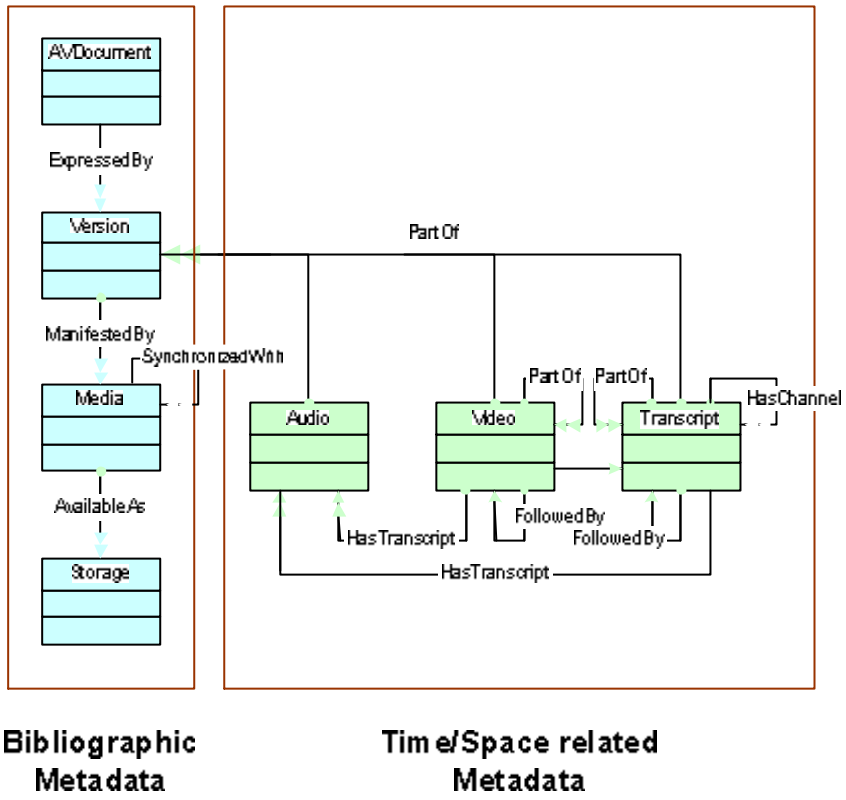
Regia: the metadata editor of the Echo project

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1 Understanding the metadata AVDocument structure

The metadata model of ECHO is based on the IFLA model, a general conceptual framework used to describe heterogeneous digital media resources. This metadata model is composed of four levels describing different aspects of intellectual or artistic endeavour: *AVDocument*, *Expression*, *Media*, and *Storage*. The entities of the model are organized in a structure that reflects the hierarchical order of the entities from the top level (*work*) to the bottom (*item*). Figure 1 shows a schematic representation of the ECHO Metadata Model. As it is possible to see, the metadata which belong to different classes comprised in the model, are logically divided in two sets *Bibliographic Metadata*

and *Time/Space related Metadata.* This classification is also reflected in the Metadata Editor interface.



The AVDocument entity is the most abstract one; it provides the general intellectual or artistic view of the document. For instance, let us suppose we want to describe a document about the Berlin Olympic Games in 1936. An AVDocument object will represent the abstract idea of the documentary film on the Games. A number of objects, of the abstract entity Version, could represent different language version of the same film, e.g., versions in Italian or in German. The Italian version could have three different objects that are part of the entity Version: a Video object, a Transcript object and an Audio object. However, the Version entity does not represent any specific implementation of the film. This aspect can be represented by means of the manifestation level. For instance, a Media object could represent a digital realization of the document in MPEG format. More than one manifestation of the same Version, e.g. MPEG, AVI, etc., may exist.

Nevertheless, the Media object does not refer to any physical implementation. For instance, the MPEG version of the Italian version of the Games can be available on different physical supports, each one represented by a different Storage object (e.g., videoserver, DVD, etc).

2 Terminology

2.1 The AVDocument

Throughout this document we will use the term AVDocument for referring to a whole document of the editor which is an instance of the whole entity object model above presented. In order to avoid

misunderstanding with term AVDocument indicating the entity of the model and the editor document when we refer to the AVDocument we call it “AVDocument root”.

2.2 The GUID

By means of the term GUID we refer to the unique identifier of a object of the model. However the type of GUID changes. When the object documents are stored in the disk (FileSystem) the GUID is the complete path filename of the XML document representing the object. When the object is stored in the Database it is an hexadecimal number of 64 digits.

3 Opening a AVDocument

3.1 Opening a AVDocument from the filesystem

When an AVDocument is stored in the disk, it is composed by a certain number of XML files, each one for each instance of the model entities and a certain number of multimedia files (such as mpeg or avi) referenced by the *Storage* objects.
In particular, there is one xml file representing the instance of the AVDocument root itself and an xml file for each instance of entities of the document which stored in a subdirectory located on the same location of the AVDocument root file. The name of this subdirectory is the same of the file root xml file with the string ”_files” appended. For instance if the document is called ***doc1.xml*** in the same directory where there is a directory called ***doc1_files*** which contains the rest of the xml files belonging to the AVDocument.
In order to open a AVDocument, go to the menu File→Open and browse and select a root xml file of the AVDocument which you wish to open (see Figure 2).

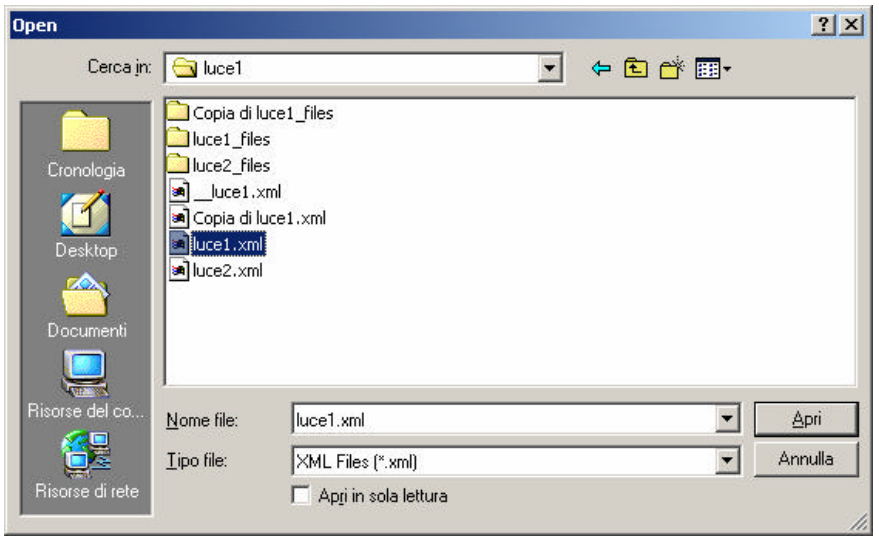


Figure 2 - Opening an AVDocument from the disk.

Tip: it is possible to open an entity of the AVDocument selecting a file xml in the subdirectory of the AVDocument. In the case Regia will open a the whole document and will open also the edit dialog of the selected object.

3.2 Opening a document from the Database

The document stored in the Database can be open directly from the system Retrieval Interface, see Figure 3.

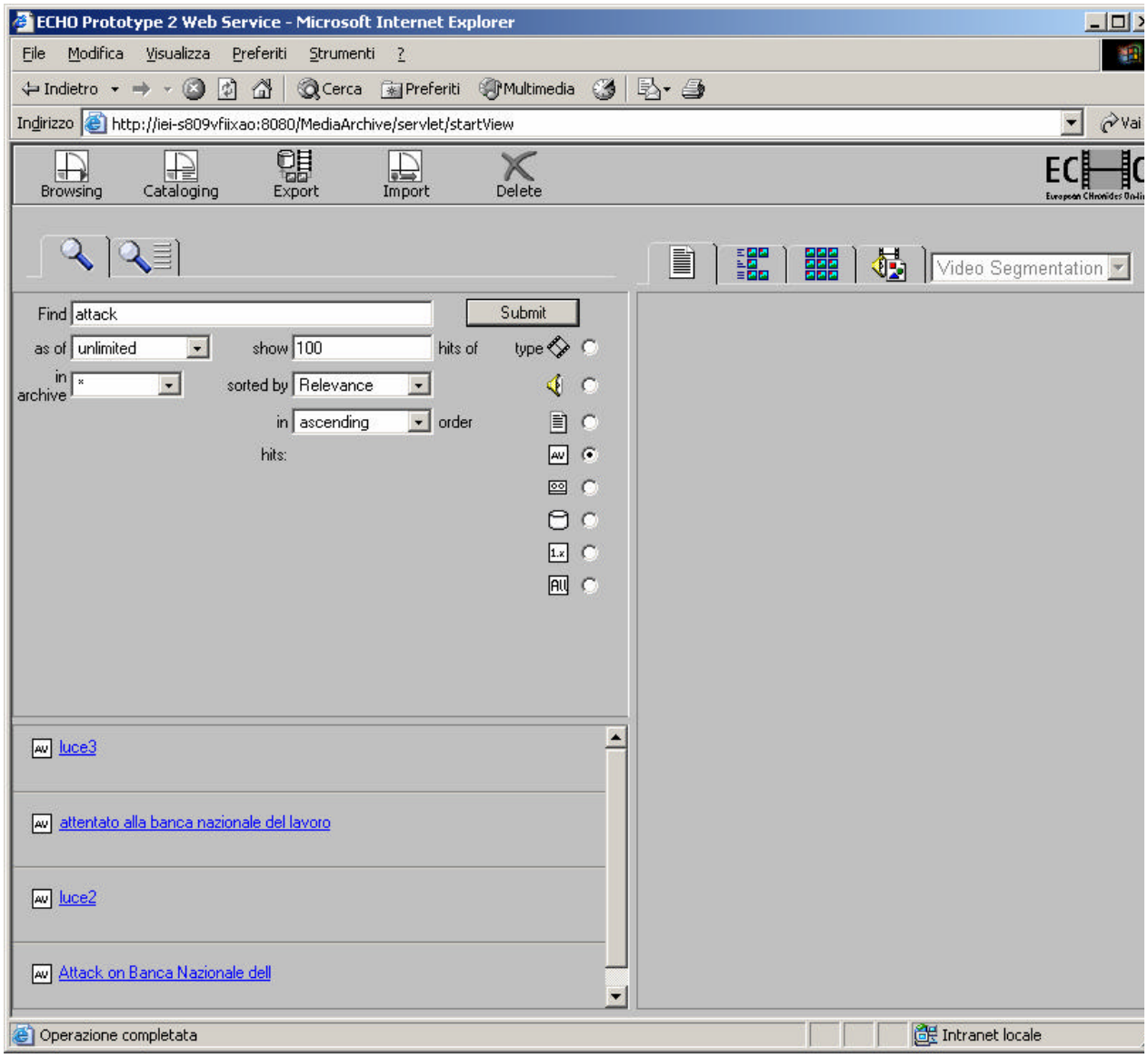


Figure 3 - Echo retrieval interface.

Click on the ***AV*** icon and type on the Find text box the string of you wish to search for. Click on the title of one of the AVDocuments retrieved (left bottom of the window) and then click on the *Cataloging* icon (on the top). The editor will be open and the corresponding AVDocument will be loaded. Regia connects directly the Echo Datamanager in order the retrieve the metadata of the selected AVDocument. The network address of the host of the Echo Datamanager to use can be set in the ConnectionDialog; for further details see the Section 11.2.

4 Browsing/Editing the Bibliographic section AVDocument

4.1 Structure of the editor window

Figure 4 shows the structure of the main window of the editor. The left side of the window is dedicated to the object of the bibliographic entities. Moreover, the right side of the window to the multimedia objects, i.e., the time/space related metadata.

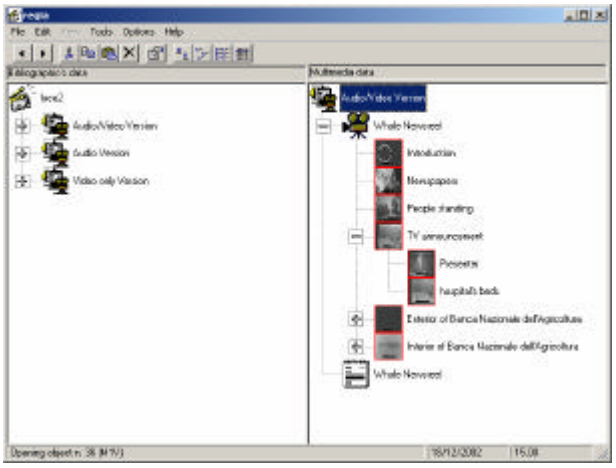


Figure 4 - The editor structure.

4.2 Browsing the AVDocument

Once you have open a AVDocument it is possible to browse its structure just double clicking on the icons on the left side of the main Regia windows. The structure is organized as a tree and each node represent an entity object of the AVDocument structure. Each entity us associated to a different icon; the icons are the followings (see also Figure 5):

- Root of the AVDocument…….. 
- Version…… 
- Media…….... 
- Storage…… 

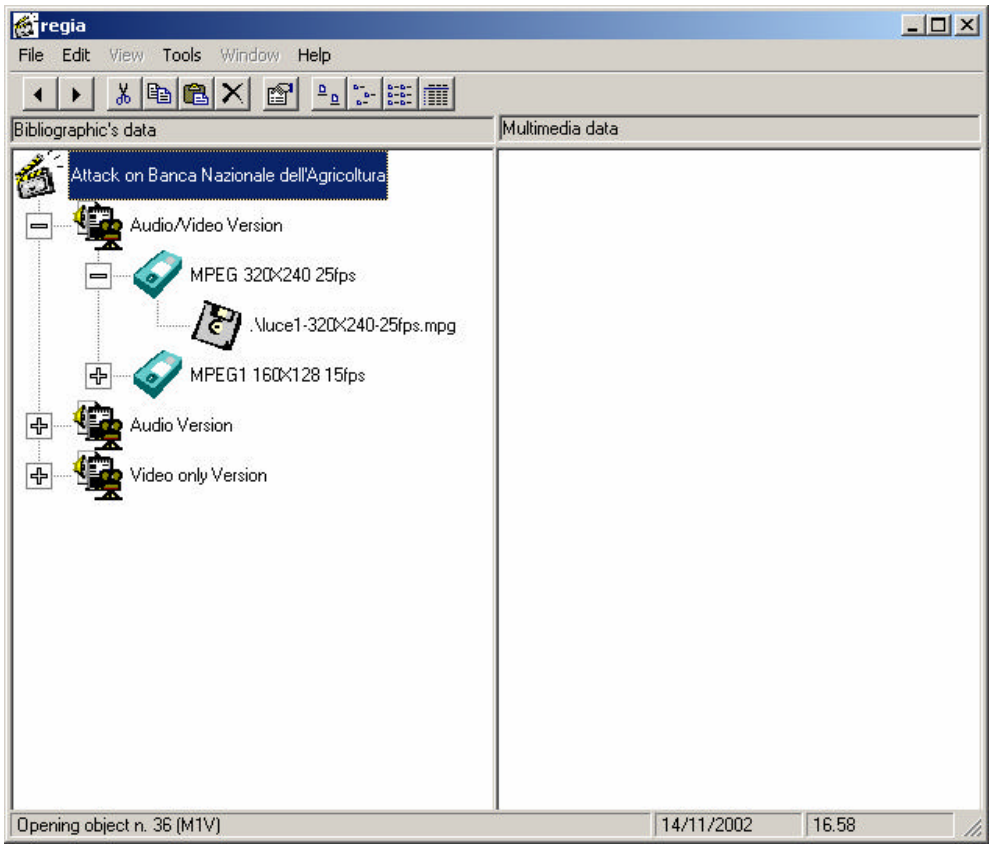


Figure 5 - Main window of Regia

4.3 Editing the AVDocument

In order to edit the field of any object it is sufficient to select its icon and click on the right button of the mouse. It will appear a menu; click on the "Edit Metadata…" item. A dialog window containing all the metadata of the selected entity will appear. Figure 6 shows an example of edit window.

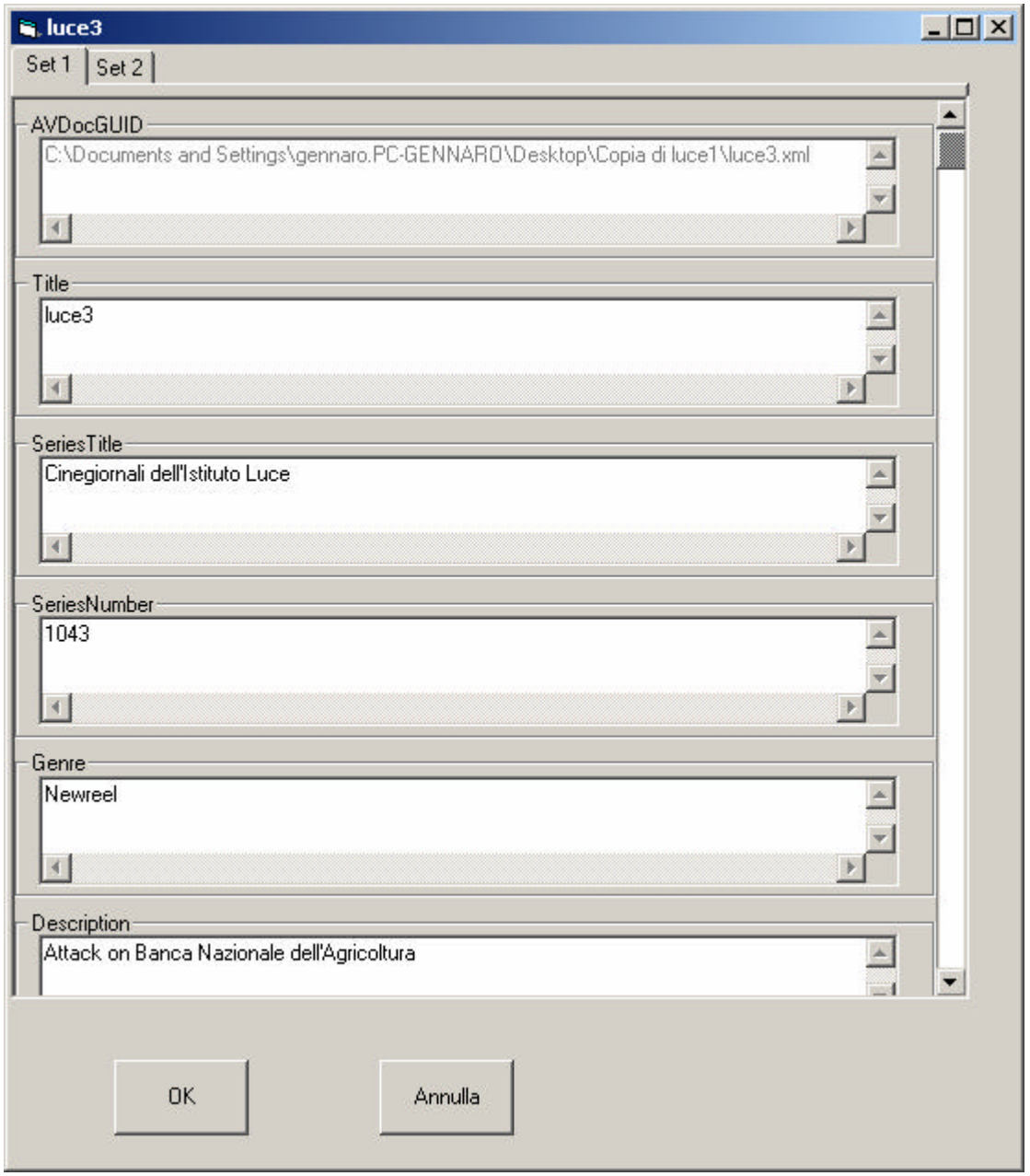


Figure 6 - The edit window.

At this stage it is possible to modify all the fields of the corresponding object. For convenience, the fields are grouped in different tabs windows called “set 1”, “set 2”, etc. Note that, some fields are read-only, (for instance the GUIDs). Clicking on the button “Cancel” the modifications will be discarded. Clicking on “OK” the modifications will be kept.

4.4 Setting the Assigned/Unassigned flag of the fields

It is important to note that each field of the objects can be into status: assigned or unassigned. This can be useful to leave a field (such as of type date or Boolean) not assigned. The concept of a null field is different to the concept of a unassigned field. In fact, a numeric type field set as 0 is different to leave it not unassigned. An unassigned fields do not appear in the edit window, in order to change the status of a field from unassigned to assigned and viceversa, select an icon object by the right button of the mouse, and click on “Edit Assingned/Unassigned flag…” the dialog window of Figure 7 will appear.

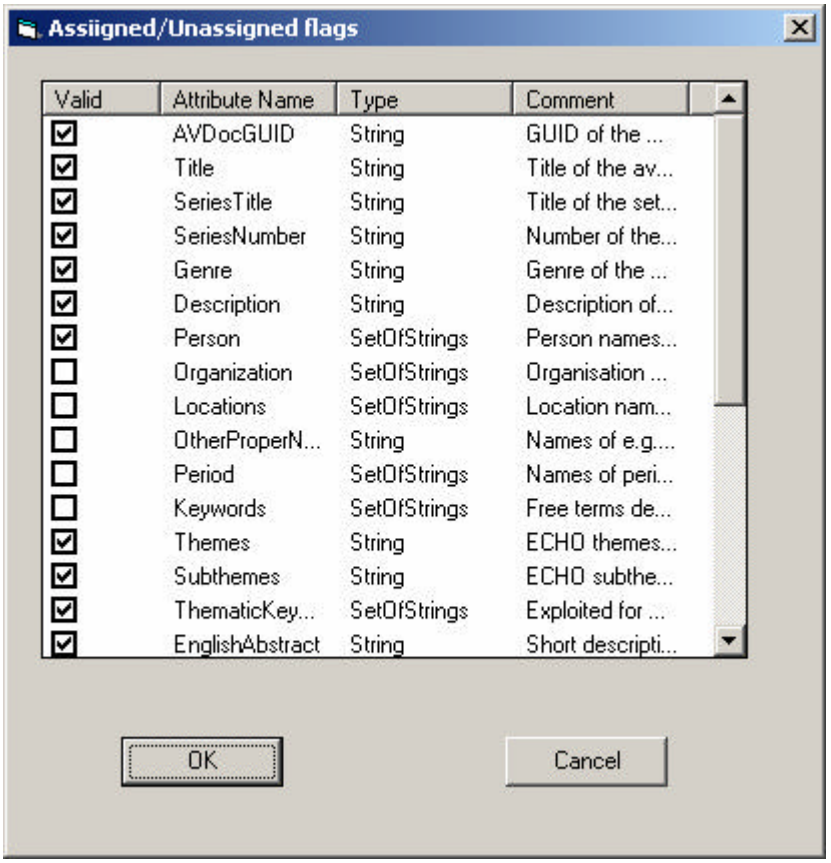


Figure 7 - The Assigned/Unassigned dialog.

If the checkbox is checked than the corresponding field it is Assigned (and will appear in the edit window) if checkbox is unchecked than the corresponding field is Unassigned (and will not appear in the edit window).

4.5 Deleting an object and its children

By selecting an object icon and typing the "Del" button on the keyboard it is possible to delete an object and its children.

4.6 Adding a new child entity

It is possible to add a new child object by selecting its parent, clicking on the right button of the mouse, and clicking on "Add child…". It will appear an input box asking for the title of the new object. Note that, for the Storage entity the title corresponds to the "collocation" field of its metadata.

5 Browsing/Editing the Multimedia section AVDocument

5.1 Browsing a Version

As explained in section 1 an AVDocument can have one or more Version objects, by clicking a Version icon of the Bibliographic data tree structure it is possible to browse its corresponding Expressions structure composed of Video, Audio, and Transcript objects. In particular, a Version object can be associated to just one Main Video Expression, one Main Audio Expression, and one Main Audio Expression. A Main Expression represents the whole movie document and its children its temporal segmentation in term of sub-Expression. For Instance, the Main Video represent the whole Video Track of the indexed movie, its children represent the scene in which it has been partitioned.

By clicking on a Version icon the structure of the Version object will be shown on the Multimedia data section of Regia main windows (on the right side). It is possible to browse the Version by means of the tree-view control, as shown in **Errore. L'origine riferimento non è stata trovata.**.

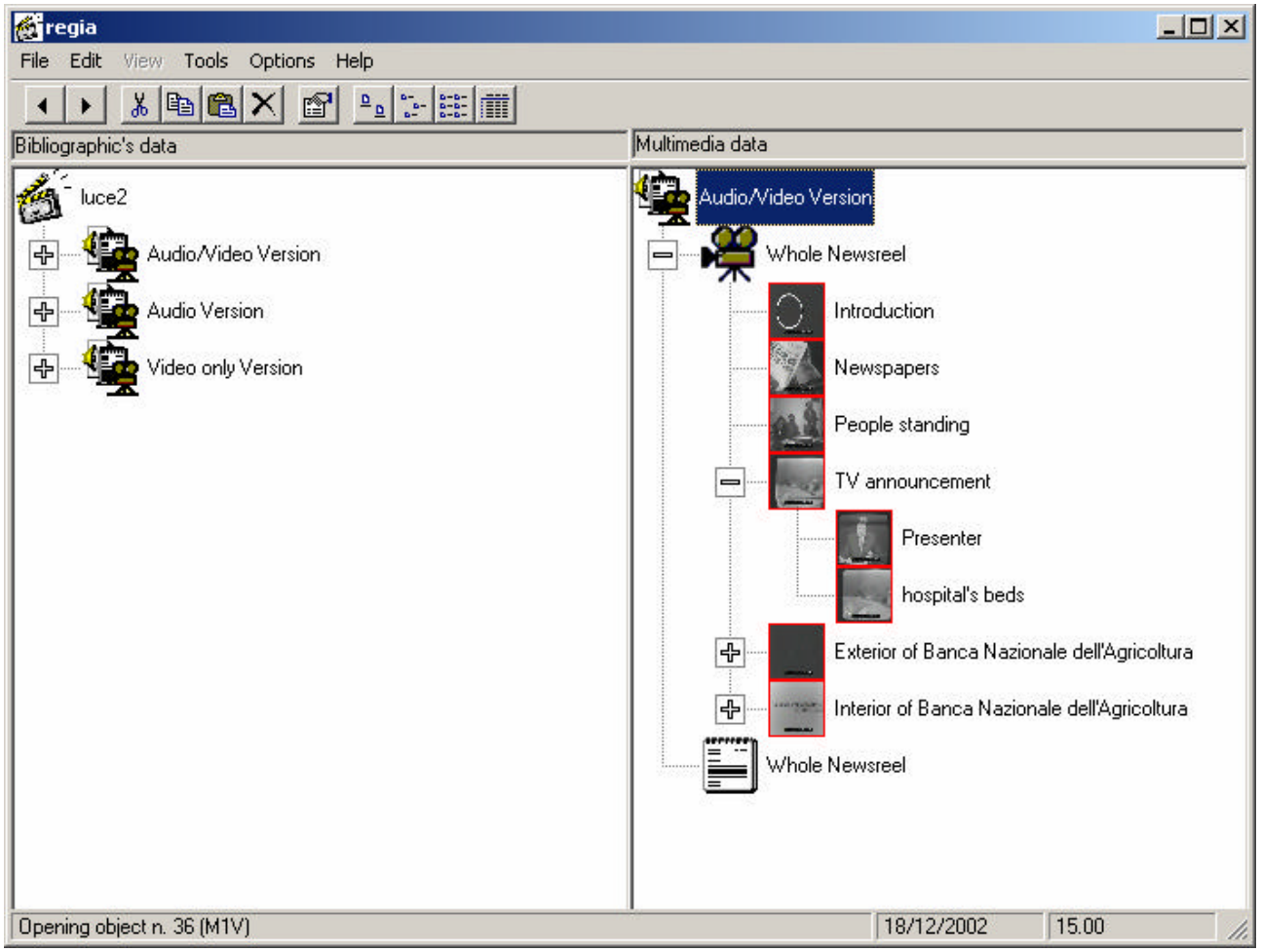


Figure 8 - The Version structure.

Each Expression and sub-Expression has got its metadata and behaves as shown above for the other entities. Therefore the browse, creation, and update, works as explained in the previous sections. The only important difference is that for the metadata window of the Expression Entities. See next section for further details.

Tip: it is possible to delete a Video Expression (and its sub-Expressions) directly by deleting the corresponding xml file. This operation does not damage the AVDocument consistence.

5.2 Expression Tool

5.3 introduction

By means of the Expression Tool (see Figure 9) it is possible to:

1. browse/edit the metadata associated to the Expressions.
2. play, stop, pause, step frame by frame, the movie associated to the current Expression object.
3. read the transcript (if any) synchronized during the Video playing.
4. browse the Expression segmentation, by means of a coloured slider control and the keyframes corresponding to the Expression segments.
5. create, modify, delete segments of the Expressions.

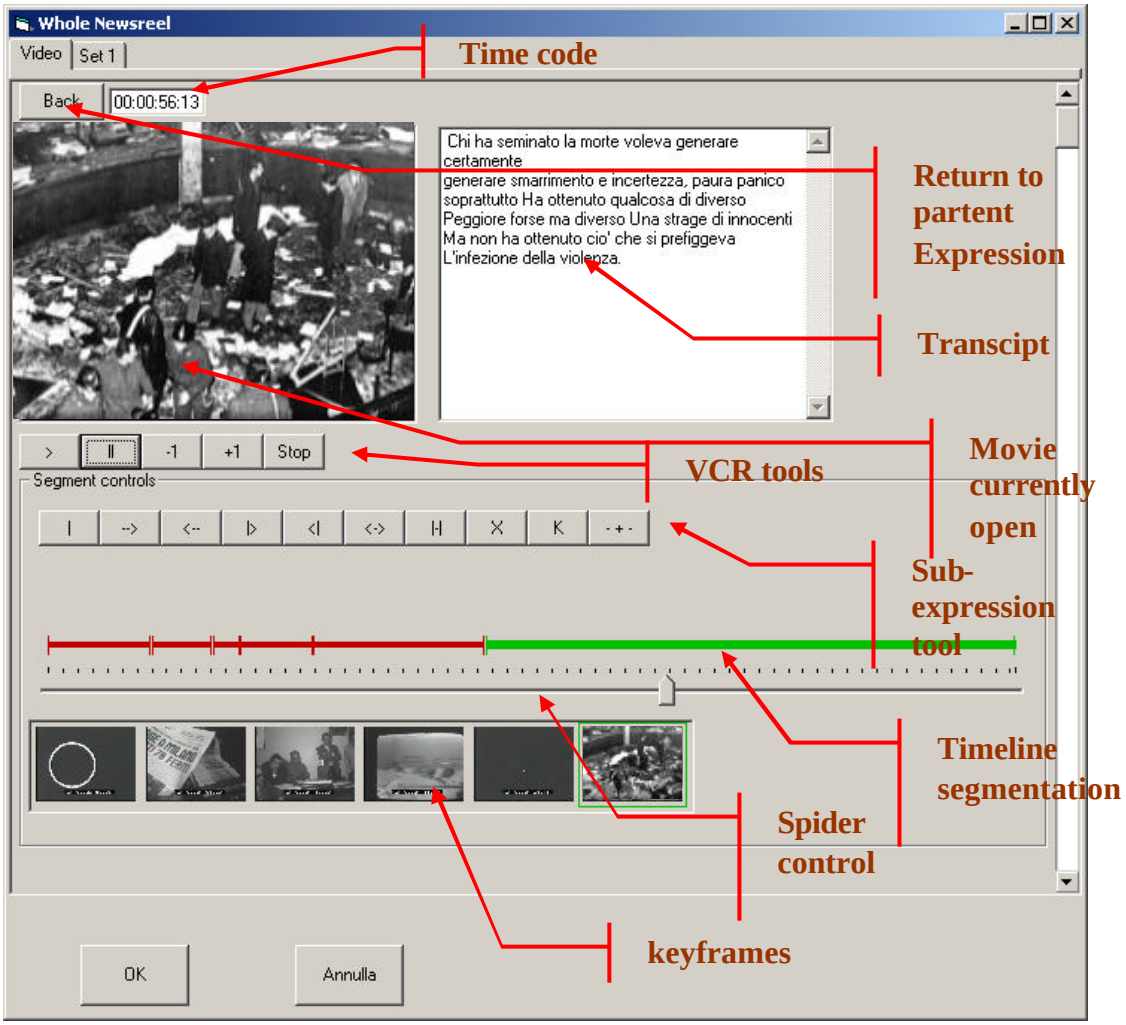


Figure 9 - The Expression Tool.

5.4 Browse/edit metadata

Each Expression entity has its own metadata, and exactly as for the other entities, the there is an metadata edit window (called Expression Tool) divided in several tabs. The first tab window shows the hierarchical Expression segmentation. The additional tab windows allow the user to edit the textual metadata associated to the Expression.

5.5 Play, stop, pause, step frame by frame, the Video

When the Expression window is open, the corresponding video is loaded and positioned to the start time of the Expression. On top of the window where the movie is played, the current timecode is indicated. The format of the timecode is Hours:Minutes:Seconds:Frames. Underneath the movie asset of typical Video Recorder buttons allow the user to navigate through the movie. Moreover, by means of the slider cursor it is possible to jump in any position the movie inside the interval defined in the current Expression.

5.6 Read the Video Transcript

During the video playing on the right side of the Expression window there is a text box where the speech Transcript (if any) associated with the Expression is shown. The text in which the Transcript has been indexed is shown synchronized with the movie speech.

5.7 Browse the Expression

By means of the coloured timeline control, the user can navigate the Expression as well as the child Expressions, in which it has possibly segmented. Remember that the segments are Expression objects. In order to use this powerful feature of the tool, it is worth understanding the meaning of the slide segmentation. Figure 10 explains this characteristic.

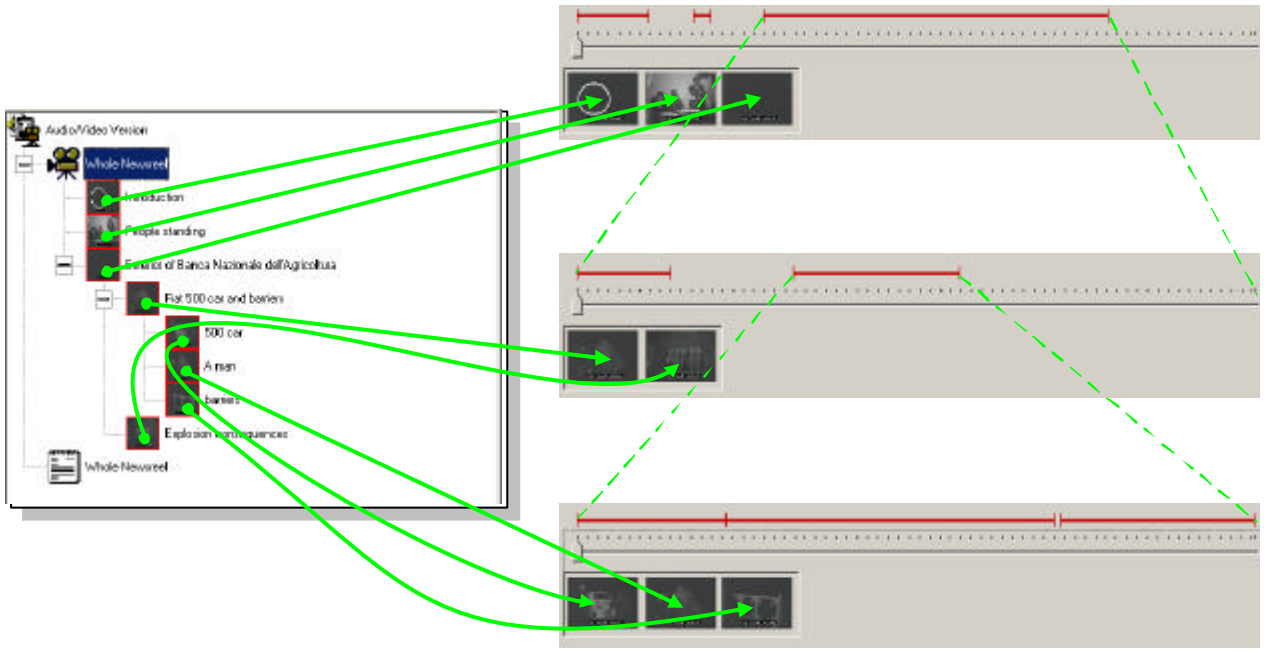


Figure 10 - Segment and keyframes association.

The Figure shows as the correspondences between the video on the hierarchical tree view and the keyframes associated with the sub-Expressions on the Expression Tool window. By double-clicking on the keyframe corresponding to the segment, or double-clicking the segment of the timeline bar it is possible to go down the corresponding sub-Expression. In order to go back to parent Expression, click on the "Back" button on the top-left of the Expression Tool window.

5.8 Create, modify, and delete, segments of the Expressions

5.8.1 Create

Suppose a Video Expression is correctly opened in order to create a new sub-Expression (a video shot for instance), there are two ways of proceeding:

1. move the cursor of the slider and place it at the start time of the shot you want to create, push the button "|". The timecode and a small line on the timeline start blinking. Move the cursor and place it at the end time of the new segment, push again the button "|".
2. Push the button "|-|". A dialog box will allow you to select the start/end timecodes boundaries of the new segment.

5.8.2 Modify

Suppose a Video Expression opened correctly opened in order to edit a sub-Expression (a shot for instance), used one of the following methods:

1. Push the button "|>" ("<|"). This will change the end (begin) of the selected segment to the begin (end) to the (preceding) succeeding segment.

2. Push the button "<->". A dialog box will allow modifying the start/end timecodes boundaries of the selected segment.
3. By selecting the segments by means of the mouse button and pressing shift button, it is possible to select more than one segment. The selected segments are highlighted by means of a thicker line on the sliding bar, and their keyframes are contained in a coloured frame. By pushing the button "-+-" all the segmented will be merged together. Note that, the new merged segmented will hierarch the textual metadata of the selected segment that appeared in green.

5.8.3 Delete

Select a segment and push the button "**X**" or the key "**Del**" of the keyboard.

5.8.4 Updating the keyframes

Clicking on the button "K" the keyframe of the current video is updated by the frame currently shown.

Tip: moving the mouse over a segment of the sliding bar, or its corresponding keyframe, a TooTtipText appears which shows the start/end time of the segment and its title.

6 Saving the AVDocument

All the changes made on the AVDocument as creation, update and deletion, are not stored in the disk or in the Database until the user save it back. Exactly as a textual editor it is possible to save the document (menu File→Save) or saving a new copy of the document by means of the Save As command (menu File→SaveAs…).

7 Creating a new AVDocument

In order to create a new AVDocument from scratch, click on the menu item File→New. A new AVDocument will be created. Proceed creating the other entities of the AVDocument.

8 Searching in the document

By means of the menu item File→Find… it is possible to search on the text metadata fields of the AVDocuments. Figure 11 shows the input form and the results obtained. Clicking on the icon of the retrieved list the corresponding object is opened.

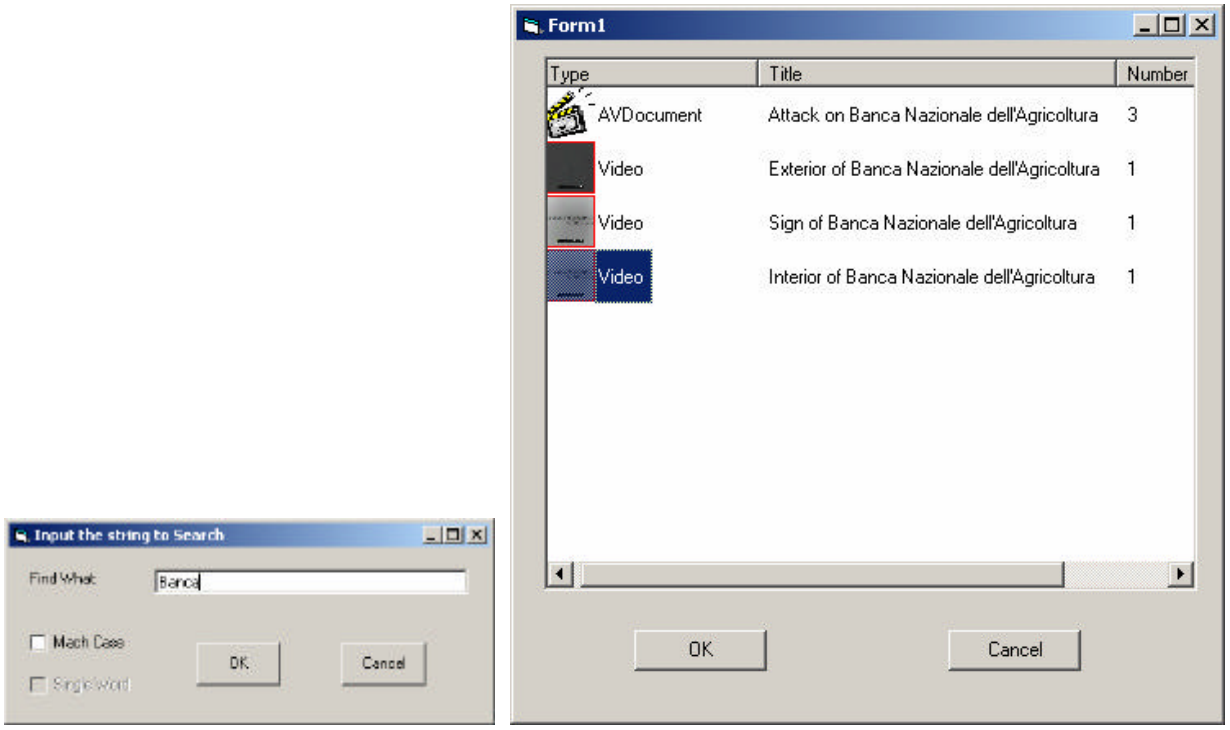


Figure 11 - The search tool.

9 Exporting/Importing features

These features are useful when you wish to save the document from the Filesystem to the Database and viceversa. Suppose you have opened a document from the disk, click on the menu item File→Export to the Database to copy the whole AVDocument in to the Database. In the same way, having opened a document from the Database, click on File→Import to the Filesystem, in order to copy the whole AVDocument into the disk.
When the export/import process starts, the editor asks the user for the new collocations for all the Storage present in the AVDocument. Usually, the collocation for a Video in the Database it is a remote path as for instance:
\\pc-echo\ma\data\48534D2D4C4F434154494F4E2D312E305B5530928B7CCBBAF100000004ADDE23
where the last string of characters is the GUID of the Video. Before exporting the document to the Database, it is necessary to upload the movie file in the essence managaer, using the import tool provided by the Echo system. Instead, the collocation of for a AVDocument taken form the Filesystem is path of the mpeg file where the movie file is stored.

10 CrossLanguage

Some of the metadata fields of the root of the AVDocument are treated as Cross Language by the editor. The metadata fields involved are:

- Themes
- Subthemes
- Thematic Keywords
- Genre

Each field has got a closed list of keyword which is presented as combo box control instead of a simple edit text string control, as for the other string fields. The items are shown accordingly to the language chosen from the menu Tools→Language. The keywords list is stored in the file ***ThematicKeywords.xml*** located in the directory where Regia is installed. Do not edit the

ThematicKeywords.xml file, since a misalignment between this file and the stored documents can deteriorate the consistence of the documents. However, if it happens that there is an inconsistence between the file ThematicKeywords.xml and the stored metadata, Regia shows an error message and does not allow the user to edit the AVDocument metadata fields. To get over this problem click on the menu item Tools→Language→Disable CrossLanguage. Regia will allow the user to edit all the CrossLanguage fields as normal strings. Be careful to use this feature, only when it is really necessary.
The CrossLanguage fields Theme, Subtheme, and Thematic Keyword have a tree hierarchical structure. For each Theme it is associated a set of Subthemes, and for each Subtheme it is associated a set og Thematic Keywords. See Figure 12. An AVDocument can correspond to just one Theme, one Subtheme and one or more Thematic Keywords. When the user changes the Theme field of the AVDocument, the editor resets the combo boxes of the Subthemes and Thematic Keywords fields. Moreover, when the user changes the Subtheme of the AVDocument, the editor resets the combo box of the Thematic Keyword fields.

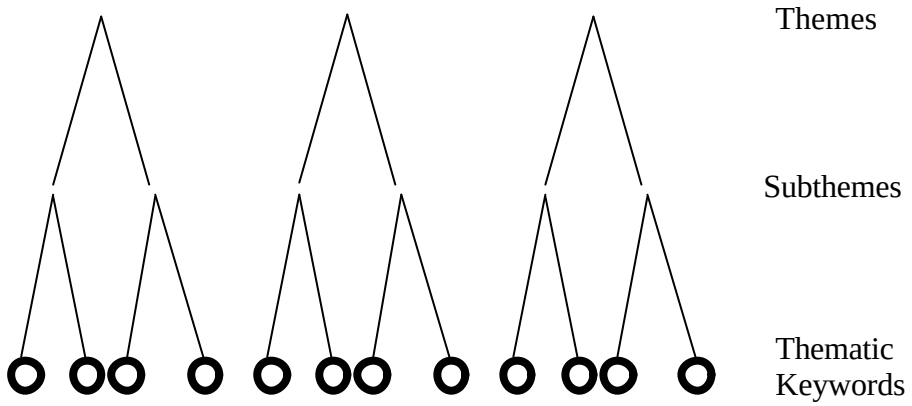


Figure 12 - The CrossLanguage hierarchical structure.

11 Installing and configuring Regia

11.1 Installation

In order to install Regia launch setup.exe from the installation package and follows the instructions. Remove the previous version (if any), before install a new one.

11.2 Configuration

The only configuration issue is to network parameters for the connection to the Database (i.e., Echo Datamanger). Click on the menu item Options→Connection, the dialog of Figure 13 will appear.

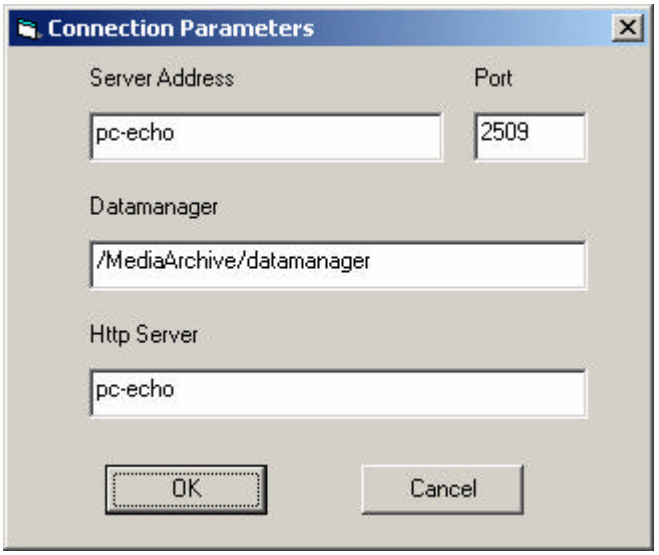


Figure 13 - Connection dialog.

The meaning of the fields are the following:

- Server Address: it is the ip address of the host where the Echo Datamanager is running.
- Port: it is the number of the ip port used for the connection, typically is the port number 2509.
- Datamanger: path of the Echo Datamanager, typically is "/MediaArchive/datamanger"
- Http Server: ip address of the host where the Echo HTTP Server is running, typically it is the same of the Server Address.