) as search criteria limits the database to the subset of documents that were created by the staff of the same project partner. If the searcher also belongs to the same institution then the result of a search is a subset where all records are editable.

Eureth.net searching

user: jure
document ID:
database:
primary type:
institution:
search string:
documents with missing:

1 hits, items 1 - 1

347
(NMEC-RS, book cha
Delooz HH. Etična vpra
A, Gričar M, editors. U
Slovensko združenje

- all institutions
- BASSO Fondazione Leilo e Lisli Basso, Rome, Italy
- CDEI Centre de Documentation et d'Information en Ethique des Sciences de la Vie et de la Sant, INSERM, Paris, France
- ETHOX The Ethox Centre for Ethics and Communication in Health Care Practice, Oxford, United Kingdom
- FCCS Instituto de Bioetica, Fundaci n de Ciencias de la Salud, Madrid, Spain
- IDEM Informations- und Dokumentationsstelle Ethik in der Medizin, Goettingen, Germany
- KIB Karolinska Institutets Universitetsbibliotek, Karolinska Institutet, Stockholm, Sweden
- UMCN Universitair Medisch Centrum St Radboud Nijmegen, Nijmegen, The Netherlands
- IBMI Institute for Biomedical Informatics, Faculty of Medicine, Ljubljana, Slovenia
- CERISS Center for Education, Research and Information on Science and Society, Milan, Italy
- EIU Ethics Institute Utrecht (Ethiek Instituut Utrecht), Utrecht, The Netherlands
- INRA-ESR National Institute for Agricultural Research, Paris, France
- IZEW Interdepartmental Center for Ethics in Sciences and Humanities, Tuebingen, Germany
- UCB University Centre for Bioethics, Brno, Czech Republic
- CECIB Study Centre for Human Ecology and Bioethics, Cardinal Stefan Wyszyński University
- IMEBF Institute of Medical Ethics and Bioethics Foundation
- LBC Lithuanian Bioethics Committee
- DIIUP Medical University of Sofia, Department of International Integration and University Policy
- HSB National Medical Center, Hungarian Society of Bioethics
- NMEC-RS National Medical Ethics Committee, Republic of Slovenia

Figure 20: Limiting the subset of records using the creator's institution name. Part of a list of possible values can be seen.

search string The programs check the records for the presence of the string of characters or numbers that is entered into this search field. All textual fields are checked, including the author and subject description fields. The searching is not case-sensitive.

This is the only field that is designed for real searching and not just selecting as the four fields standing above on a form.

missing fields The check-boxes named 'english title', 'authors', 'uterm' (meaning uncontrolled terms), 'thes' (meaning terms from Thesaurus in Life sciences), and 'MeSH' enable the user to select only records that doesn't have anything entered into these fields. The option is very practical because it makes the separation of tasks during the data entry much easier. One person may enter the basic data about the documents while

another person may index the documents (or translates the titles) at some other time. With the 'thes' (or 'english title') check-box checked it is easy to select only those records that need indexing with TELS (or translation of original title). Another use of the check-boxes is in selection of records that aren't complete in order to fill missing values before transferring them to the final database.

print or download records

The search hits are normally presented with editing buttons, drop-down list of database names and horizontal lines in between. Such presentation is not very convenient for any other use except editing. Certainly, there are situations in which cleaner and more terse presentation is needed, be it for planning of future editing work, overview of one's contribution to the common database, or compilation of the institutional backup. For such purposes three additional buttons were added to the top of each search hits list. These buttons are [bibliographic], [full record], and [XML].

All three buttons trigger uninterrupted presentations of search hits lists (without the [previous] and [next] buttons). All the records corresponding to the values in the search request form are presented. It is possible then to compose a list of all records in the database if all search form fields have no values entered. An exception to this rule is a list made by the [XML] button.

- [bibliographic] button** [bibliographic] button opens a new browser window and fills it with a simple list of Medline-style bibliographic records. All records corresponding to the search request are presented, regardless of the institution that entered them. It is possible to print the list by using the web browser's printing functionality.
- [full record] button** [full record] button opens a new browser window with a list of records corresponding to the search request. The list could be quite long because all data that were entered for each record are presented, marked with standard short field names. It is possible to print the list by using the web browser's printing functionality.
- [XML] button** The purpose of the [XML] button is downloading of records. The button triggers the composing of a file with records marked with XML-style tags. One of such records is presented on a Figure 21. Two criteria are used for selection of records: the values in the search request fields and ownership of records. Of search hits only those that were entered by the users from the institution of the person performing download are included into this file. The file has an automatically constructed filename composed of the user's username and a string '_records.xml'.
- By downloading the records in XML form the institution that entered them could maintain its own backup copy. XML format of records is standard and self-describing, and thus the records are easy to be included in some future database with differing structure.
- Instead of presenting records in a new window the data entry application opens a dialogue window, which offers a possibility to save records to the user's PC or view them with a XML viewer. These dialogue windows slightly differ with different web browsers used. Figure 22 shows dialogue windows of three most popular web browsers: (a) Internet Explorer, (b) Netscape, and (c) Mozilla Firefox. To save the file, press [Save] in case of (a), check 'Save it to disk' and press [OK] in case of (b), or check 'Save to Disk' and press [OK] in case of (c).

```

- <record>
  <DNO>291628</DNO>
  <DB>euroethics</DB>
  <CRE>IPDE</CRE>
  <CRD>20050304</CRD>
- <doctype>
  <PTP>newspaper article</PTP>
</doctype>
<LAN>POL</LAN>
<OTI>Dzidzius na prochach</OTI>
<ETI>[A baby on drugs]</ETI>
<PYR>2000</PYR>
<DPU>2000 Mar 20</DPU>
<JTI>Gazeta Wyborcza</JTI>
<ISS>0860-908X</ISS>
<COU>POL</COU>
<ISU>69.3370</ISU>
<PAG>14</PAG>
<DDS>YES</DDS>
<SCO>BUW 040406</SCO>
- <author>
  <AUT>Kruczkowska M</AUT>
</author>
- <THES>
  <IDDES>1952</IDDES>
  <DES>pharmaceutical consumption</DES>
</THES>
- <THES>
  <IDDES>78</IDDES>
  <DES>children</DES>
</THES>
</record>

```

Figure 21: A record marked with XML-style tags. A record is a part of a file composed for downloading after the user pressed the [XML] button positioned above the search hits.

Viewing the XML-ised records without saving them could be slightly more difficult. If Internet Explorer is used as a browser, then pressing [Open] will simply start the Internet Explorer window with a file presented in it, or any other specialised XML viewer if such is already associated with XML files. In case of Netscape or Firefox the viewer must first be selected. A good choice of such programme is a reasonably new version of any web browser. To select it first check 'Open it with' (b), or 'Open with' (c) and use drop down list to browse to a programme of choice. Their positions could differ on different PCs, but standard installations are Program Files\Netscape\Netscape\Netscp.exe for Netscape, and Program Files\Mozilla Firefox\firefox.exe for Firefox.

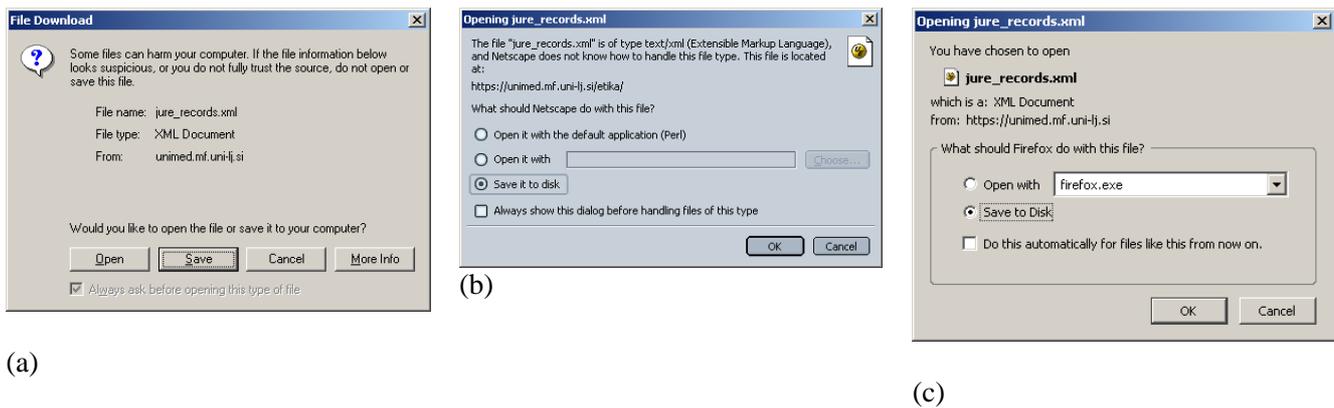


Figure 22: A dialogue window enabling the user to download XML-ised records or open them in a XML viewer. (a) = Internet Explorer, (b) = Netscape, (c) = Mozilla Firefox.

Mandatory fields

In the Documentary standards some fields are marked as mandatory - they must be filled in every record. As a rule mandatory fields are general. They are not specific for any primary document type and are present in every data entry form. These fields are:

- creator,
- creator date,
- document number (in national db),
- author,
- original title,
- English title,
- year of publication,
- document type,
- language,
- thesaurus keywords.

creator, creator date

In the data entry application the creator and creator date fields are entered automatically. Creator is an institution that contributes the records and the field's value (the institution's acronym) is determined by the use of username. Creator date is the date of the record's creation. Creator is an important field because permissions for editing and deleting records are linked to it.

document number

Document number (in the national database) is a number that is unique inside the subset of records contributed by each creator. It is created automatically irrespective of the way the record entered the NMS database (the record was entered manually or sent as a download from the national database(s), via converting between formats). The user doesn't have the possibility of changing this number. Actually there are three different document numbers in a lifetime of a bibliographic record in a NMS database: document number, identification number (unique number that the record will get in a final database and has nothing to do with data entry application), and an identification number that the record gets in a NMS database. The latter is the record's unique identification while it is maintained in the NMS database and is not exported into the final database.

authors

Author is a multi-occurrence group of fields that is entered in a special web form

that is not part of any document-type-determined main form. Every document (and database record about that document) must have an author, however, this could be an anonymous or corporate author. In Documentary standards separate fields are envisioned to accommodate authors, editors and corporate authors, but, for the sake of simplicity, the same data entry form is used here for all and using the drop down list marks the author's type.

- original title** Original title is a mandatory field and the data entry application doesn't allow the user to send the main form to the server without some data in this field.
- english title** English title is a mandatory field, but the data entry application doesn't check the presence of the field in the main form. This is so because the English title is not necessary document's original element. It could be made by an additional translation of the original title and it is quite natural that data entry and title translation is done by different people or/and at different time. This separation of task would not be possible with as strict checking as it is with the original title.
However, it will not be possible to transfer the record into the final database without the English title.
- year of publication** Year of publication is a mandatory field and the user is forced to enter it prior to sending the main form to the server. The application also checks if the value is integer number, not longer than 4 digits, and doesn't allow the user to send the form if this is not the case.
- document type** There are two kinds of document types – primary document type and secondary document type. The former is mandatory; the latter (which could have multiple occurrences) is not. Euroethics and Endebit treat this field slightly different; Endebit allows that the primary and secondary type names are actually entered into separate fields. The same way was chosen for the data entry application because it is always easier to concatenate than to divide fields, if needed.
The primary document type is determined at the beginning of a record creation. It is a fundamental attribute of the record and cannot be changed after the record is created. If the wrong primary document type was selected the record must be deleted and re-created with the correct one.
- language** The names of languages are three letters long and are conformant to the ISO 639 standard. The field of check-boxes is used for entering the language codes and more than one language code could be entered.
- thesaurus keywords** The field is mandatory, designed to contain keywords and key phrases (descriptors) from the Thesaurus Ethics in the Life Sciences, however presently there is no thesaurus incorporated into the data entry application. The field allows multiple occurrences of keyword records.
There are several possible ways in which the thesaurus keywords will be linked to records. Endebit partners will most probably use Endebit's Thesaurus tool or some off-line method referencing the document number. It is possible to incorporate thesaurus into the data entry application in the same way as MeSH headings are incorporated.

Multiple-occurrence fields

Multiple occurrence fields (or repeating fields) are fields that can be present in the record in more than one occurrence.

Occurrences could be simple values; such fields are

secondary document type,
ISBN,
ISSN,
language,

or could be complex. Such fields are

author,
thesaurus keywords,
uncontrolled terms,
MeSH terms.

The secondary document type and language fields are entered by checking checkboxes, multiple if needed. Multiple ISBN and ISSN codes are entered into simple text fields, but separated with semicolon (;) signs.

Complex multiple-occurring fields are actually multiple-occurring records. For each author, for instance, several data items could be entered: family name and initial(s) of personal name, author's role in a document, author's affiliation, e-address, and the record's ordinal position if there is more than one author. Similarly, the subject description terms could have accompanying data, e.g. importance indicator or ordinal position.

Working with multiple-occurring records is described separately.

Data entry forms

Documentary standards describe the full document structure, however it would be very impractical to send the data entry form with all fields (and probably data) in it to and from the user each time the communication event happens. Moreover, it is unnecessary. Not all fields are possible for each document type; therefore fields from the full structure are distributed into seven data entry forms, one for each primary document type. Some fields, especially mandatory ones, are present in every form (i.e. titles, language); some are characteristic only for some document type (i.e. ISBN, ISSN) and are present only in a corresponding data entry form.

Following are the descriptions of data entry forms and short instructions for their use.

analytic (chapter in a monograph, conference paper)

This data entry form is prepared for documents that are independent carriers of information but are, at the same time, parts of bigger ("parent") documents. Examples of such documents are chapters in a monograph when they have different authors, or papers in a conference proceedings.

To enable the end-user to find an analytic document some basic data about the "parent" document have to be entered, i.e. editor's names, book title, publisher's name and place in a case of a chapter in a book. For an example look at this (obviously fake) bibliographic record in which underlined data describe the parent document and not the document about which we are primarily entering data.

Author A, Author B. Chapter title in a monograph about some very important stuff. In: Editor A, Editor B, editors. A monograph about some very important stuff. SomePlace : SomePublisher, 2004; :12-34

This is a somewhat complex situation in which data about two documents have to be entered into the same form(s), therefore special care have to be taken. The Figure 23 shows part of the main data entry form for this record.

Original title	Chapter title in a monograph about some very important stuff
English title	
Book title	A monograph about some very important stuff
Edition	
Series	
Publication place	SomePlace
Publisher	SomePublisher
Year of publication	2004
Pages	12-34

Figure 23: A part of a data entry form of the primary type 'Book chapter, conference paper (analytic)'. Data about chapter title and book title were entered.

In another possible example, the Original title and English title fields accommodate titles of a conference paper while into a Book title field a conference proceedings' title should go. Pages field is meant for the paper's from-to numbers and not for the proceedings' collation.

Similarly complex situation occurs with the authorship data. With the same form the names of chapter authors and the names of book editors have to be entered. The different roles of these persons are marked with values from the drop-down list, as in Figure 24.

Book chapter, conference paper (analytic) - Netscape

Book chapter, conference paper (analytic)

creator: jure IBM
creation date: 27-10-2004
document ID: 912
updated: 13-10-2004

Author	<input type="button" value="delete"/>	Author A
Author's type		author
Author's affiliation		
Author's email		
Ordinal position of author		1

Author	<input type="button" value="delete"/>	Author B
Author's type		author
Author's affiliation		
Author's email		
Ordinal position of author		2

Author	<input type="button" value="delete"/>	Editor A
Author's type		editor
Author's affiliation		
Author's email		
Ordinal position of author		3

Author	<input type="button" value="delete"/>	Editor B
Author's type		editor
Author's affiliation		
Author's email		
Ordinal position of author		4

Figure 24: Entering data about the authors of a book chapter and the editors of a book that contains this chapter by using the same data entry form.

**audiovisual
material**

The overall characteristics of this data entry form is that it lacks the fields which are normally intended for "physical" characteristics of a printed document, i.e. pages,

volume, collation.

electronic document This form is intended for documents that are “born digital” and have no printed version, and documents, which were accessible to the indexer only in an e-form. For other, “physical” documents that also have e-versions use the appropriate data entry forms and fill the URL field.

An e-document is a vaguely defined concept. Its only defining characteristic is that it is readable in an e-form, but besides that it could be any other primary type, most probably a journal article, analytic or monograph. The data entry form for e-documents contains fields for all these document types. It is the user's task to decide which fields to fill in the form, because the application doesn't check whether the combination of fields entered is logical.

If the document is a journal/newspaper article or a monograph the decision is easy – besides the mandatory fields mostly fields that are under the form's subtitle ‘Article or chapter or conference paper’ in the first case or under the subtitle ‘Monograph’ in the second case have to be filled⁴.

Again, the situation is a more complex one if the e-document is a chapter in a book or conference paper in conference proceedings (obviously both in an e-form). In that case some fields from both groups of fields have to be filled and the principle is same as it was described in the case of the data entry form for an analytic document type. For example: the e-document is a conference paper. Among the fields that should be considered for data entry typically are the original and English titles for the paper's title; book title for the proceedings title; pages for the paper's pages (e.g. 15-27); publication place, publisher and ISBN for the proceedings' data...

Conference paper's data and its parent's (proceedings') data are mixed on the same data entry form and that calls for a special care.

Data entry into the authors form is performed in the same way as it is described for the analytic document type and illustrated with Figure 24.

journal article An article in a periodical (other than newspaper) with the ISSN. An important but simple document type in terms of data entry.

newspaper article An article in a general interest newspaper. A simple document type in terms of data entry.

grey literature Made for entities that have all attributes of real documents except that they are not published in a way that enables widespread access.

monograph A book with the ISBN. An important but simple document type in terms of data entry.

⁴ Please, note that the field Book title under the form's subtitle ‘Article or chapter...’ is reserved for the title of a book or conference proceedings when the document is analytic (chapter in a book or conference paper). For a monograph the title have to be entered into the Original and English title fields.