

BIA-Net: manual

1. The system

BIA-Net's nucleus is a semantic search engine with easy mechanisms for insertion, modification, exportation, and saving of stored data by the system manager. BIA-Net has been developed on a native XML database management system (eXist). The eXist system, built entirely on Java, is modular, well documented and supported by its user base, updated, open source and portable. It offers an interface for the development of additional modules, incorporates a module for the indexing of texts (Lucene) and elaborates XML data directly using XQuery.

There are 2 user levels: user and manager

- “user access” (free with registration), in which all access points are open as well as the possibility of cross data from the three archives; there is a registration form for new users (Title, Name, Surname, Company, Address, City, Country, E-mail) to send to the CNR Institute that maintains the site and which will provide a password for each access;
- “manager's access” (with special user-Id), allowing insertion, modification and cancellation of data in the archive.

Furthermore, all users may collaborate in improving the database by sending suggestions for corrections or misfunctions to the systems manager to the email address: bianet-info@igsg.cnr.it

Updating of the OPERA archive: addition of a new record can be proposed directly from the OPERA search form or by writing to the email address: bianet-info@igsg.cnr.it

The system first requires registration for each new user or LOGIN for already registered users:

The screenshot shows the registration form for BIA-Net. At the top, the logo 'BIA net' and the text 'Bibliotheca Iuris Antiqui' are visible. The main heading is 'Welcome guest to the registration request' with a note 'All fields are required'. The form is divided into several sections: 'User' with fields for 'First name', 'Last name', and 'email'; 'Login' with a 'User id' field; 'Password' with 'Password' and 'Confirm password' fields, and a note 'Minimum 8 characters'; and 'Ente' with fields for 'University / Institute / Organization', 'Address', 'City', and 'State/Country'. There is a CAPTCHA section with the text 'Non sono un robot' and a 'Send your request' button. A 'Back' link is at the bottom left, and a 'Delete form' link is at the bottom right. The footer contains the copyright information: '© BIA on line - Project 2016 - Scientific direction of Nicola Palazzolo, Co-editor Orazio Licandro'.

[Picture 1: Registration new user]

2. Search strategies

2.1 Search form

Once logged in the user is on the Home Page of BIANet, in the center of which is the BIA logo and the heading “**Integrated Information System on Ancient Law. Scientific direction: Nicola Palazzolo. Coeditor: Orazio Licandro**”. On the left side of the screen three archives are listed: (Fontes, Opera, Thesaurus).

Clicking on one of the three archives opens the pertinent search form, and each has a color code (green for Fontes, pink for Opera, yellow for Thesaurus), and is made up of a list of fields that may be used as search keys in that archive. The search keys may contain one or more terms, and more than one search key may be selected even in different fields, with the aim of limiting the results.

To search for two words together (sintagma) the words must be in quotation marks (ex. “storia giuridica”).

To speed up the search, one may, instead of writing the search terms on the form, click on the symbol ▼ at the beginning of the each field, choose the terms to search in the vocabularies (alph-numeric indexes of all the terms contained in each of the search fields), or: use the templates for search help (Query Building), that let one consult the list of source codes or the list of classification codes. Selection of the button + expands the visualization to the next level down. Using the template for search help also facilitates the introduction of logical operators.

In some fields, i.e.: Fontes and Opera there is also the symbol Ω, which indicates that words in Greek may be entered: the words may be spelled out letter by letter using a special template for aided choices which is then automatically transferred to the search field.

One may use the 'Clear' button to eliminate all the search keys on the template.

Logical operators

Logical operators allow one to broaden or narrow a search by combining two terms or more, whether in a single field or more than one. This is the list of operators in order of priority:

- negative operator: expressed by the symbol - , or the word NOT (all caps)
- concurrent operator: expressed by the word AND (all caps)
- choice operator: expressed by the work OR (all caps)

To change the order of priority of the operators, parentheses () may be used.

One may also use wild characters “*” (none or some letters) to search for documents containing words with a single root, and “?” (one letter) in substitution of an unknown/uncertain letter.

Two words not divided by an operator or within quotes will result in a default AND search. The operator between fields is always AND. The logical operators do not function at the beginning of a word (for example one may not search in ANNO: 1955)

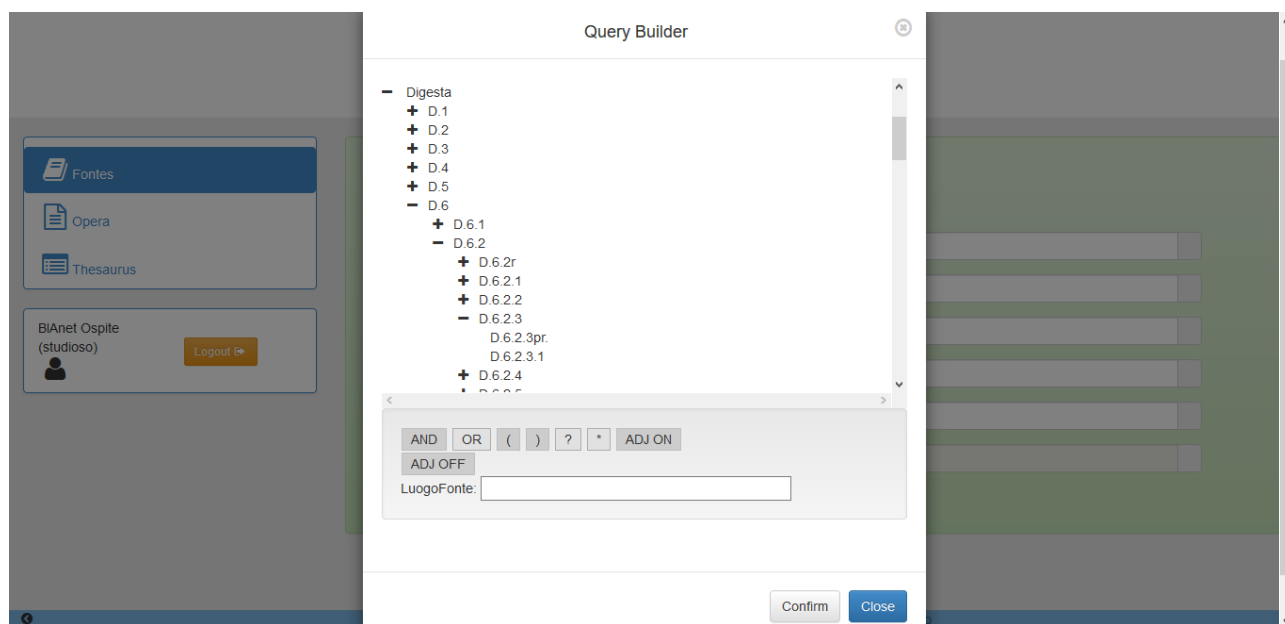
And finally, one may use the fuzzy operator ~ to search for similar words (for example: Licandro~find Licandro).

2.1.1. Search page FONTES



[Picture. 2: Search page FONTES]

Search in the FONTES archive lets one visualize a source by its abbreviated indication ('Locus: for example: D.1.2.2.49). If there is doubt about the exact indication of the source it is possible to recall the list of source codes of the full-text sources present in the FONTES archive with the button ▼, at the beginning of the Locus field; the list is browseable following the same tree-structure of the fonts themselves.



[Picture 3: Assisted search page FONTES Locus]

Clicking on the button ▼ on may facilitate the insertion of the text beside the field ‘Locus’, which activates the template “Query Builder” .

In each source one may search either a single fragment or its internal segments (paragraphs) if these are present.

The archive may also be searched:

A) to find all the sources that contain a given word or more according to the logical operators (including adjacent words, which aids recovery of juridic sintagma: for example, ‘*legis actio sacramento*’) and use also of the truncation metacharacter (*, which also among other things allows pretty good avoidance of the problem of noun declinations, typical of Latin) or masking (?’, very useful in searches that include spelling variants which are very common in ancient languages: for example: ‘*quicumque*’ and ‘*quicunque*’);

B) to find all the sources that have the same *inscriptio* or parts of the *inscriptio* (for ex. all the fragments of the *liber singularis enchiridii* of Pomponius);

C) to find all the rubrics of a work that contain one or more words;

D) to combine terms from different fields, like a text word and a jurist or a text (for ex.: all the occurrences of the word ‘*princeps*’ in the *libri ad edictum* di Ulpiano), or in an index (for ex. All the occurrences of the word ‘*venditio*’ except in the title ‘*de contrahenda emptione*’ of Digesto).

In all cases the key words must be typed into their respective fields in the search form.

It is possible to select one or more terms which will then be repeated in the search template. The selected terms may be combined logically by operators and one may then also use parentheses to modify the operators' priorities. Logical operators and parentheses can be typed directly into the string or inserted using the buttons.

In the fields ‘Rubrica’, ‘Inscriptio’, ‘Text’, ‘Subscriptio’ and ‘Free Text’ one may search Greek texts (also together with Latin , for ex: "συνάλλαγμα AND Aristo") using the Ω button which activates a window with Greek letters that can be selected and copied automatically into the proper field.

Free Text search allows searching one or more keys in any field. It does not apply to the Fontes and disables searching in the other fields.

2.1.2. Opera search page



[Picture 4: Search page OPERA]

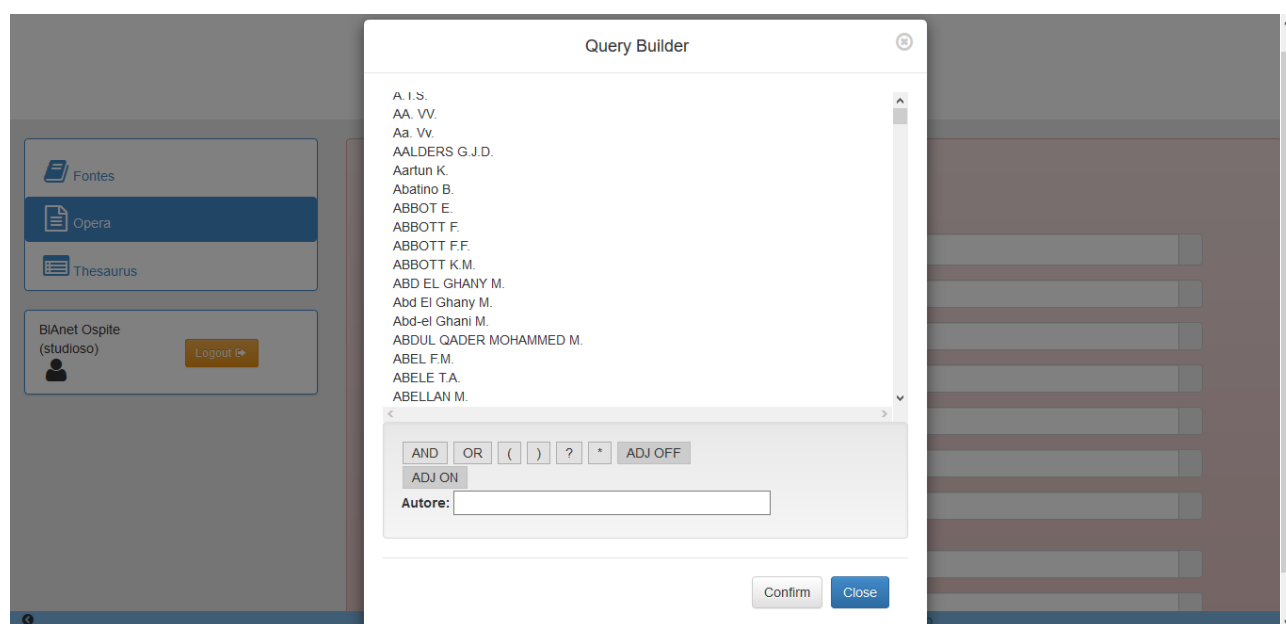
One may query the *Opera* archive using the form's bibliographical fields (author, title words, publication year) or by combining data; Boolean logical operators (AND,OR,NOT) broaden or narrow the search by logically combining two or more terms in one or more fields, while the wild character lets one truncate or mask characters, thus allowing numerous searches in a single operation.

Compared to the CD-rom BIA2000 OPERA's search page has further choices for the user. At the top are four buttons that correspond to the type of publication: **Periodical, Article, Monograph, Collection of Writings**). Absent a choice the search will cover the entire archive.

To make forming a query easier, there is the button ▼ beside the **Author, Year, Classification Code, Term** and **Locus** fields which activates the “Query builder” page with its list of all the terms contained in the respective fields (which should correspond, excepting duplication or transcription errors, to the list of the authors or classification codes, etc.) which lets one find a given term which is then automatically transcribed into the proper field in the search form,

Beside the field ‘Year’ is the button that activates the search form “Query Building”, which lets one search for a year or an interval of years.

All Opera vocabularies (searchable using the button beside each field) are dynamic and updated after every modification to Opera.



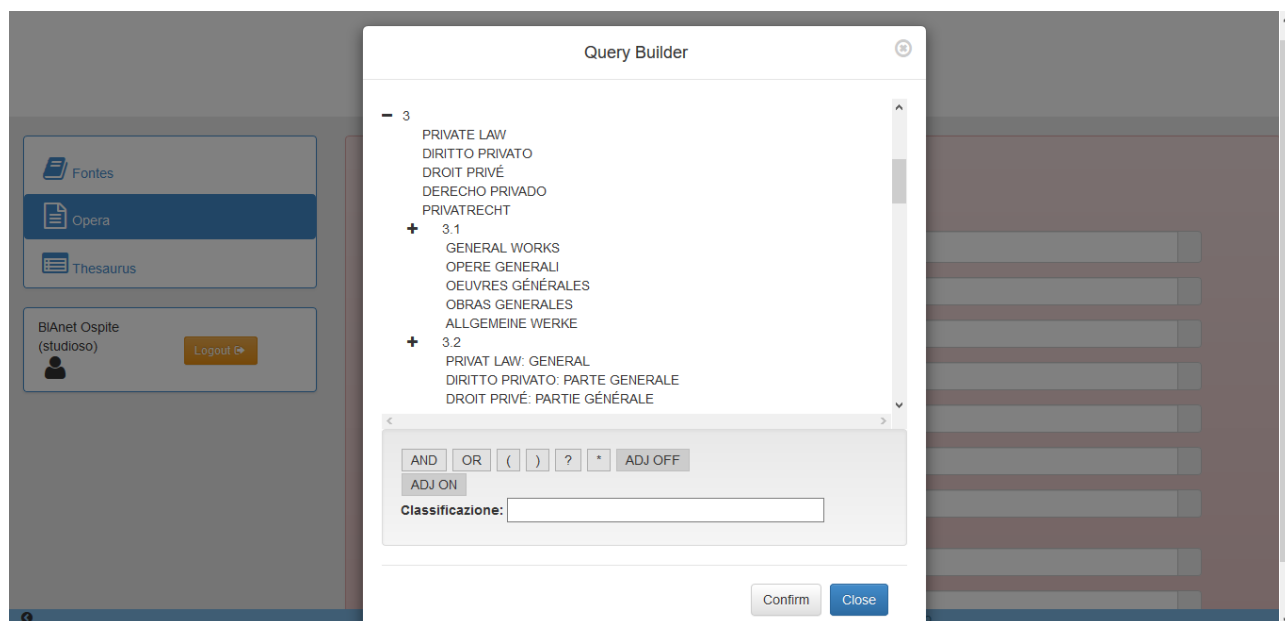
[Picture 5: vocabulary OPERA Author]

In addition to the normal search keys to a bibliographical archive there are those relative to the argument, identified by the classification code and controlled terms and the sources used. Thus one may search also in the fields of semantic description: one or more classification codes per subject, or one or more describers relative to the specific topic; complete summary (for a vast series of monographs and collections of writings, and for the volumes of the principal journals); shelf mark and place of the cited sources or at least of those most discussed.

In particular:

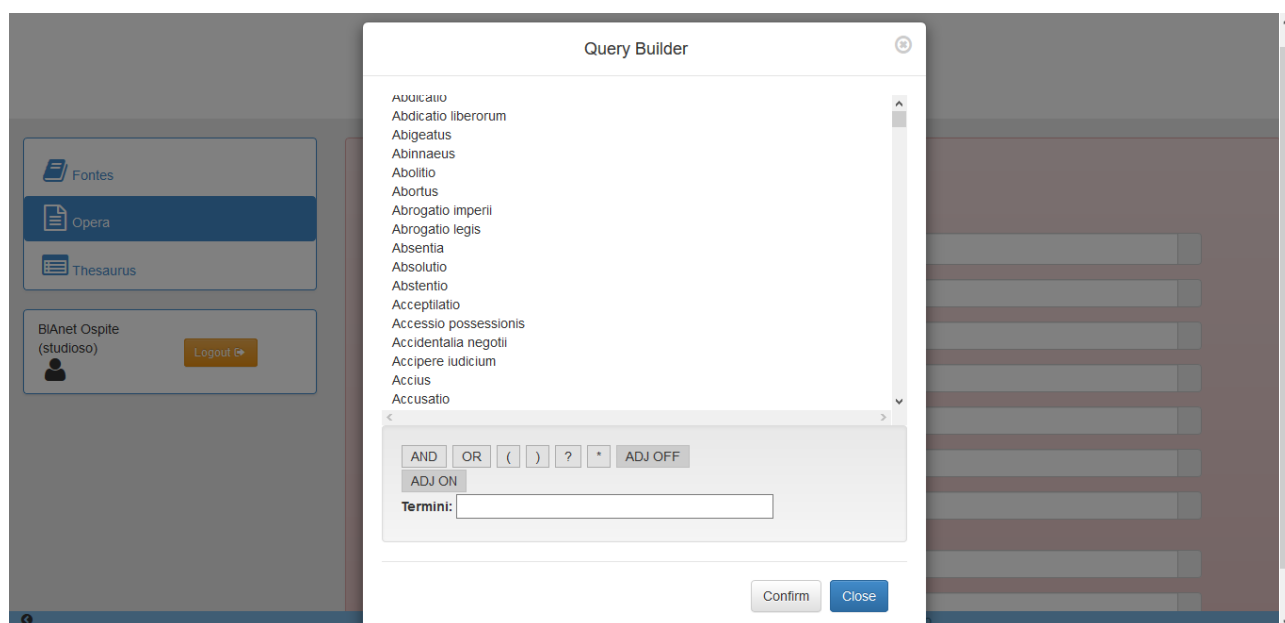
A) The ‘*Classification Code*’ field may be searched using the subject's classification code (if the classification code for a given subject is known) or by clicking the button ▼ which brings up the list of classification codes which can be scanned progressively starting with the large classes and

moving within each of these to find the right argument, whose code will then appear on the search page field. In this way one can do a search selecting the bibliographical documents relative to that specific argument.



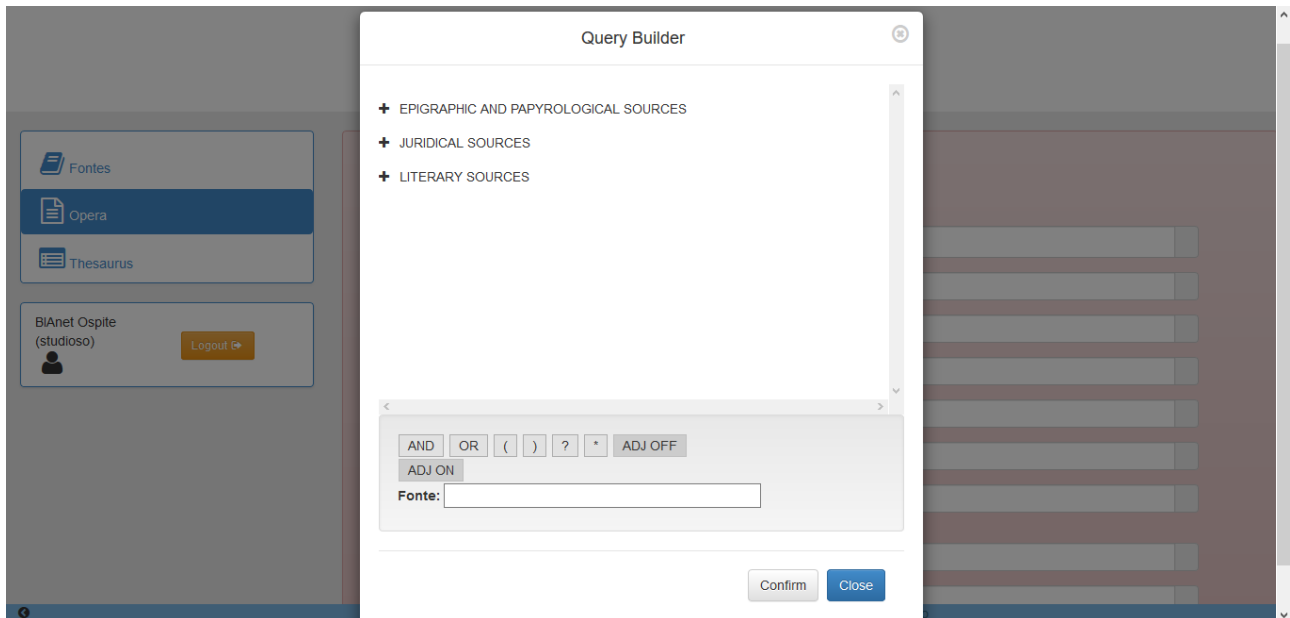
[Picture 6: Vocabulary OPERA Classification Code]

B) Searching in the 'Term' field retrieves bibliographical documents that have been indexed using a Latin term relating to a specific concept (for ex.: 'SC. Macedonianum'). This is useful in those cases in which one wants to narrow the search to a very specific concept for which a search by classification code would be too broad. Given that the user normally does not know by which term or cross-reference an indexer may have expressed a concept, whenever a term is entered that is present in the Thesaurus as non-descriptive, the software retrieves all the documents that have been indexed using the principal term as descriptor. If instead one searches a term not in the Thesaurus either as descriptor or non-descriptor the result will show as 0. In this case one should refine the search using the Thesaurus archive. Beside the word 'Term' is the button ▼ which activates "Query Building" that opens the alphabetical list of all the descriptors in the BIA thesaurus.



[Picture 7: Vocabulary OPERA Term]

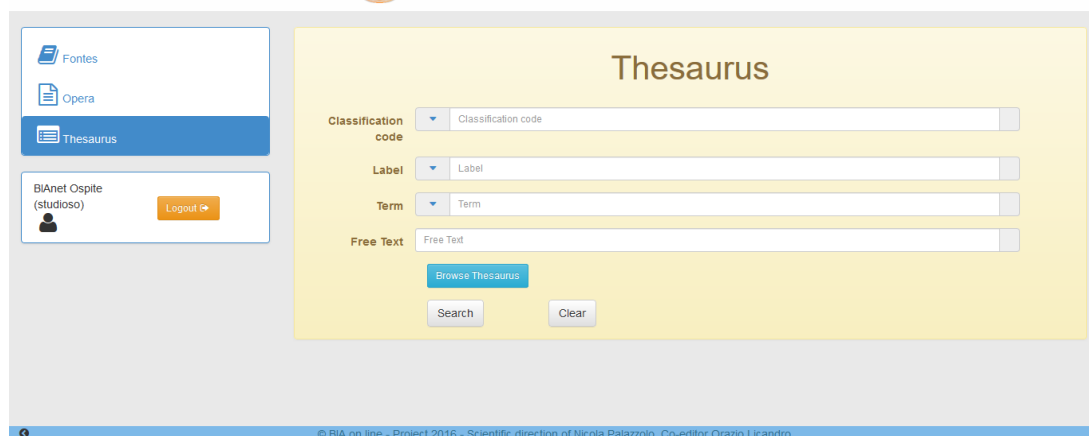
C) The ‘Locus’ field lets one retrieve bibliographical documents in which a given source has been analyzed. For a large part of the documents (articles or monographs) the more important sources discussed in the text have been indicated. It is not necessary to use logical operators since the default mode is AND. The button ▼ beside the 'Locus' field activates the “Query Building” mask with the cited sources in the bibliographical records in Opera subdivided into three groups: **Epigraphic and papyrological sources, Juridical sources, Literary Sources**. Selecting “+” with a mouse-click we see all the sources in alphabetical order and with a complete denomination.



[Picture 8: Vocabulary OPERA Locus]

D) Use of ‘Free Text’ extends the search to all fields present in the search page and also to summaries of volumes, collections of writhings, and periodicals, and to abstracts of articles. Thus in this kind of search also bibliographical documents not present in the *Opera* archive (reviews, obituaries, conference reports) but present in the indexes of periodicals will also be included. Searching with Free Text disables searching in the other fields.

2.1.3 Search page Thesaurus



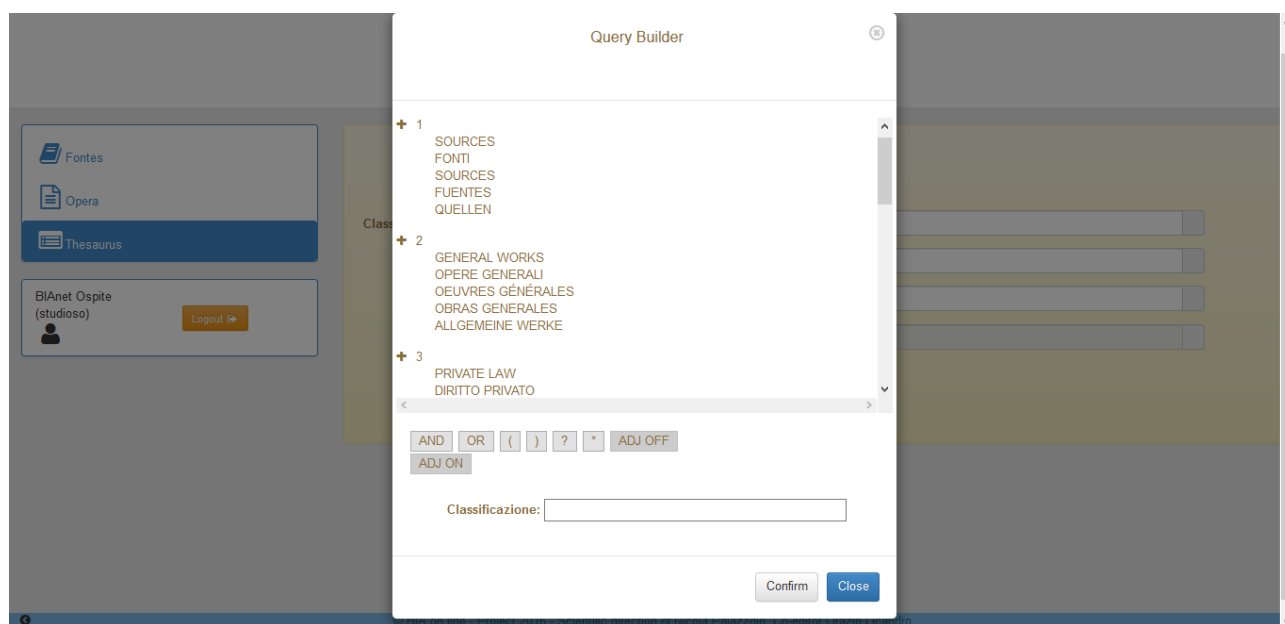
[Picture 9: Search page THESAURUS]

Whenever one wishes to search by subject one should use the *Thesaurus*. Thus the *Thesaurus* is essential to bibliographical research, allowing the selection of terms or classification codes to do the search. Furthermore, search in the *Thesaurus* is necessary every time one wishes to explore, for further searching in the *Opera* or *Fontes* archives, the complete range of technical terms relative to any specific conceptual area. The *Thesaurus* is useful in finding all the sources that have been studied by modern authors in connection with one or more technical terms.

The *Thesaurus* search page has 4 fields: **Classification code, Label, Term and Free Text**. In particular:

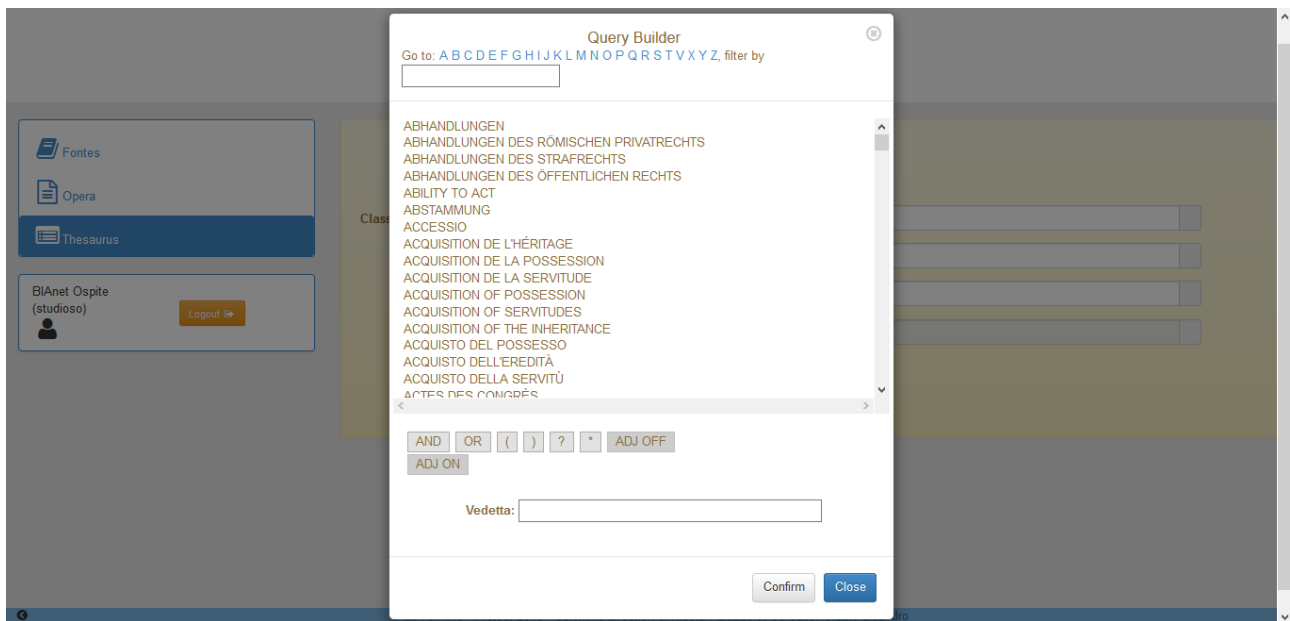
a) Using the '**Classification Code**' brings up all the terms connected to a given classification code. This kind of search is useful whenever – having found the more general argument to search – one wishes to narrow the search area to one or more specific arguments. Typing a numerical code (if known) in the '*Classification Code*' field or finding it in the guided search indicated by the ▼ button, by which one calls up the table of classification codes which can be scanned starting with the grand classes and within these to the desired argument and its classification code which, if confirmed by the user, will be automatically transferred to the search template and then open the relative class in the *Thesaurus*.

Every class of the *Thesaurus* is made up of two columns: on the left is the class, its numerical indication and its labels in the various languages (Italian, English, French, Spanish, German), and below are the descriptors (and the relative non-descriptors); on the right hand column is the Broader Term and below, the Narrower Term when it exists, both have labels in 5 languages.



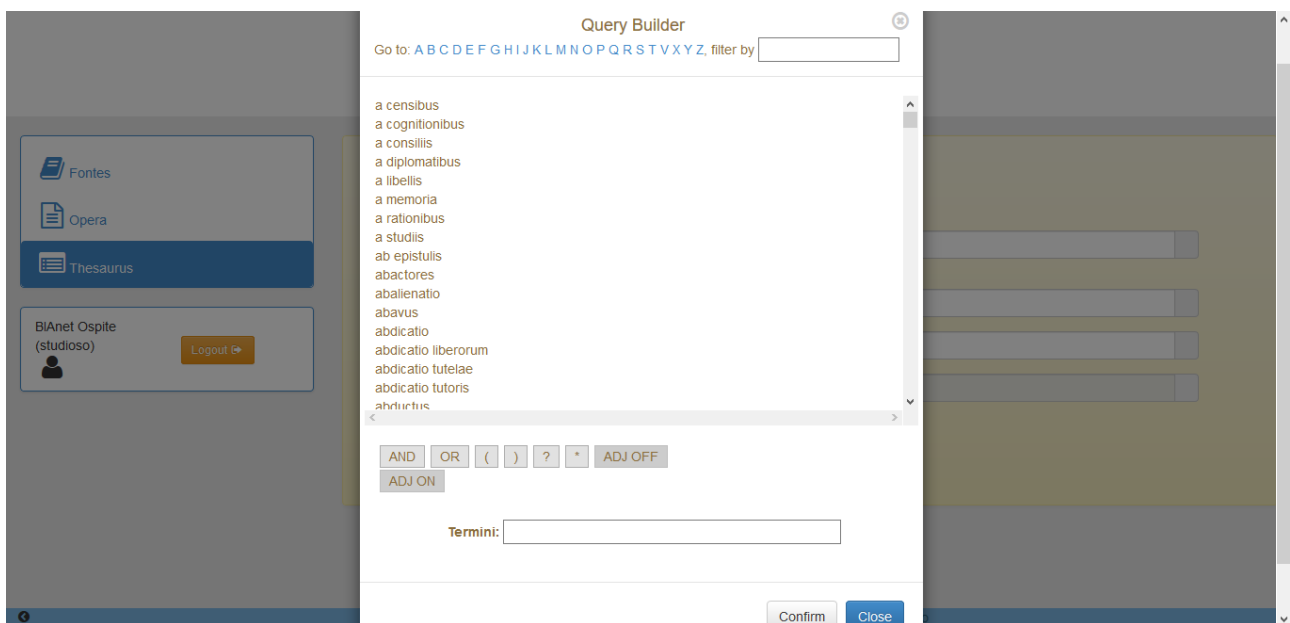
[Picture 10: Vocabulary THESAURUS *Classification Code*]

b) A search in the '**Label**' field retrieves classification codes (and the relative terms) starting from a concept generally expressed in a modern language. Clicking on the ▼ button opens the list of labels expressed in the 5 languages of the *Thesaurus*, and a click on one opens the relative record. This type of search is therefore especially recommended for non-specialists (students or jurists who aren't Romanists).



[Picture 11: Vocabulary THESAURUS Label]

c) Searching the **'Term'** lets one find the classification codes and relative labels pertaining to a given term. Clicking on the button ▼ brings up the list of descriptors of the Thesaurus, and then the index of the various classes. It also, starting with a search term not used as descriptor (for example, *res iudicata*), selects the classes and descriptors (for this sample: 4.3.1.3 e 4.3.3.3, *iudicatum*) at the head of these terms. The window with the vocabulary of terms is different from that of Opera because it contains also the synonyms, quasi-synonyms and linguistic variants (i.e.: it holds all the terms of the Thesaurus whether or not they are descriptors).



[Picture 12: Vocabulary THESAURUS Term]

d) Finally, search in the **'Free Text'** field allows the insertion of a Latin or modern language in order to select the class and descriptors which may pertain to it. As in the other archives, search here disables search in other fields.

This archive has additional option: the “**Browse Thesaurus**” button allows navigation in the BIA Thesaurus without necessarily undertaking a search, as such.

2.2 Visualisation of the list of retrieved documents

In each of the archives, for any search carried out from a search template, the number of documents found for each field is calculated as well as the total number of documents found using the logical AND. The number of documents selected for each search field is shown in the box to the right of the field, while the 'Number of documents found' appears at the bottom.



[Picture 13: Number of documents found]

At the bottom of the visualization screen appears a synthetic list of retrieved documents (in the FONTES archive: source and inscriptio, in OPERA author and title, in Thesaurus, class and label)



[Picture 14: List of FONTES documents]

| AUTHOR | TITLE |
|------------------------|--|
| | Gli effetti del contratto nei confronti dei terzi nella prospettiva storico-comparatistica. IV Congresso Internazionale ARISTEC, Roma 13-16 settembre 1999, a cura di L. Vacca |
| BENKE N, MEISSEL F.-S. | Übungsbuch zum römischen Schuldrecht. 5. durchgesehene und verbesserte Auflage |
| GAUDEMET J. | Naissance d'une notion juridique. Les débuts de l'"obligation" dans le droit de la Rome antique |
| GUARINO A. | 'Obligatio est iuris vinculum' |
| IBBETSON D.J. | A historical introduction to the law of obligations |
| LANDOLT P.L. | " Naturalis obligatio " and bare social duty [Dissertationen zur Rechtsgeschichte, 12 |
| ALBANESE B. | Papiniano e la definizione di 'obligatio' in Inst. 3.13 pr. |
| Albanese B. | Papiniano e la definizione di obligatio |
| ALBERTARIO E. | Brevi note in materia di solidarietà |
| Albertario E. | Corso di diritto romano. Le obbligazioni solidali |
| Alonso J.L. | Algunas consideraciones en torno a la "condictio scripturae" |
| AMELOTTI M. | Rendita perpetua e rendita vitalizia |
| Amelotti M. | Rendita perpetua e rendita vitalizia |
| AMELOTTI M. | Voce «Rendita» (Dir. romano) |
| ARCHI G.G. | La funzione del rapporto obbligatorio solidale |
| Archi G.G. | Sul concetto di obbligazione solidale |
| Babjak I. | Contractus litteris und die Bankbuchhaltung der Römer |
| Bellini F. | Appunti per un'indagine alle radici storiche del rapporto obbligatorio |
| BENÖHR H.P. | Das sogenannte Synallagma in den Konsensualkontrakten de klassischen römischen Rechts [Hamburger Rechtsstudien, 54] |
| BETTI E. | Appunti di teoria dell'obbligazione in diritto romano |

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[Picture 15:List of OPERA documents]

Number of documents found 4

| CLASSING | KEY WORD |
|----------------------------|---|
| + 3.4.2.3.1 | EMPTIO VENDITIO |
| + 3.4.1.4 | INADEMPIMENTO DELLE OBBLIGAZIONI NON-FULFILMENT OF OBLIGATIONS INEXÉCUTION DES OBLIGATIONS INCUMPLIMIENTO DE LAS OBLIGACIONES NICHTERFÜLLUNG DER OBLIGATIONEN |
| + 3.4.2.1.6 | NEXUM |
| - addictio | ATURA |
| - adstrictus | |
| - antestatio | |
| - gestum per aes et libram | |
| - lex poetelia papiria | |
| - manus iniectio | |
| - nexum | |
| - nuncupatio | |
| - partes secanto | |
| - venditio trans tiberim | |

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[Picture 16: List of THESAURUS documents]

The chronology of the last search and its results is saved.

For queries that are taking too much time there will be a message that the search has been terminated, while for those retrieving too many results there will be a request to narrow the search.

2.3 Visualization of the chosen document

From the list of results one goes to the visualization of a document.

In the visualization windows we see only the fields that are not empty.

Clicking on one of the documents opens the full record of that document. And more precisely:

a) in the FONTES archive, selection of the *Inscriptio* copies it into the search template for a new search in all the *inscriptions* which are similar, while selection of *Locus* brings up the chosen source; in this the terms used as search keys are highlighted by a different color.

Bibliotheca Iuris Antiqui

Fontes ⁱ

BROWSE RESULTS ← C.1.1.8.4 → BROWSE ARCHIVE Open archive

| | |
|-------------|---|
| Locus | C.1.1.8.4 Q |
| Inscriptio | Gloriosissimo et clementissimo filio Iustiniano Augusto Iohannes episcopus urbis Romae Q |
| Text | Hoc est enim, quod vestrum firmat imperium, hoc, quod vestra regna conservat. Nam pax ecclesiae, religionis unitas, auctorem facti in sublime provectum grata sibi tranquillitate custodit. |
| Subscriptio | D. VIII k. April. Roma dn. Iustiniano pp. A. III et Paulino iunioris vc. cons. [a. 534] Q |

Q Search in Fontes - Q Search in Opera

Last search (Locus C.f.*)

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[Picture 17: Visualization of a paragraph of the Codex Iustinianus]

Bibliotheca Iuris Antiqui

Fontes ⁱ

BROWSE RESULTS ← D.50.8.11 → BROWSE ARCHIVE Open archive

| | |
|-------------|---|
| Locus | D.50.8.11 Q |
| Inscriptio | Papirius Iustus libro secundo de constitutionibus Q |
| Text | Imperatores Antoninus et Verus rescripserunt pecuniae, quae apud curatores remansit, usuras exigendas: eius vero, quae a redemptoribus operum exigi non potest, sortis dumtaxat periculum ad curatores pertinere. |
| D.50.8.11.1 | Item rescripserunt operum periculum etiam ad heredes curatorum pertinere. |
| D.50.8.11.2 | Item rescripserunt agros rei publicae retrahere curatorem civitatis debere, licet a bona fide emptoribus possideantur, cum possint ad auctores suos recurrere. |

Q Search in Fontes - Q Search in Opera

Last search (Locus D.50.8.11)

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[Picture 18: Visualization of a fragment of the Digesto]



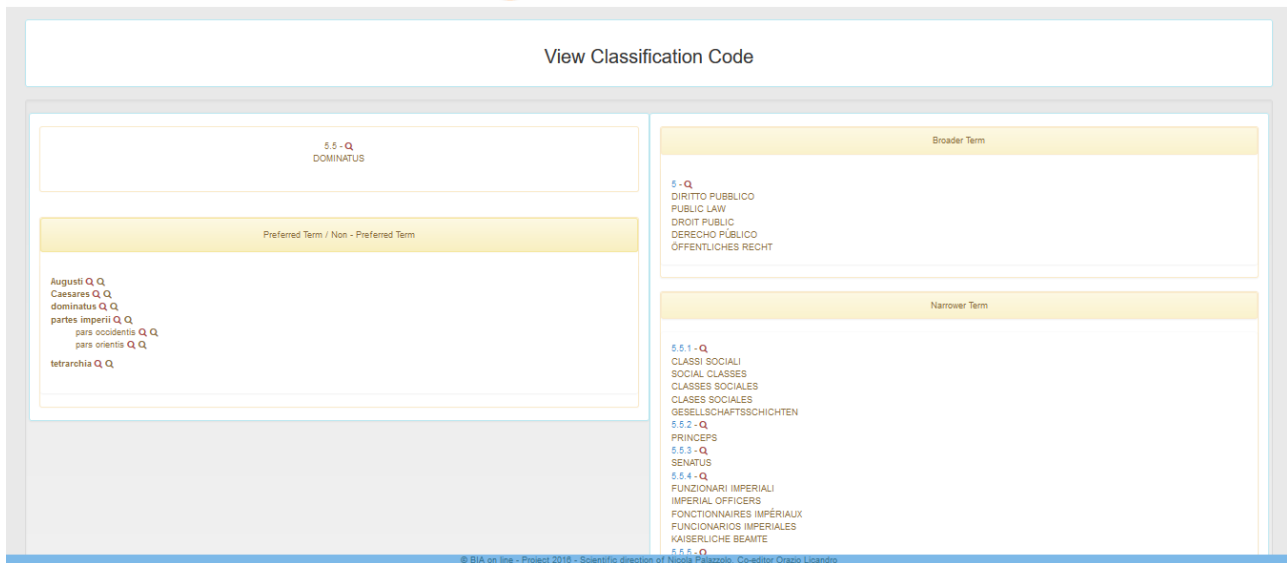
[Picture 19: Visualization of a *Rubrica*]

b) Selection of 'Author' in the OPERA archive causes it to be automatically copied into the search form for a new search for the author's works, while selecting the *Title* brings up the full bibliographical record;



[Picture 20: Visualization of a bibliographical record]

c) Selection of the code in the THESAURUS archive opens the complete record of the class with its relative terms (descriptors and non-descriptors), the upper level classification code (Broader Term) in the Thesaurus tree as well as all the dependant classification codes (Narrower Term).



[Picture 21: Visualization of a class of the THESAURUS]

2.4 Broadening a search


At the top of the record in the FONTES archive there are two possibilities for amplifying a search: on the left the cursors marked “*Browse Result*” let one page up and down the list, while the cursors on the left marked “*Browse Archive*” let one scan back and forth inside the source; the ↑ (arrow up) button brings up the entire partition of the work that the source belongs to (for ex.: the entire work of the Digesto):

At the top of the form in the OPERA archive there is the possibility of amplifying the search: using the cursors labelled “*Browse Result*” one may move forward and back within the results, while the ▼ button shows the complete list of documents.


In the THESAURUS archive the button (“*Browse Thesaurus*”) lets one browse directly from the search form.

2.5 Navigation between BIA archives

Navigation between BIA archives that was complicated in the CD-ROM edition has been simplified for BIA-NET by using links and given new functions that are typical of hypertexts.

In the Visualisation Page of the chosen documents of each of the three archives a magnifying  lens has been placed beside the elements that may be search keys for it or connected archives; these lenses (color coded) are useful for navigation between archives. One may pass directly to a connected document in another archive or in other parts of the same archive.

In particular:

- from the record of a document in the FONTES archive
 - using the  icon beside Locus one may navigate towards the OPERA archive: the system copies the term in the Locus field of the OPERA search page and activates the search (i.e.: finds all the works that analyse the source);

- the (green) icon beside the *Inscriptio* lets one navigate to the FONTES archive; the system copies the value of the *Inscriptio* field into the FONTES search form and finds all the sources with the same *Inscriptio*;
 - the (green) icon beside *Subscriptio* (if it is there) lets one navigate towards the FONTES archive itself: the system copies the term in the *Subscriptio* field of the FONTES search form and finds all the sources with the same *Subscriptio*.
- from the record of a document in the OPERA archive:
- using the icon (red) beside the single fields *Author*, *Publication*, *Year*, *classification Code*, *Checked Terms*, and *Exam. Sources* one may move towards the OPERA archive: the system copies the term into the respective fields of the search form and finds the bibliographical documents having the same search key;
 - the (green) icon beside every word in the *Checked Terms* field lets one navigate toward the FONTES archive: the system copies the term in the *Free Text* to the search form to find the sources that have that word in any field:
 - the (brown) icon beside every word in the “Checked term” field navigates to the Thesaurus: the system copies the value in the *Term* field of the search form and finds the classes in the Thesaurus with the same terms, both descriptor and non-descriptor.
- from the record of the Thesaurus:
- the (red) icon beside the classification code or single terms (descriptors and non-descriptors) takes one to the OPERA archive: the system copies the terms in the respective fields of the search form and finds the bibliographical documents with the same classification or have a descriptor or non-descriptor referring to it;
 - using the (brown) icon beside single terms (descriptors or non-descriptors) one may go to the THESAURUS archive: the system copies the terms in the *Term* field of the search form and retrieves the classes that have that term among its descriptors or non-descriptors.

3 Modifications (only for the systems manager)

The systems manager may insert, modify, or cancel data.

On the visualization pages (in Fontes, Opera and Thesaurus) there is a button for modification of the information on that page.

The Opera archive has also a button for inserting a new bibliographical record or for cancelling one. One may copy/glue texts, as well as type in text (for Greek the insertion form is the same as that on the search page).

The modification form in the Opera archive has all the fields, not just those in visualization.

Having made modifications to the system the manager must then run the updating and indexing of the archives.