Searching, browsing, and editing metadata for Audio/Video documents

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Digital Library Competence Center

Outline

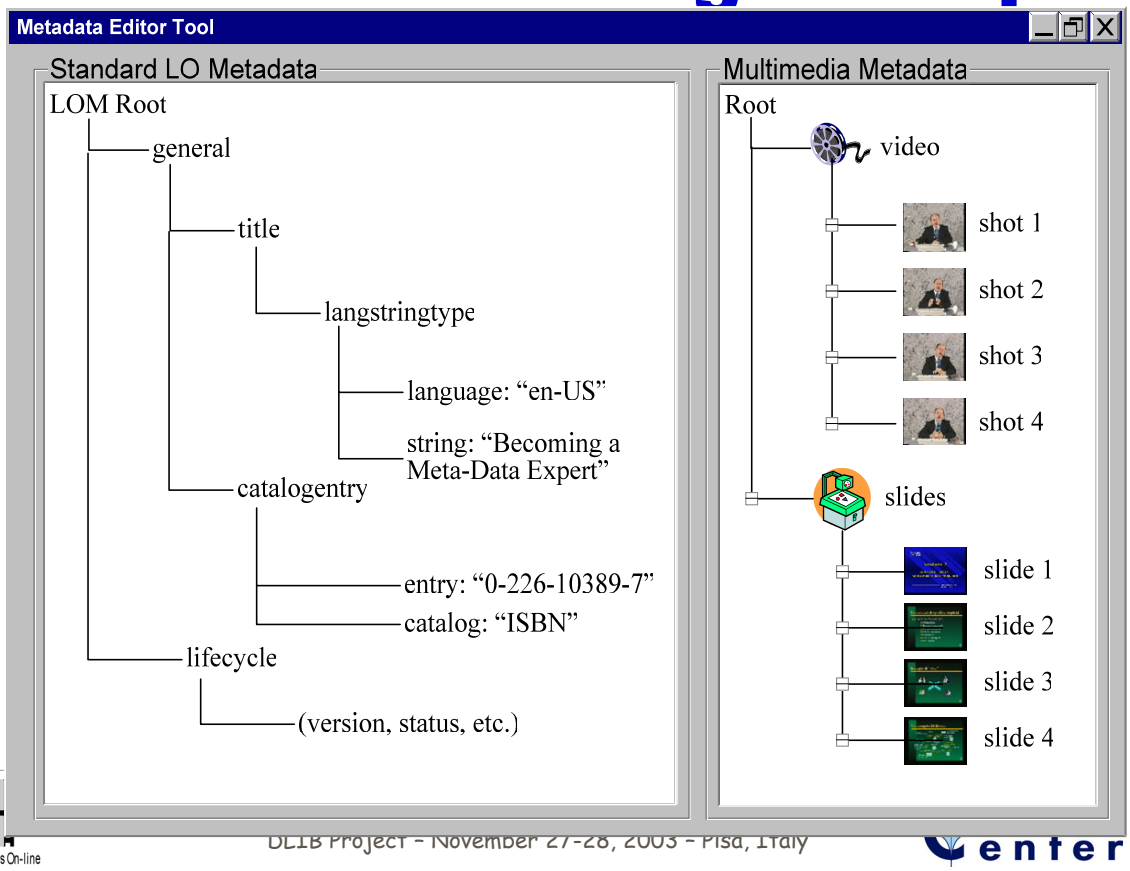
- Manual indexing of A/V documents
  - Introduction
  - IBM MPEG7 editor tool (demo)
  - Tecmath eample
  - The echo model (restricted version)
    - The echo Metadata editor
- Browsing the echo Metadata
  - Demonstration of an A/V Digital Library
- Echo Editor Architecture (?)
- Echo Editor demo

Editing Audio/Video metadata

Metadata classification

- Bibliographic
  - Title
  - Author
  - Collocation/Storage information
- Temporal/Spatial decomposition
  - Audio: noise, speech, etc.
  - Video: scenes, objects, etc.
  - Map: cities, rivers, etc.

eLearning Example

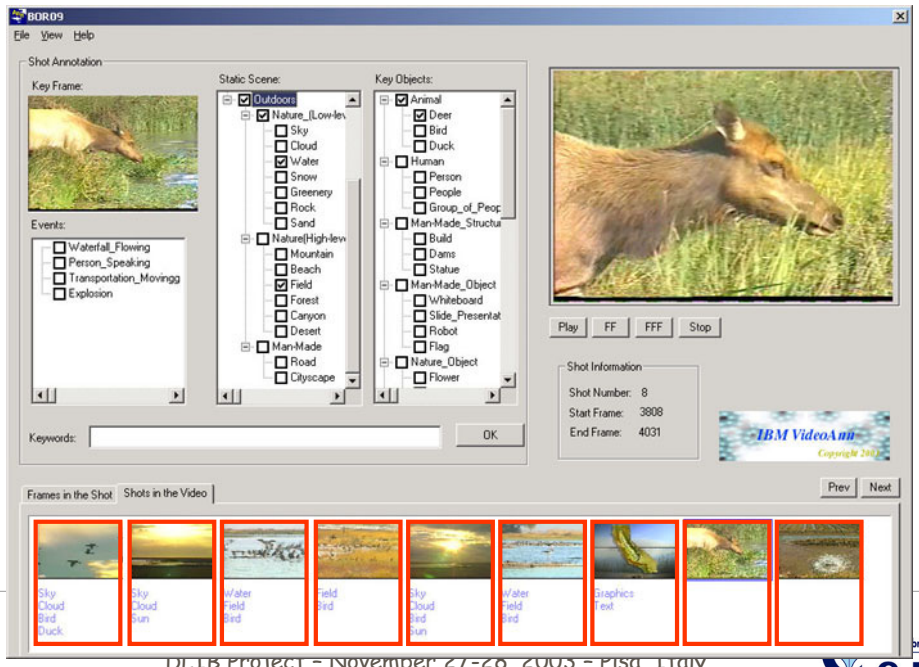


Video decomposition

- Mono-Dimensional: scenes
- Multi-Dimensional: stratum of scenes, of audio, of transcript, etc.
- Hierarchical: scenes, shots, etc.
- View based

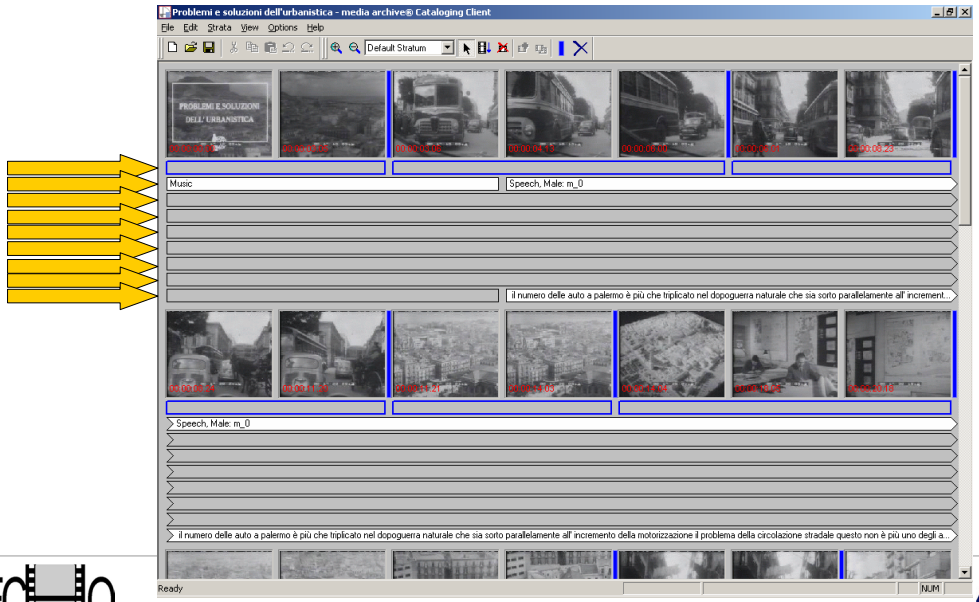
Segments representation

- Simple mono-dimensional



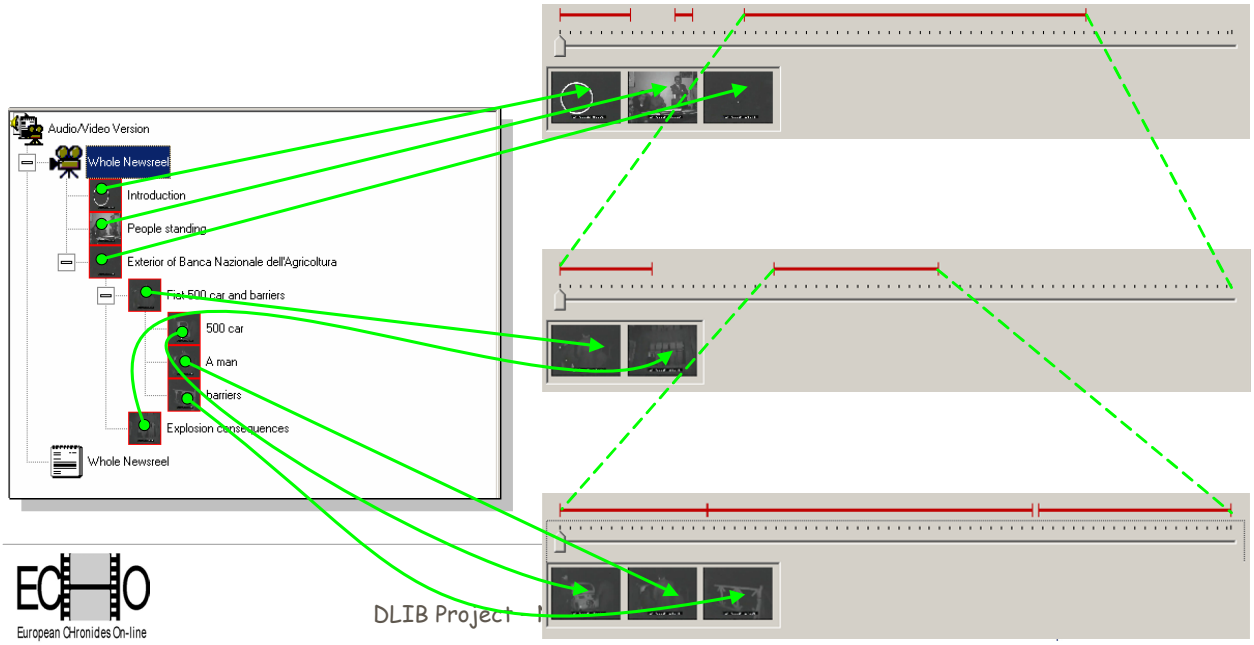
Segments representation(2)

- Multi-dimensional (strata)



Segments representation(3)

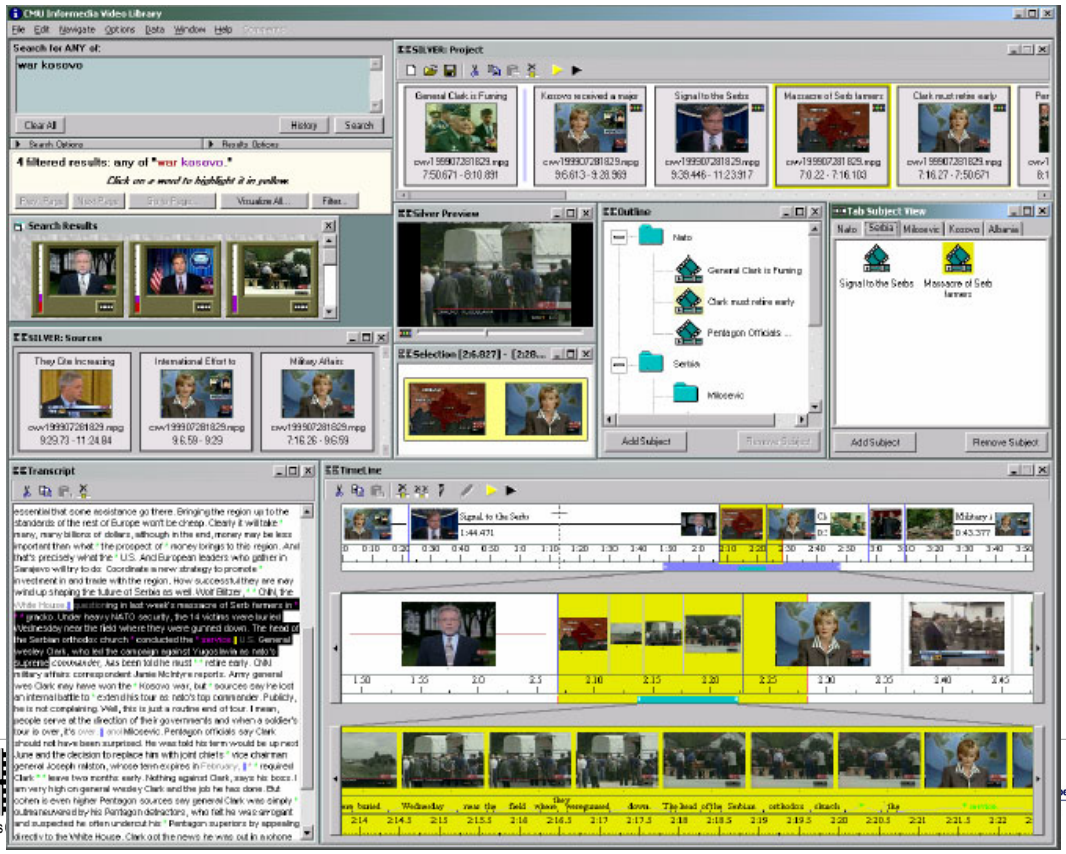
- Hierarchical



Importance of the analysis tools

- More sophisticate software can aid the cataloguers during the editing phase:
  - Intelligent tool of cut detection, which do not produce masses of scenes (tunable: camera movement, fade, etc.)
  - Face and object detection tools are very useful
  - Audio analysis and speech recognition

Silver tool user interface



Model or meta-model?

- Sometimes editing tools allow the user to modify the model
- IBM editor allows to modify the lexicon, or
- the tecmath editor allows to add/remove strata
- There must be a separate tool for maintaining the metadata model
  - Confusion
  - Inconsistence, adaptation of other interface (eg., the retrieval interface)

Usability

- This issue is very important in audio/video metadata editing tools
- Silver editor of the Informedia project of the Carnegie Mellon University faces this problem
- This tool is more a video editing tool rather than a metadata editor, however the problem faced are similar

VideoAnnEx Annotation Tool

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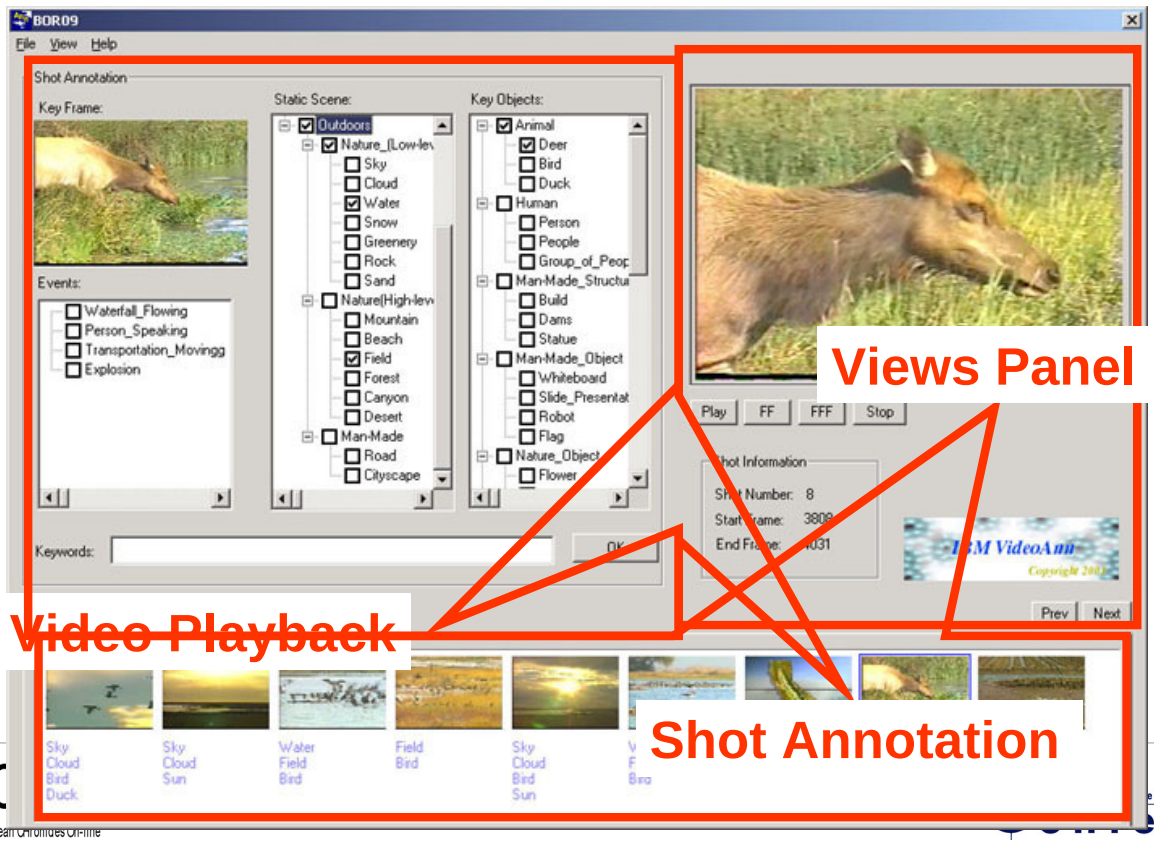
VideoAnnEx Annotation Tool

- The *VideoAnnEx* annotation tool assists authors in the task of annotating video sequences with MPEG-7 metadata.
- Each shot in the video sequence can be annotated with static scene descriptions, key object descriptions, event descriptions, and other lexicon sets.
- The annotated descriptions are associated with each video shot and are stored as MPEG-7 descriptions in an output XML file.
- The annotation tool also allows customized lexicons to be created, saved, downloaded, and updated.

Graphical User Interface

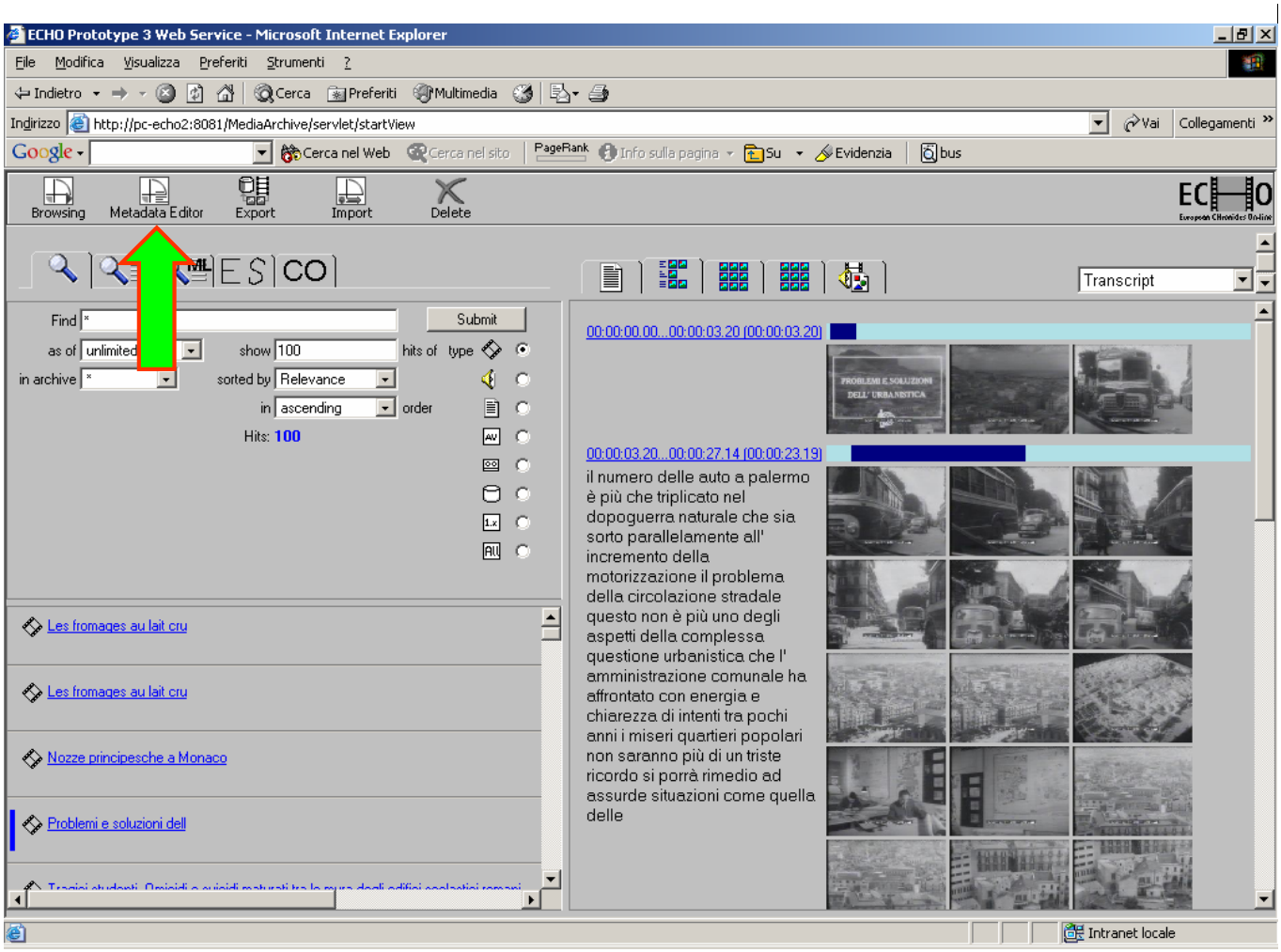


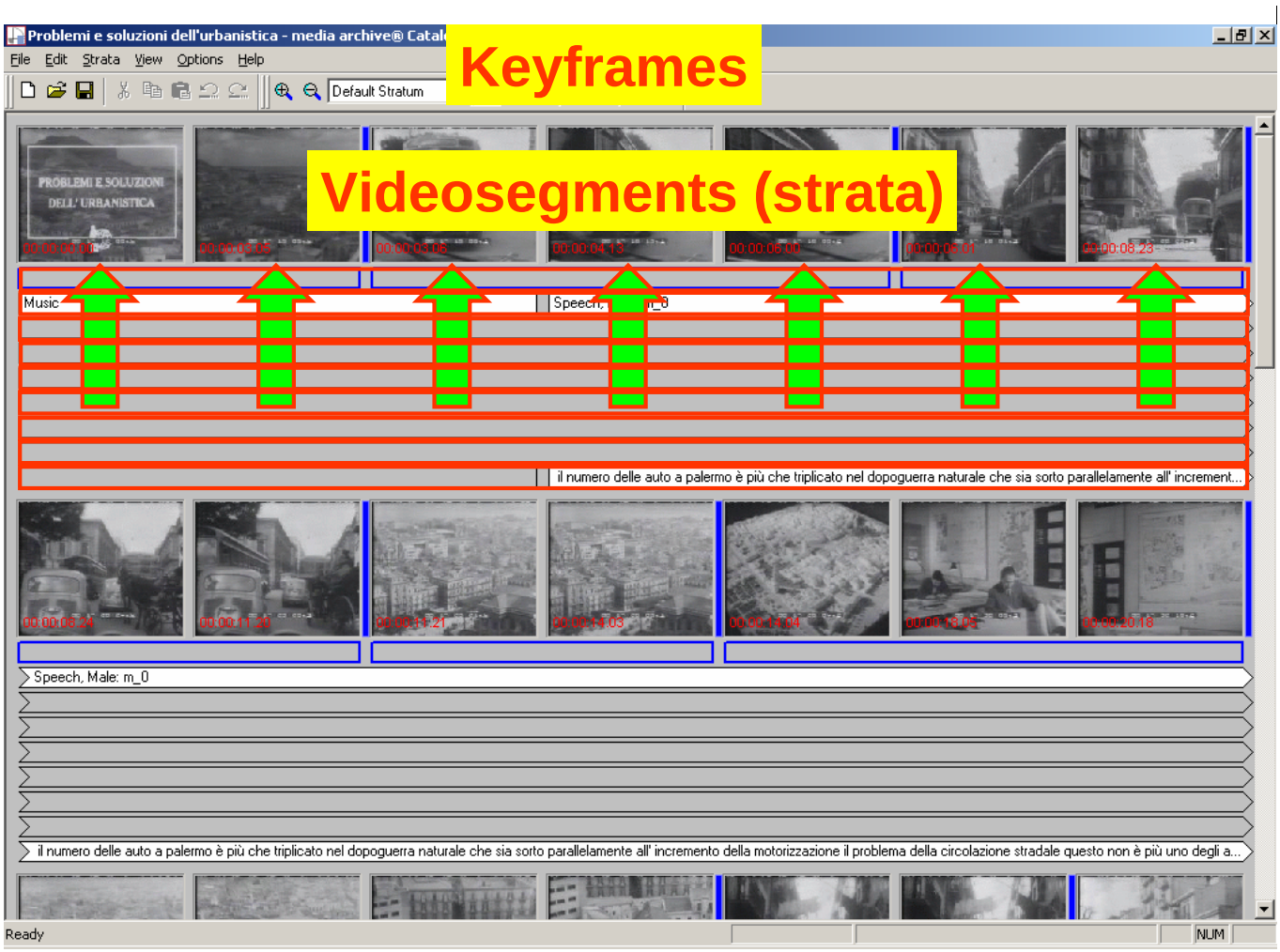
Download site

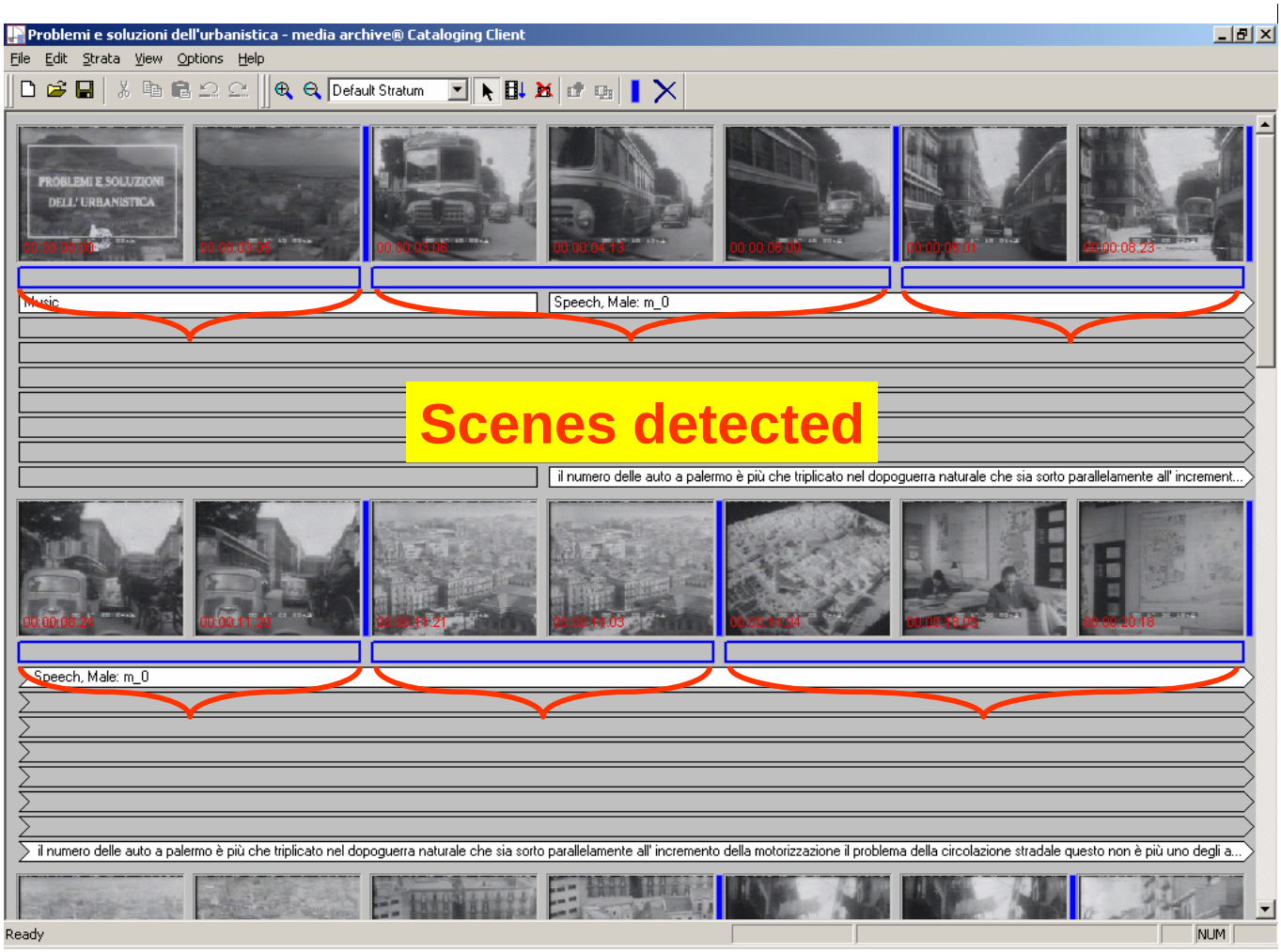
- http://www.research.ibm.com/VideoAnnEx/download.html

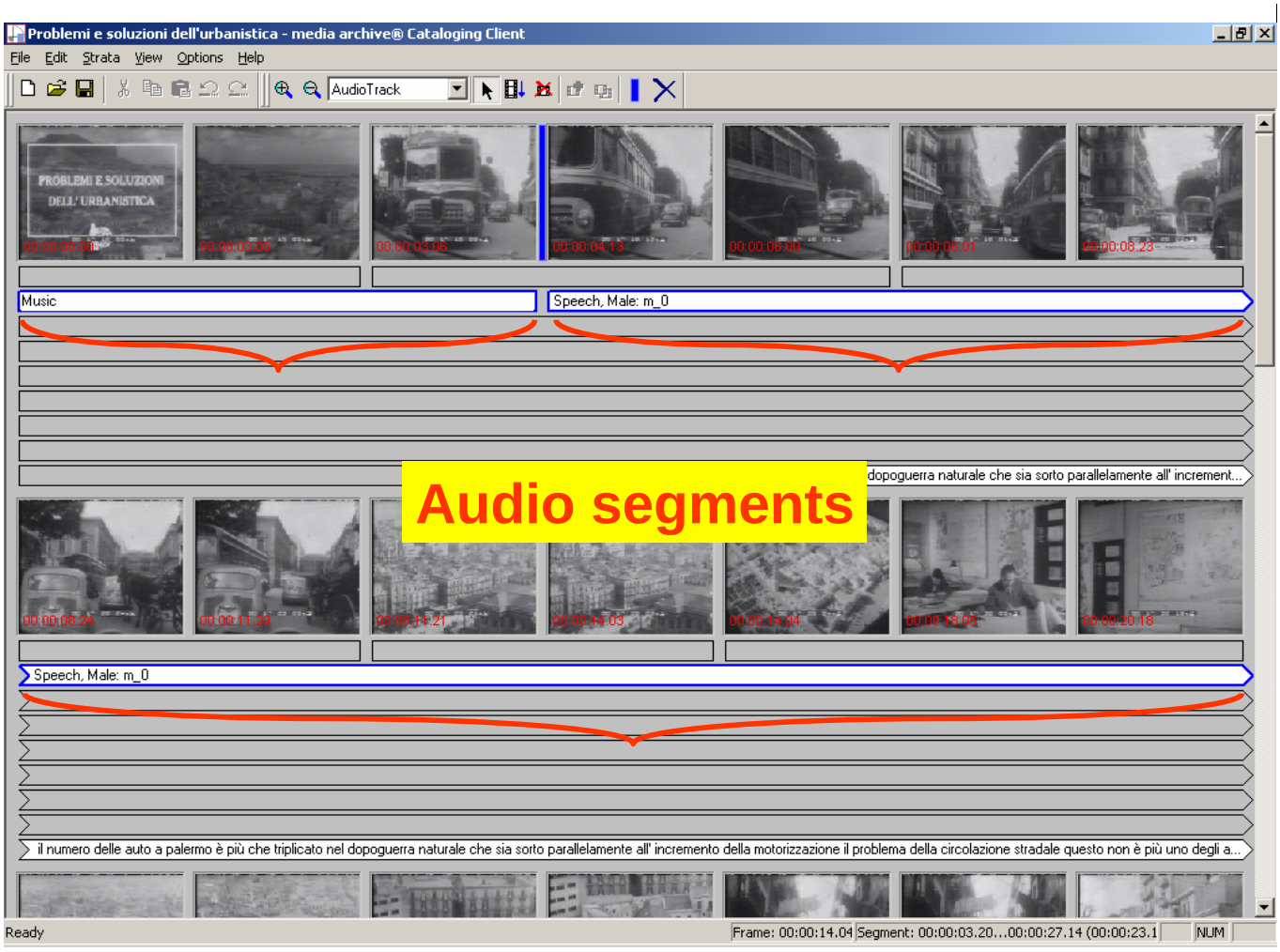
Editing metadata with the standard strata-based metadata editor of tecmath

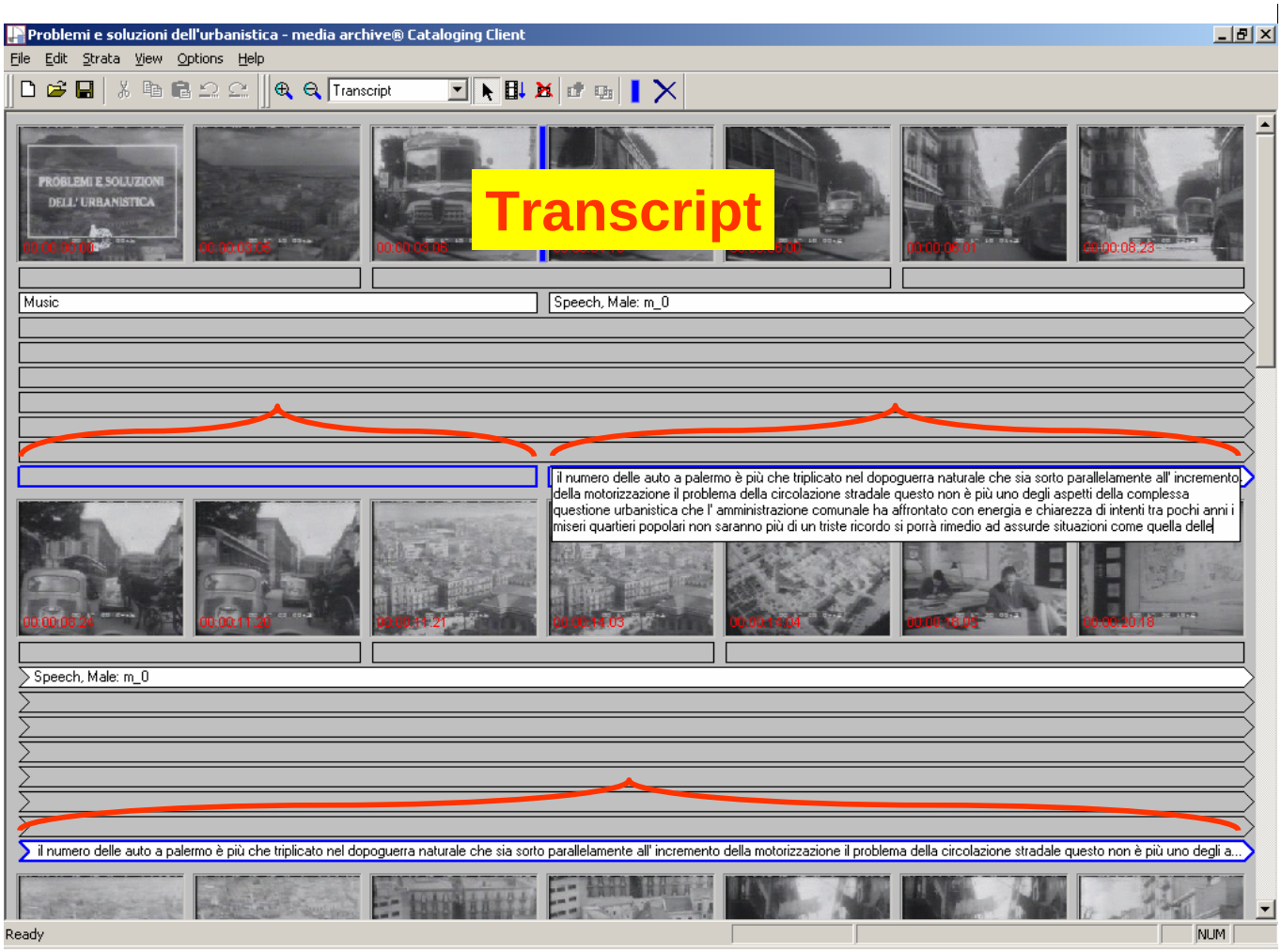
- It is the standard metadata editor provided with the retrieval interface of the tecmath commercial system.

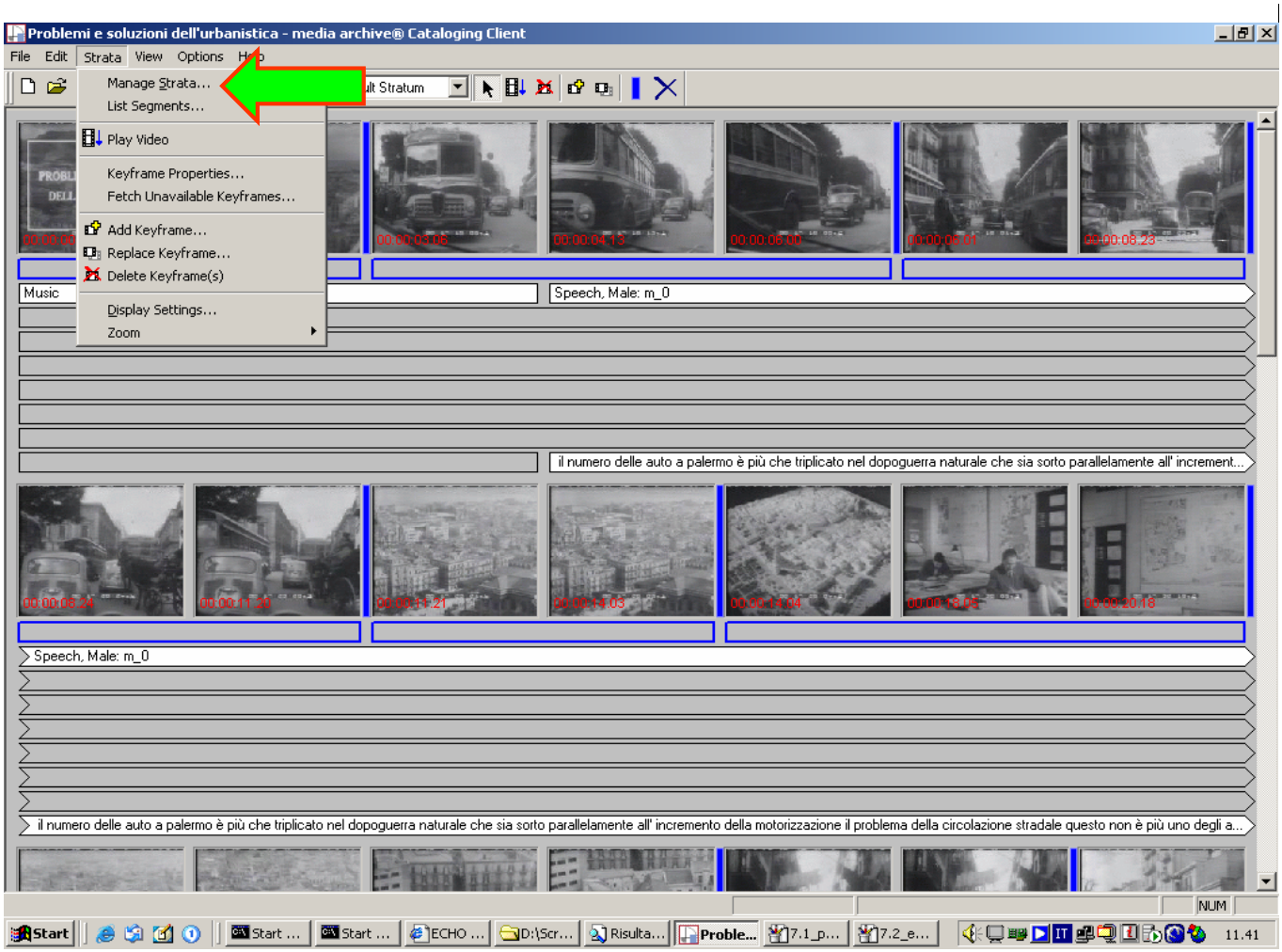

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia bus
Browsing
Metadata Editor
Export
Import
Delete
ECHO
Find *
Submit
as of unlimited
show 100
hits of type
in archive *
sorted by Relevance
in ascending order
Hits: 100
Transcript
00:00:00.00...00:00:03.20 (00:00:03.20)
00:00:03.20...00:00:27.14 (00:00:23.19)
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli aspetti della complessa questione urbanistica che l' amministrazione comunale ha affrontato con energia e chiarezza di intenti tra pochi anni i miseri quartieri popolari non saranno più di un triste ricordo si porrà rimedio ad assurde situazioni come quella delle
Les fromages au lait cru
Les fromages au lait cru
Nozze principesche a Monaco
Problemi e soluzioni dell
Intranet locale

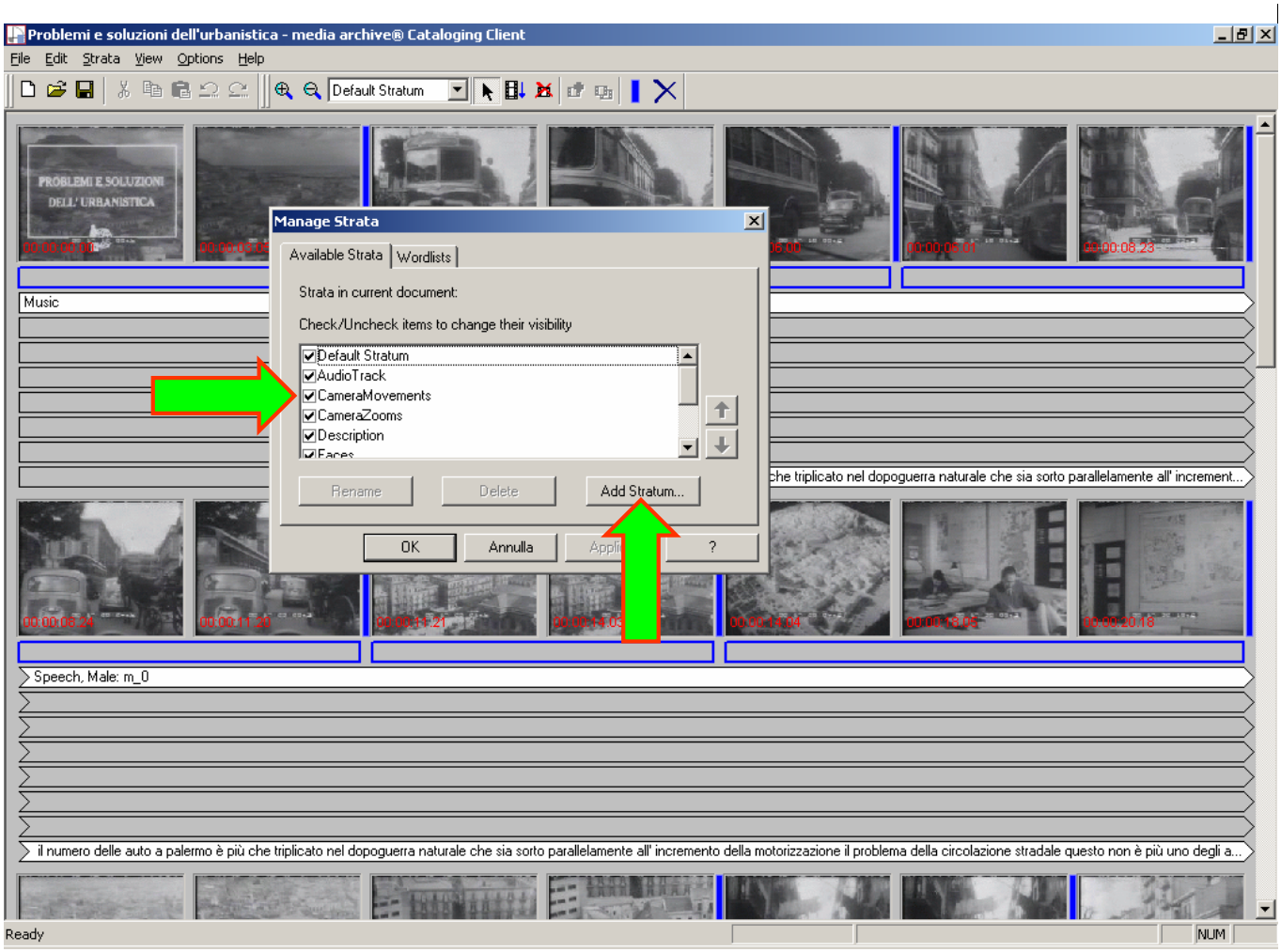

Problemi e soluzioni dell'urbanistica - media archive® Catal
File Edit Strata View Options Help
Default Stratum
Keyframes
Videosegments (strata)
Music
Speech, m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' increment...
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM

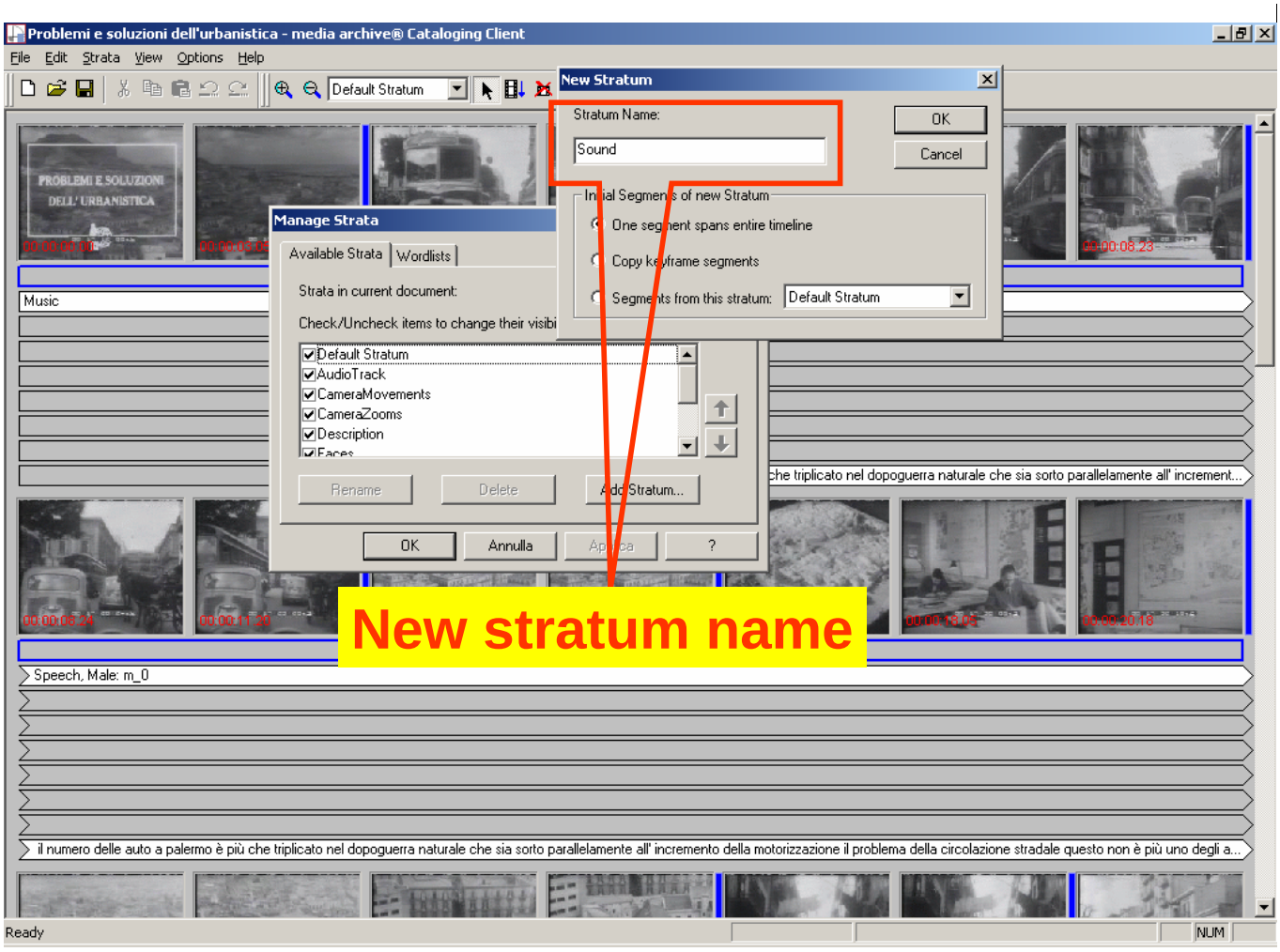

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Default Stratum
Music
Speech, Male: m_0
Scenes detected
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' increment...
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM

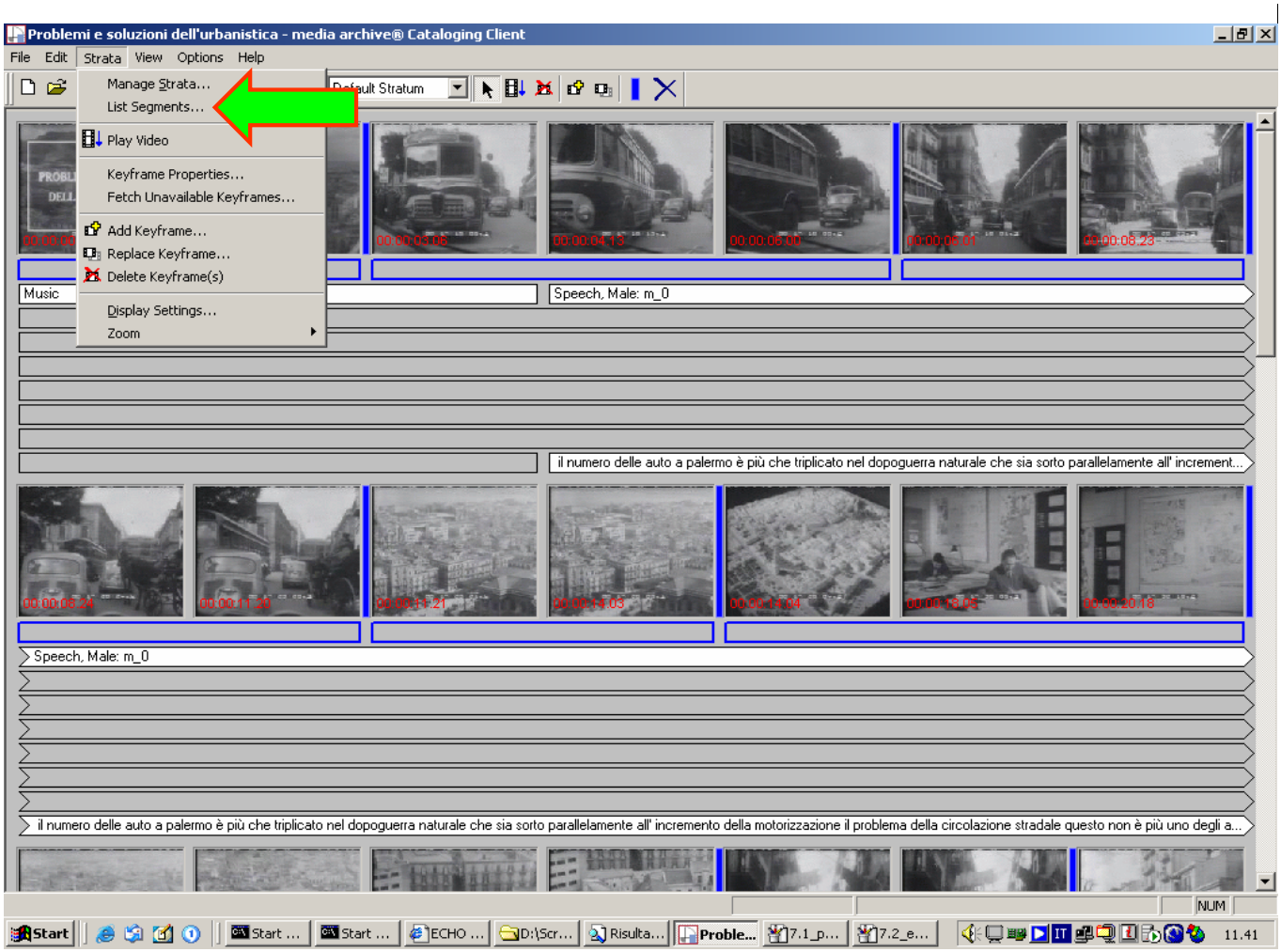

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
AudioTrack
Music
Speech, Male: m_0
dopoguerra naturale che sia sorto parallelamente all' increment...
Audio segments
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
Frame: 00:00:14.04
Segment: 00:00:03.20...00:00:27.14 (00:00:23.1
NUM

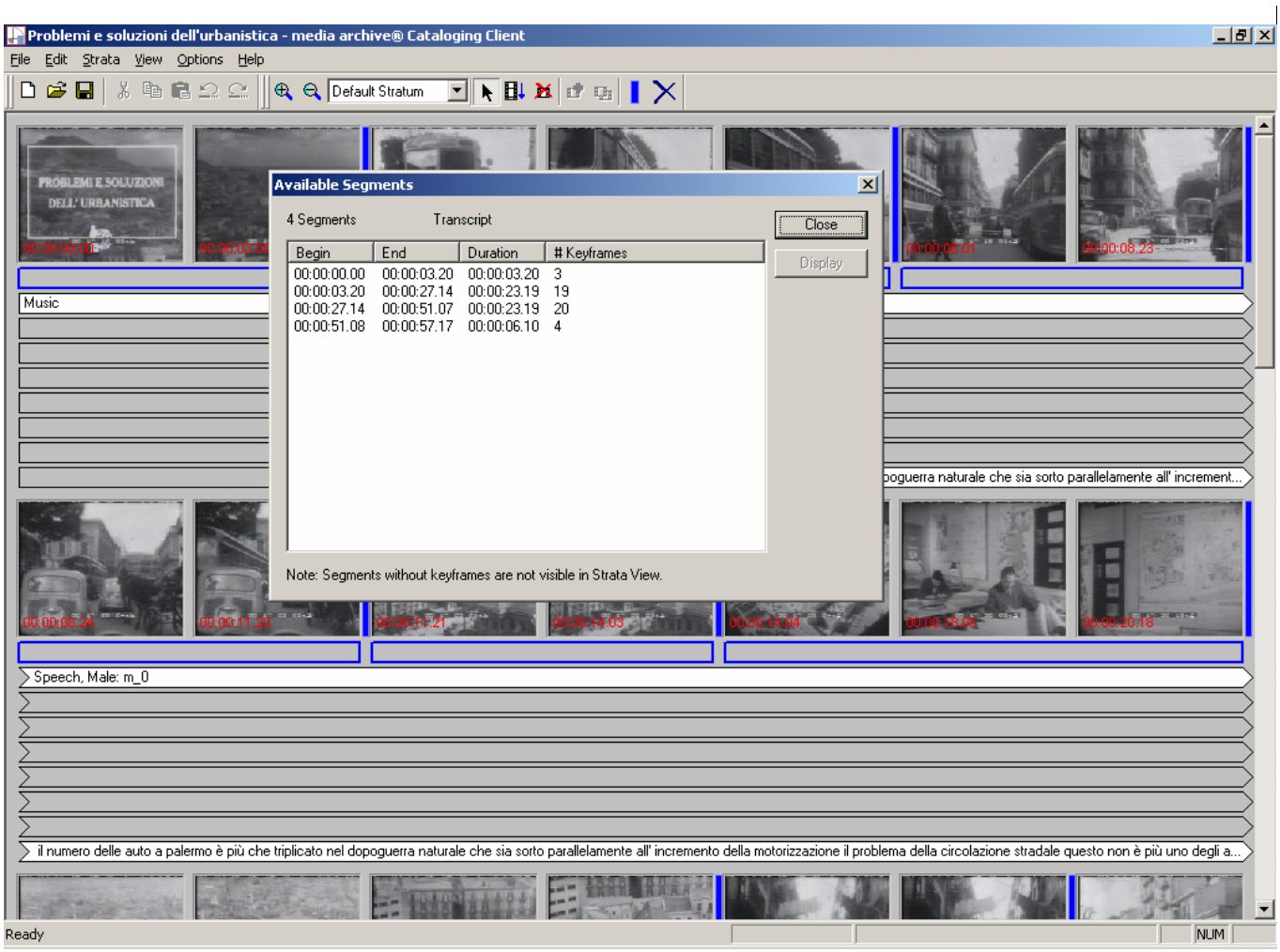

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Transcript
Transcript
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli aspetti della complessa questione urbanistica che l' amministrazione comunale ha affrontato con energia e chiarezza di intenti tra pochi anni i miseri quartieri popolari non saranno più di un triste ricordo si porrà rimedio ad assurde situazioni come quella delle
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM

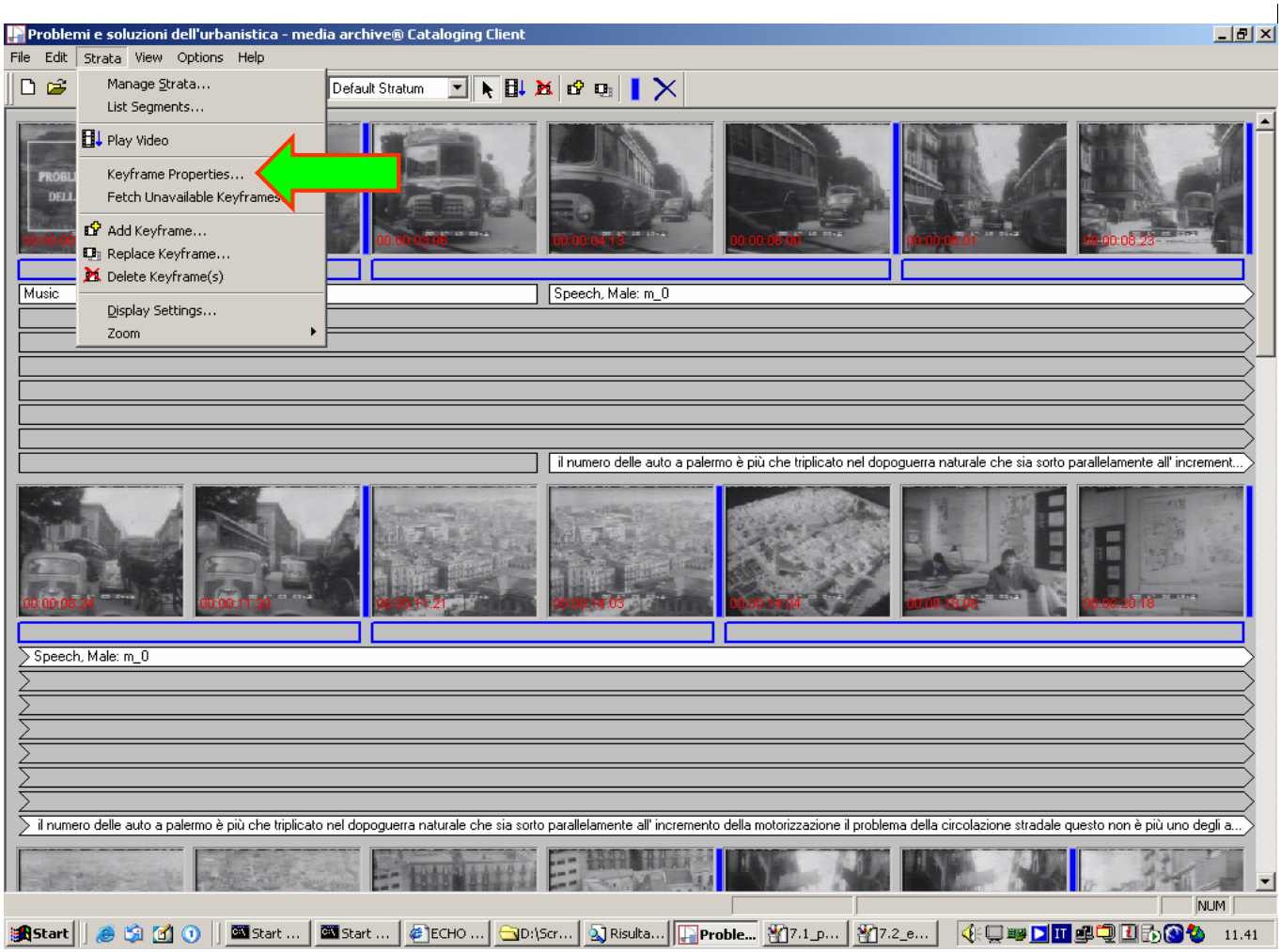

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Manage Strata...
List Segments...
Play Video
Keyframe Properties...
Fetch Unavailable Keyframes...
Add Keyframe...
Replace Keyframe...
Delete Keyframe(s)
Display Settings...
Zoom
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' increment...
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
NUM
Start
11.41

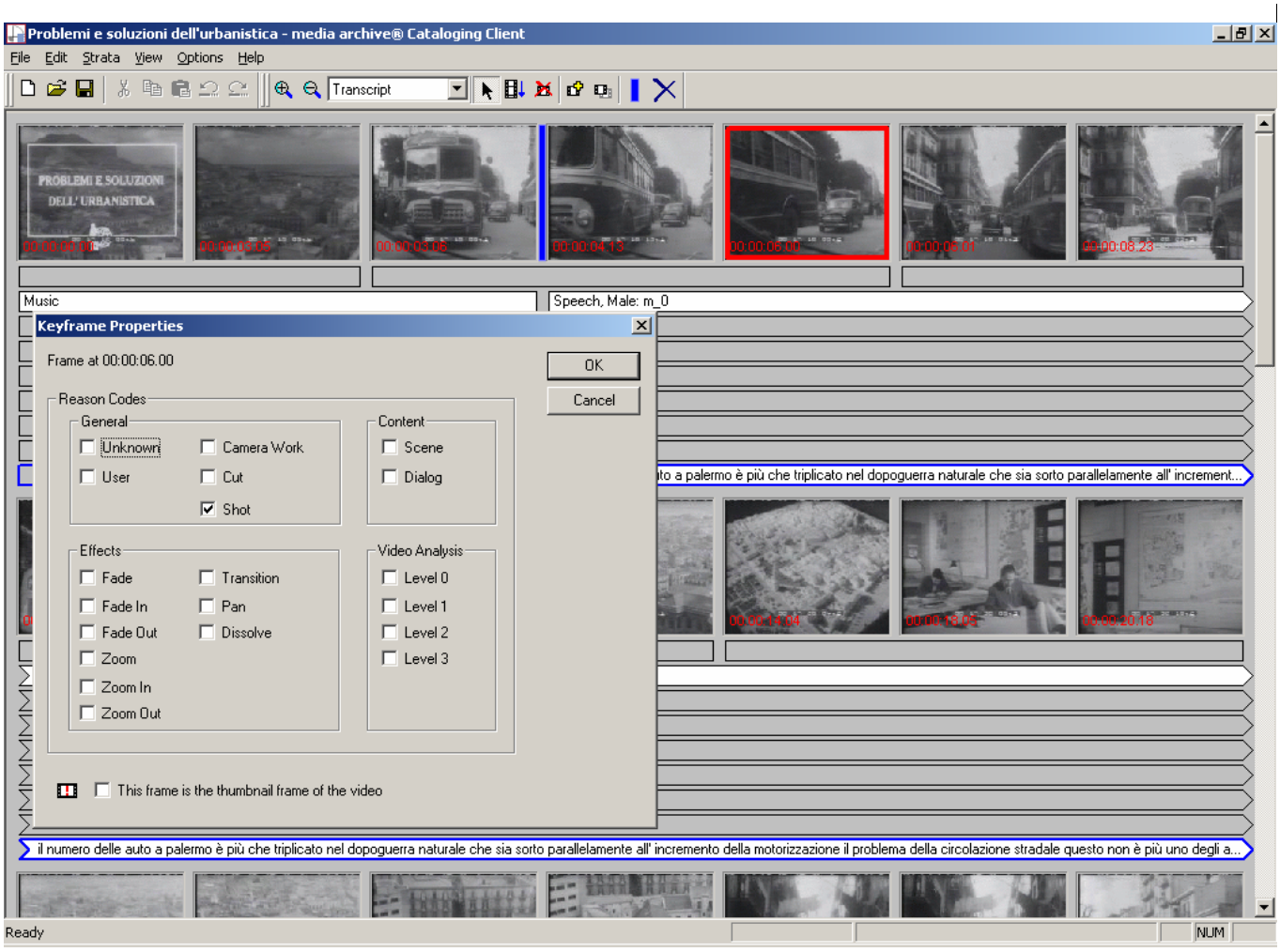

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Default Stratum
Manage Strata
Available Strata
Wordlists
Strata in current document:
Check/Uncheck items to change their visibility
Default Stratum
AudioTrack
CameraMovements
CameraZooms
Description
Faces
Rename
Delete
Add Stratum...
OK
Annulla
?
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM

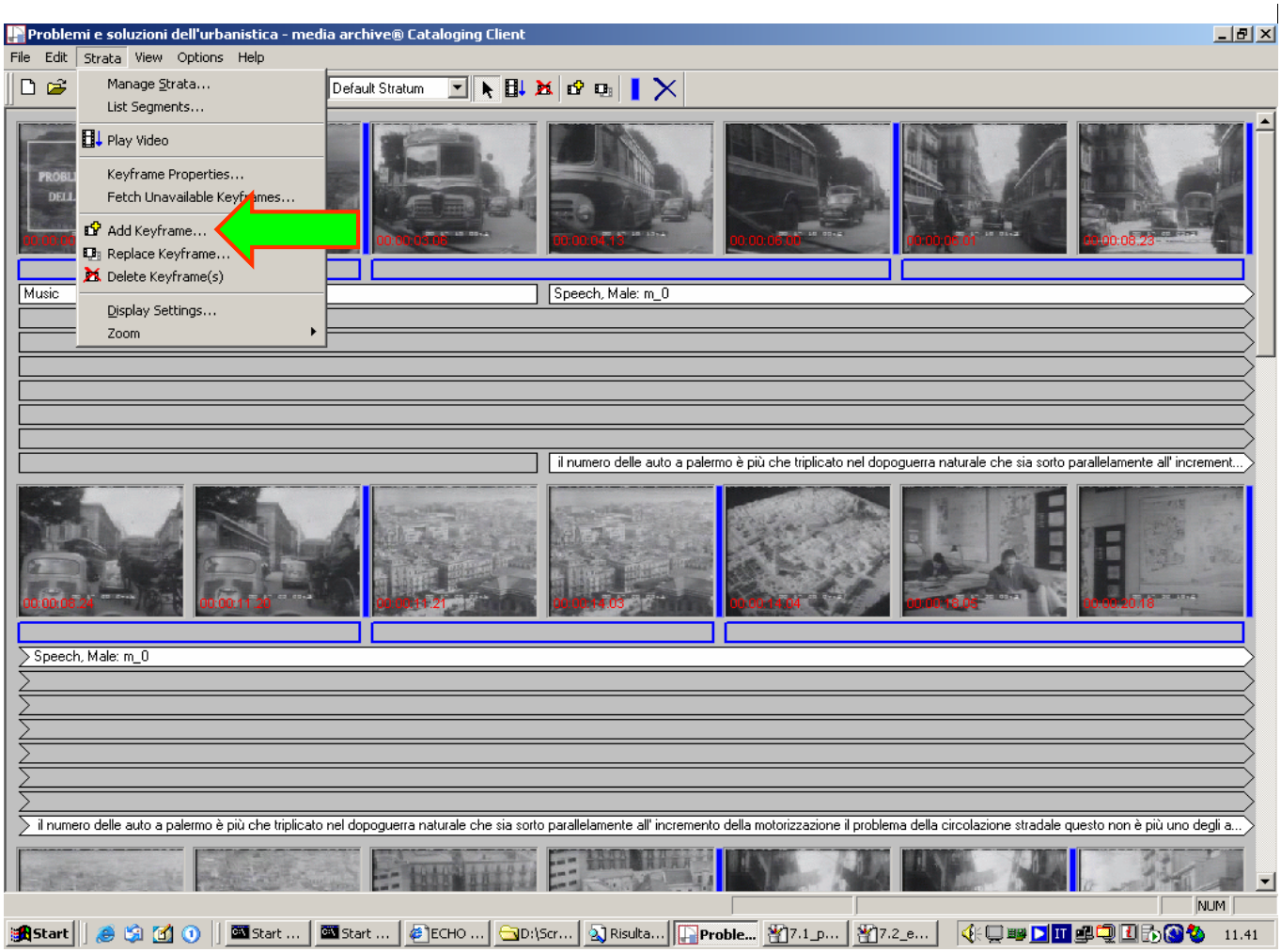

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Default Stratum
New Stratum
Stratum Name:
Sound
OK
Cancel
Initial Segments of new Stratum
One segment spans entire timeline
Copy keyframe segments
Segments from this stratum:
Default Stratum
Manage Strata
Available Strata
Wordlists
Strata in current document:
Default Stratum
AudioTrack
CameraMovements
CameraZooms
Description
Faces
Rename
Delete
Add Stratum...
OK
Annulla
?
New stratum name
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM

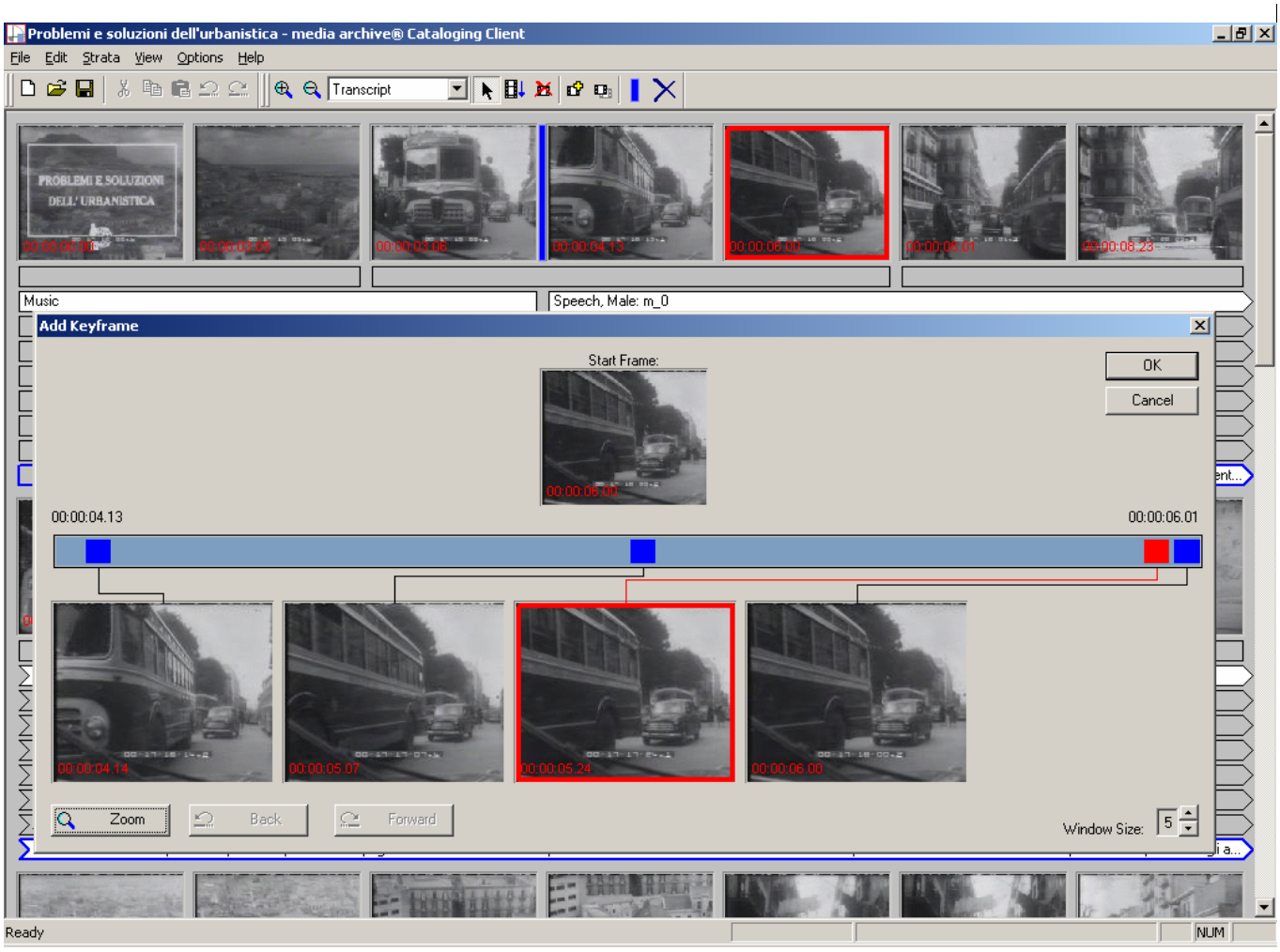

Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Manage Strata...
List Segments...
Play Video
Keyframe Properties...
Fetch Unavailable Keyframes...
Add Keyframe...
Replace Keyframe...
Delete Keyframe(s)
Display Settings...
Zoom
Default Stratum
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' increment...
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
NUM
Start
11.41


Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Default Stratum
Available Segments
4 Segments
Transcript
Close
Display
Begin End Duration # Keyframes
00:00:00.00 00:00:03.20 00:00:03.20 3
00:00:03.20 00:00:27.14 00:00:23.19 19
00:00:27.14 00:00:51.07 00:00:23.19 20
00:00:51.08 00:00:57.17 00:00:06.10 4
Note: Segments without keyframes are not visible in Strata View.
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM


Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Manage Strata...
List Segments...
Play Video
Keyframe Properties...
Fetch Unavailable Keyframes
Add Keyframe...
Replace Keyframe...
Delete Keyframe(s)
Display Settings...
Zoom
Default Stratum
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' increment...
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
NUM
Start
11.41


Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Transcript
Music
Speech, Male: m_0
Keyframe Properties
Frame at 00:00:06.00
OK
Cancel
Reason Codes
General
Unknown
User
Camera Work
Cut
Shot
Content
Scene
Dialog
Effects
Fade
Fade In
Fade Out
Zoom
Zoom In
Zoom Out
Transition
Pan
Dissolve
Video Analysis
Level 0
Level 1
Level 2
Level 3
This frame is the thumbnail frame of the video
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Ready
NUM


Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Manage Strata...
List Segments...
Play Video
Keyframe Properties...
Fetch Unavailable Keyframes...
Add Keyframe...
Replace Keyframe...
Delete Keyframe(s)
Display Settings...
Zoom
Default Stratum
Music
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' increment...
Speech, Male: m_0
il numero delle auto a palermo è più che triplicato nel dopoguerra naturale che sia sorto parallelamente all' incremento della motorizzazione il problema della circolazione stradale questo non è più uno degli a...
Start
11.41


Problemi e soluzioni dell'urbanistica - media archive® Cataloging Client
File Edit Strata View Options Help
Transcript
PROBLEMI E SOLUZIONI DELL' URBANISTICA
Music
Speech, Male: m_0
Add Keyframe
Start Frame:
OK
Cancel
00:00:04.13
00:00:06.01
Zoom
Back
Forward
Window Size:
5
Ready
NUM

Editing text associated with detected scenes

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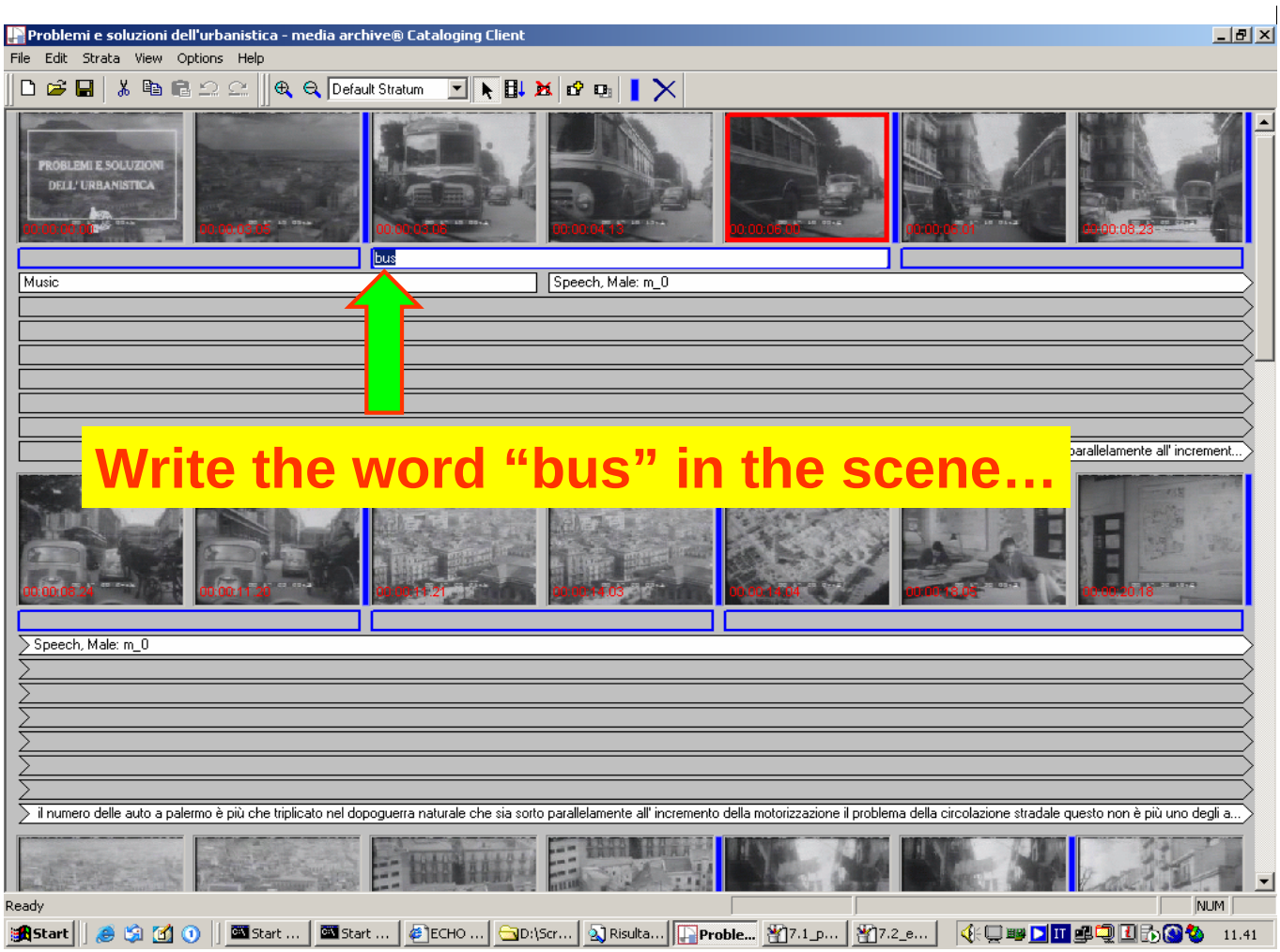
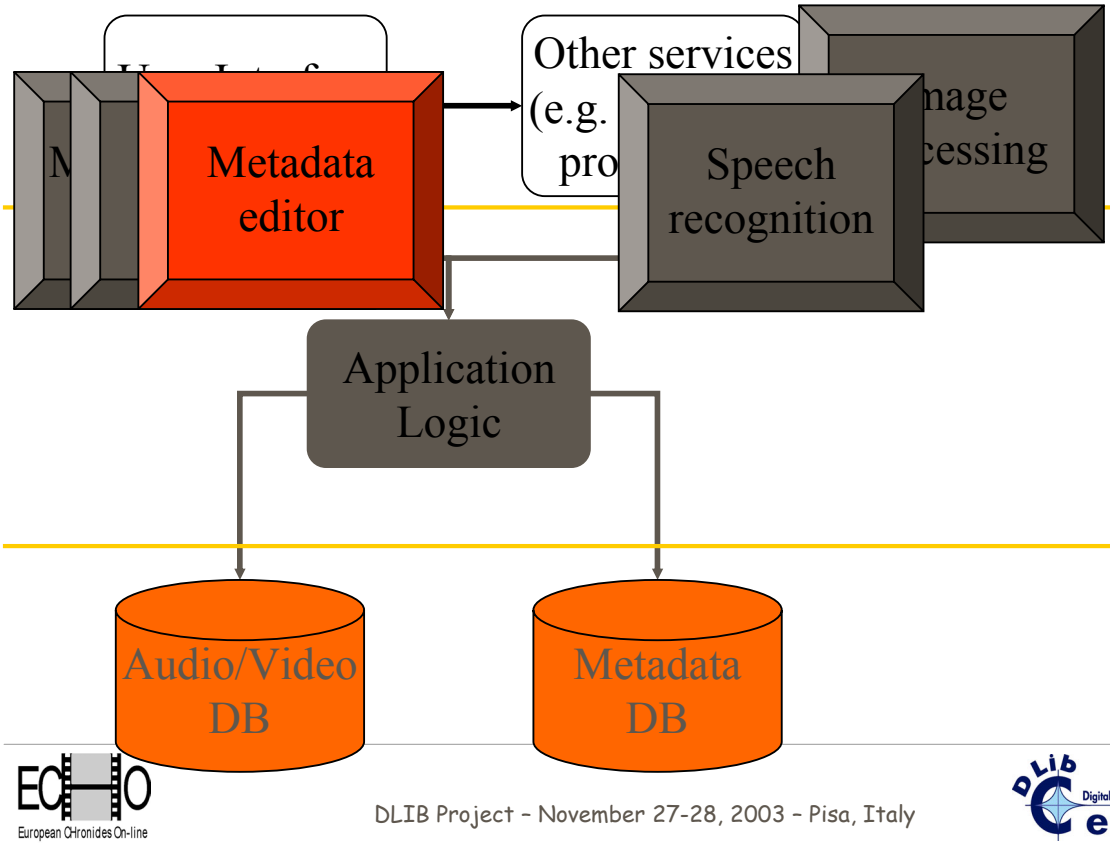


The Echo project example

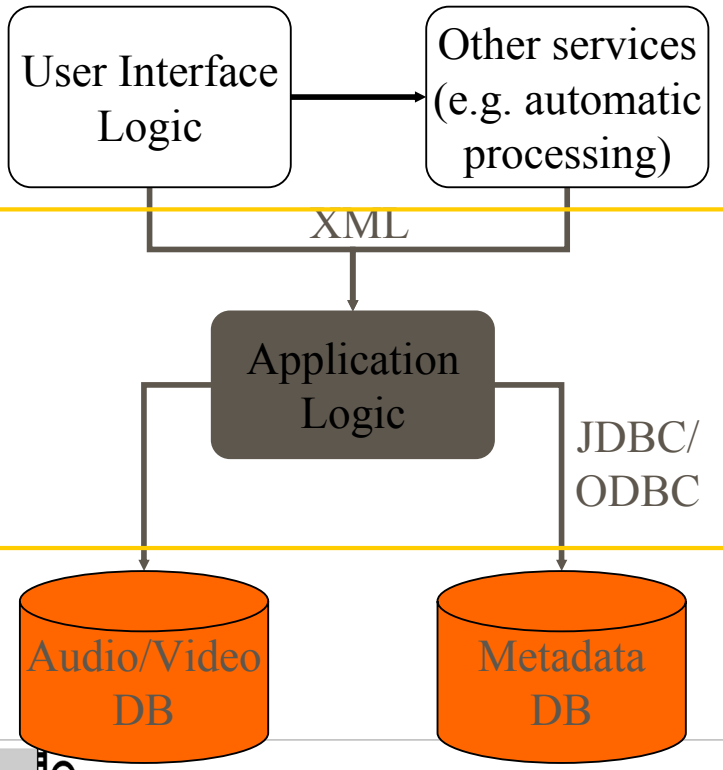
Motivations

- This model originated from our experience in the **ECHO** project (**E**uropean **CH**ronicle **O**n-line)
  - ECHO is an EC funded **IST** project
  - ECHO aims at providing
    - remote access to collection of **historical documentary** audio-video resources
    - a software infrastructure to support digital video archives
    - an extensible and interoperable architecture

The system architecture



Work flow example:

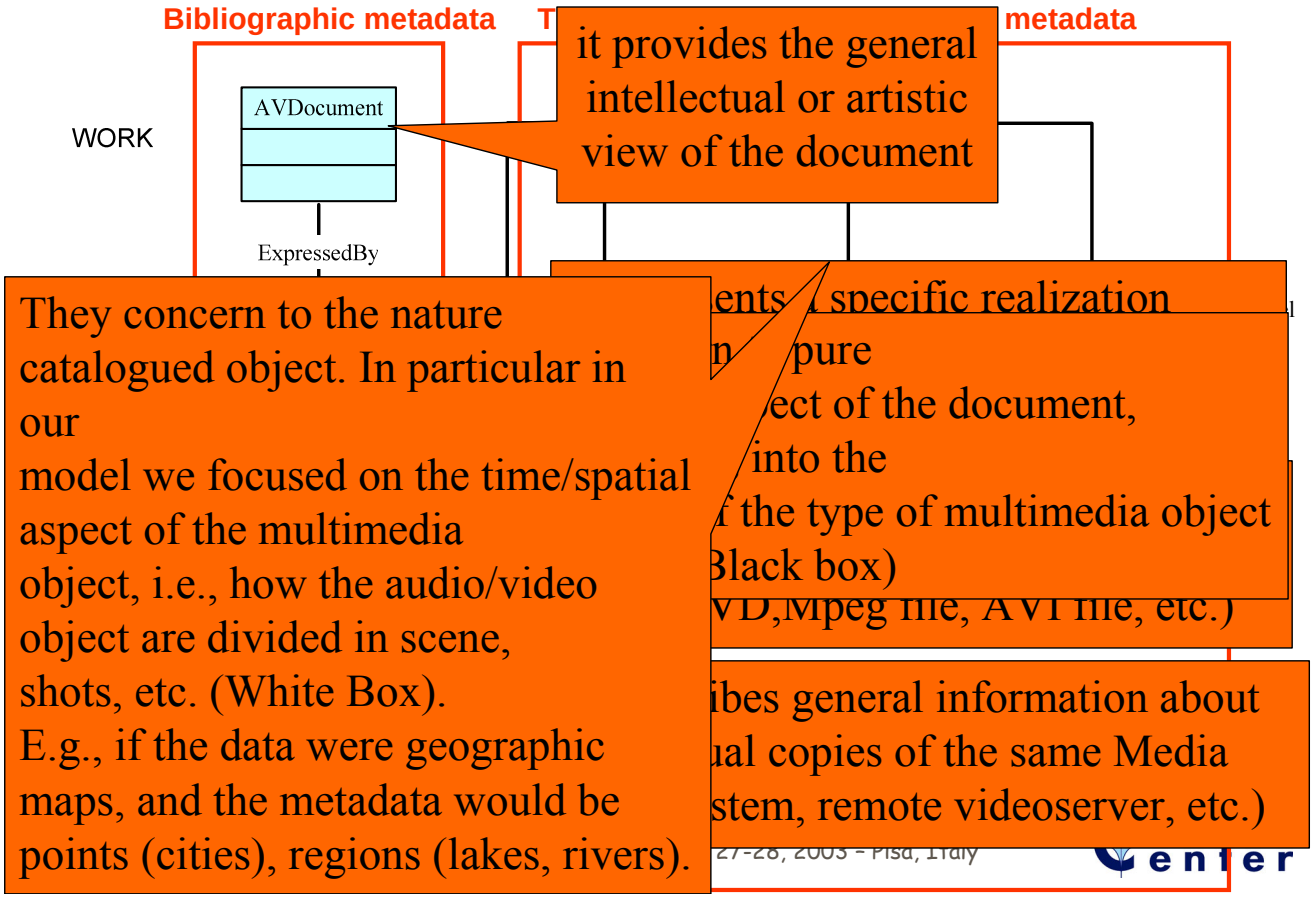


Typical three-tier architecture

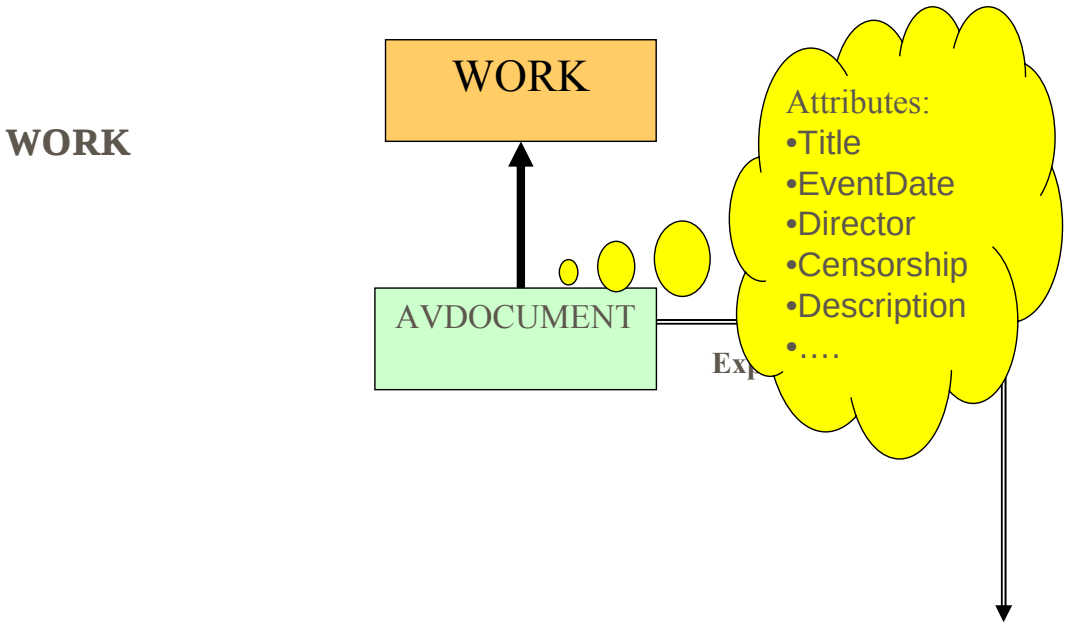
The approach

- The metadata model uses and extends the IFLA-FRBR methodology:
  - Entities that describe different aspect of a resource
    - WORK
    - EXPRESSION
    - MANIFESTATION
    - ITEM

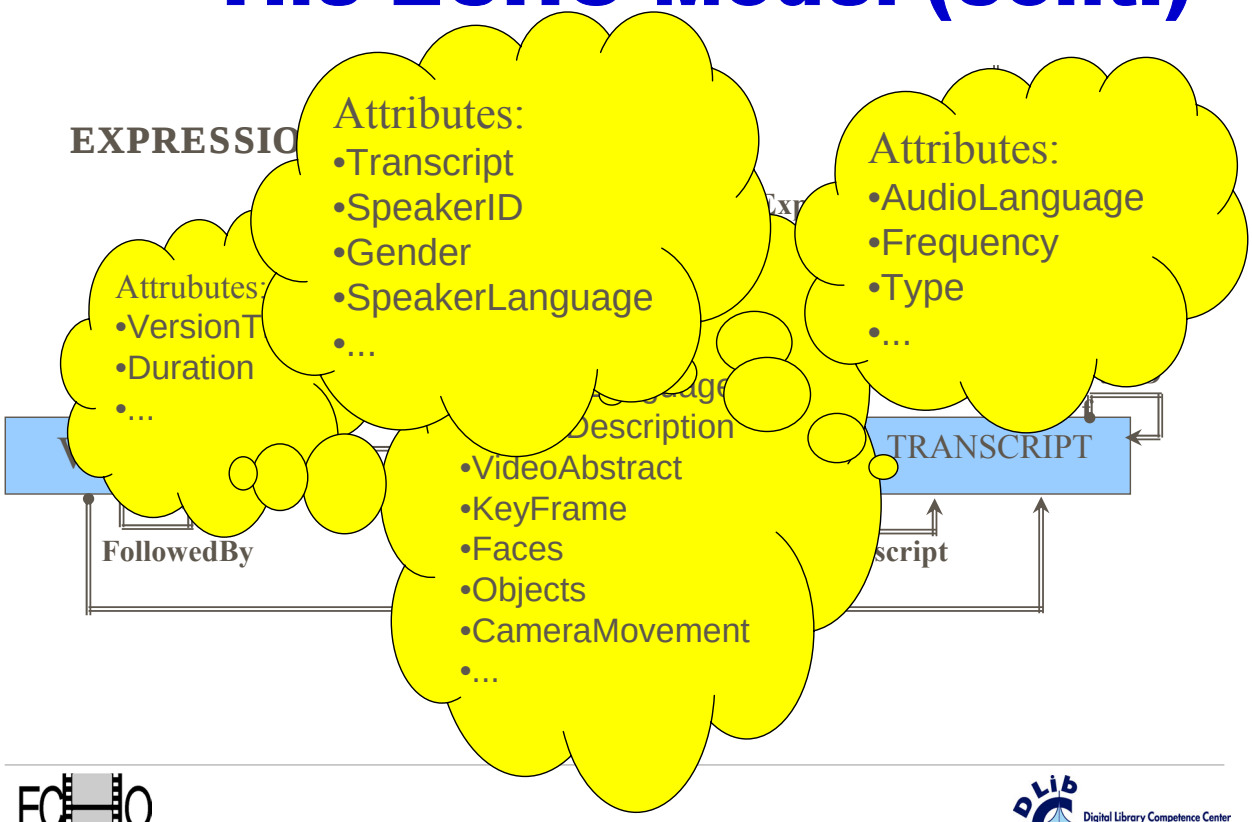
The metadata model



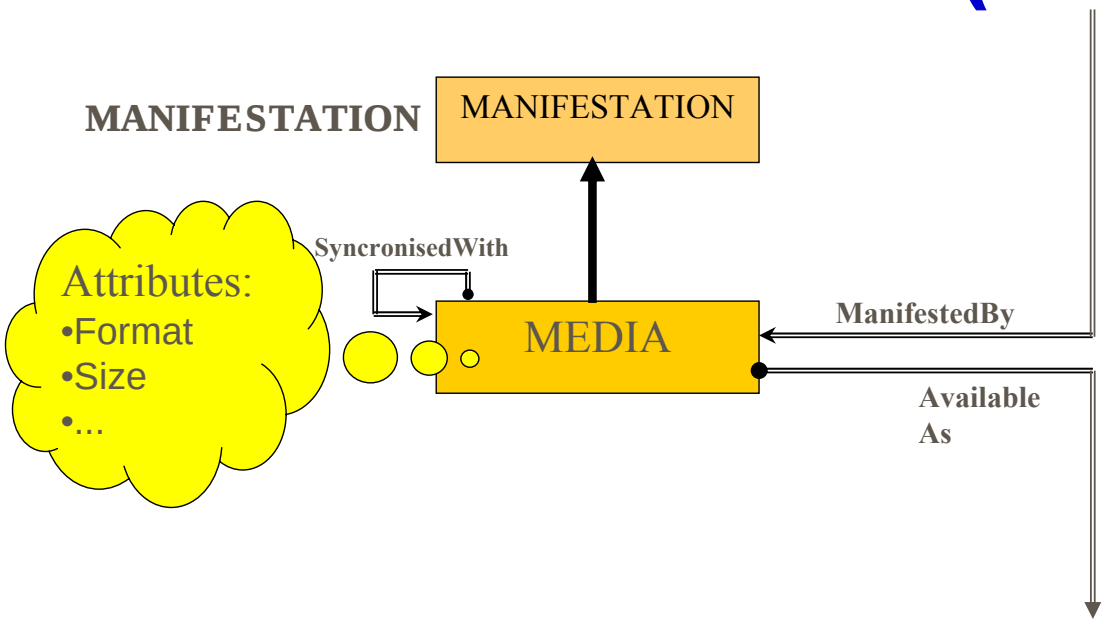
The ECHO Model



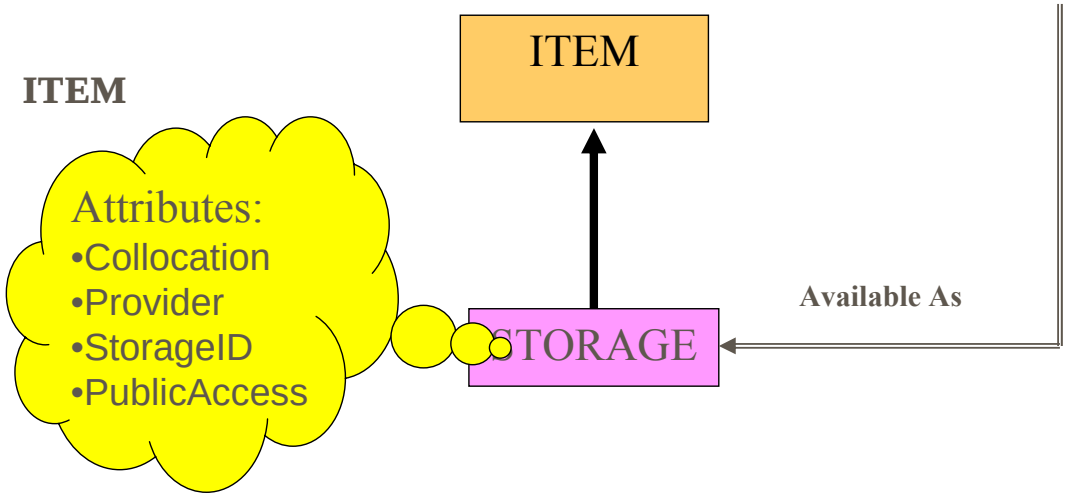
The ECHO Model (cont.)



The ECHO Model (cont.)



The ECHO Model (cont.)



Regia: A Metadata Editor for A/V Digital Libraries

How the AVDocument is stored

- Each instance of the entities (objects) are stored in an individual xml file in the disk or in the database

Terminology: *The GUID*

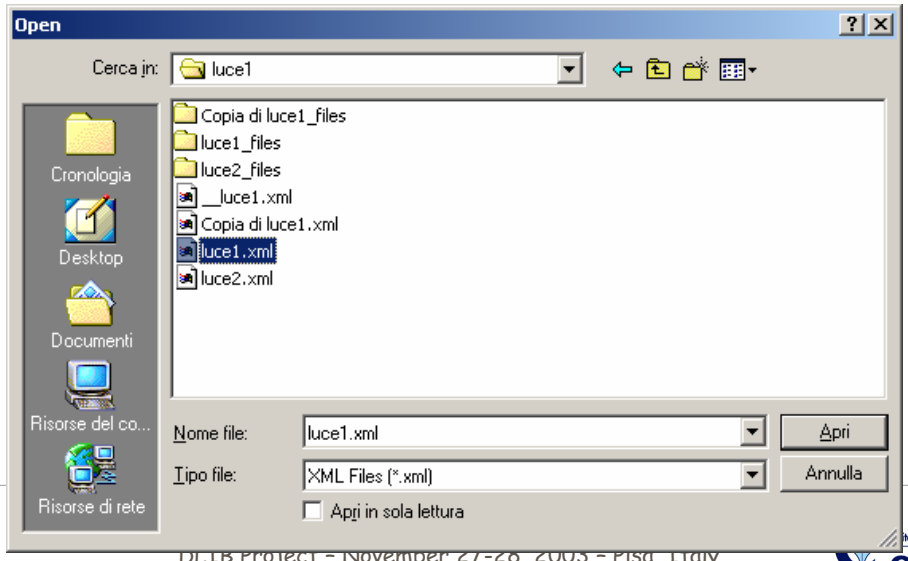
- GUID: is a unique identifier of a object of the model. However the type of GUID chages.
- When the object documents are stored in the disk (FileSystem) the GUID is the complete path filename of the XML document representing the object.
- When the object is stored in the Database it is the URN of the document.

Terminology: The AVDocument

Throughout this presentation 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”.

Opening a AVDocument from the filesystem

- menu File→Open and browse and select a root xml file of the AVDocument



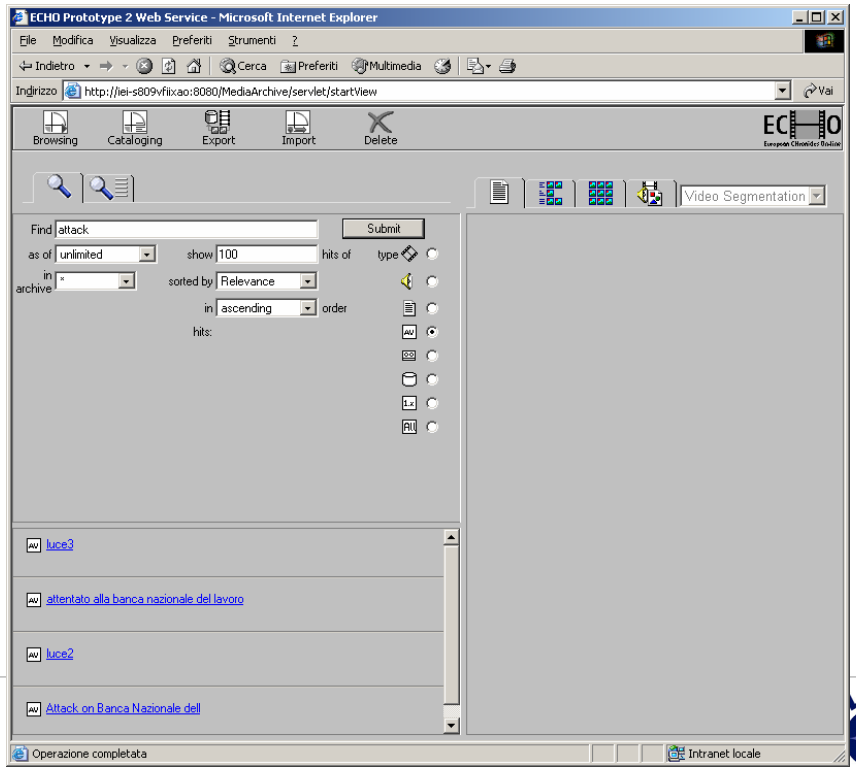
Opening a AVDocument from the filesystem (2)

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

Opening a document from the Database

- On the ECHO retrieval interface click on the title of one of the AVDocuments retrieved

Opening a document from the Database



European CHronicles On-line

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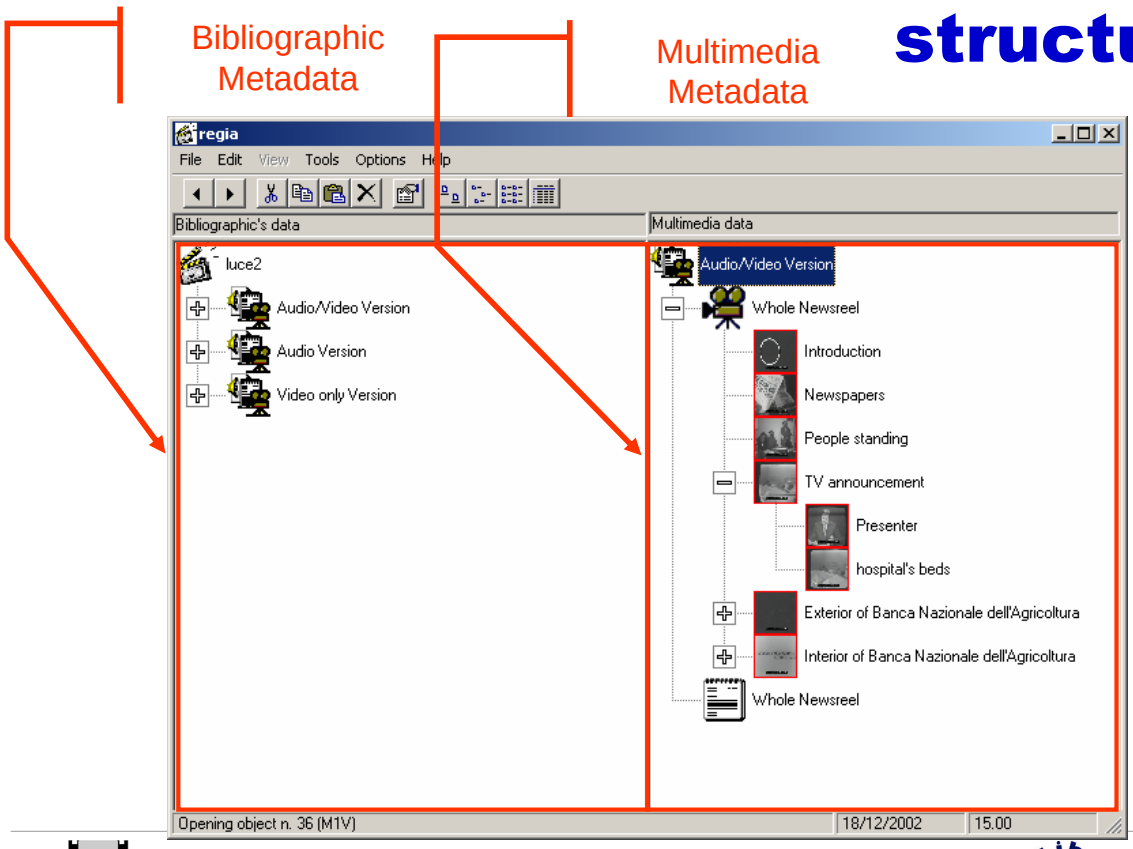
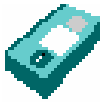
The editor main window structure

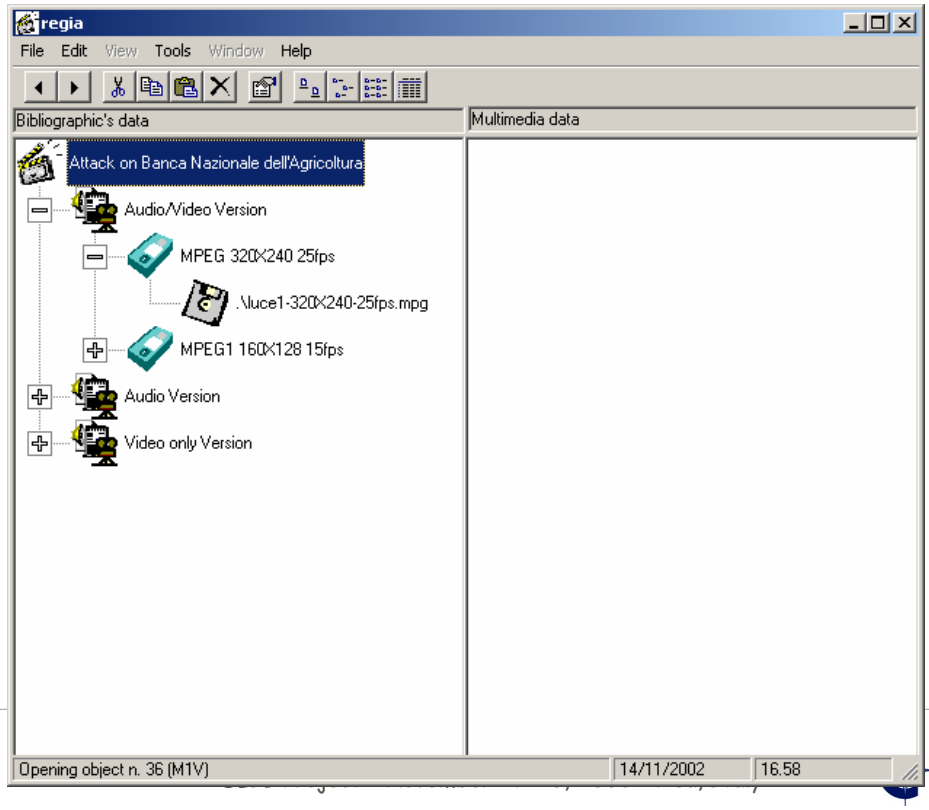


Browsing/Editing the Bibliographic section AVDocument

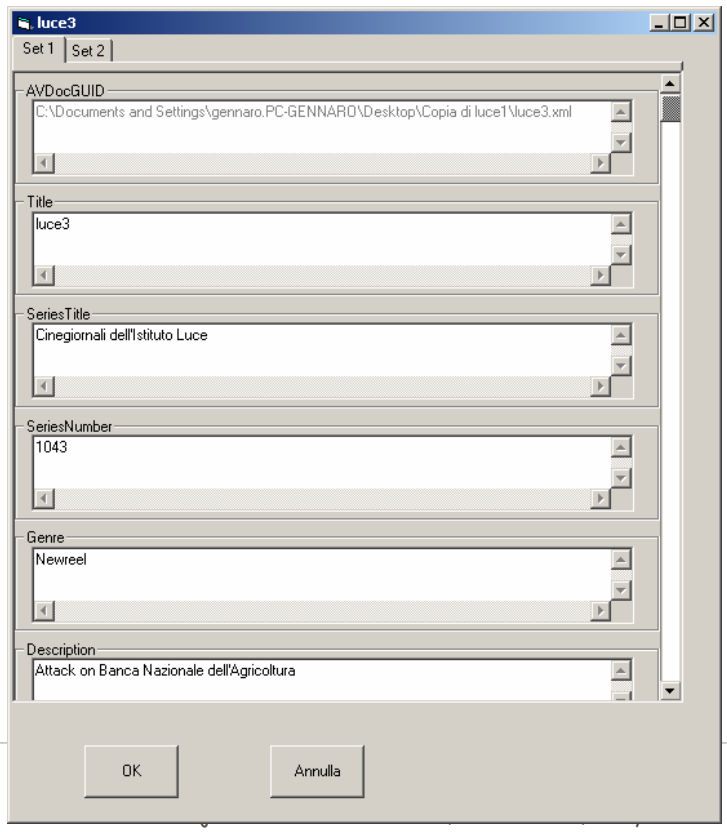
Each entity us associated to a different icon:

- Root of the AVDocument 
- Version 
- Media 
- Storage 

The bibliographic metadata structure



Editing the metadata

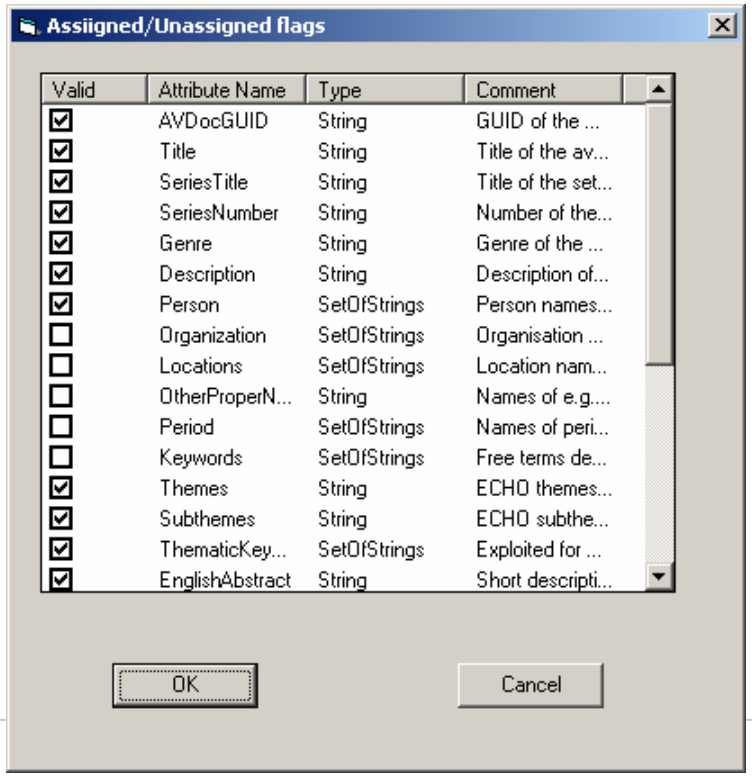


Unassingned and Assingned fields

Some type of metadata fields do not have null values:

- Boolean (true/false)
- Date
- Closed Lists

Unassingned and Assingned fields



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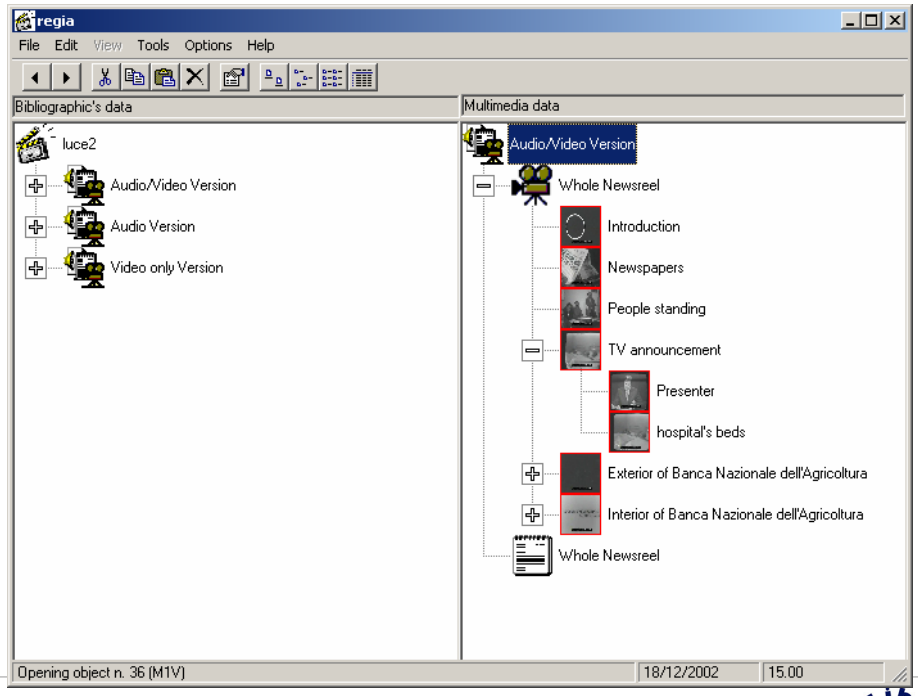
Delete/Add objects

- ***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.
- ***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.

Multimedia section of AVDocument



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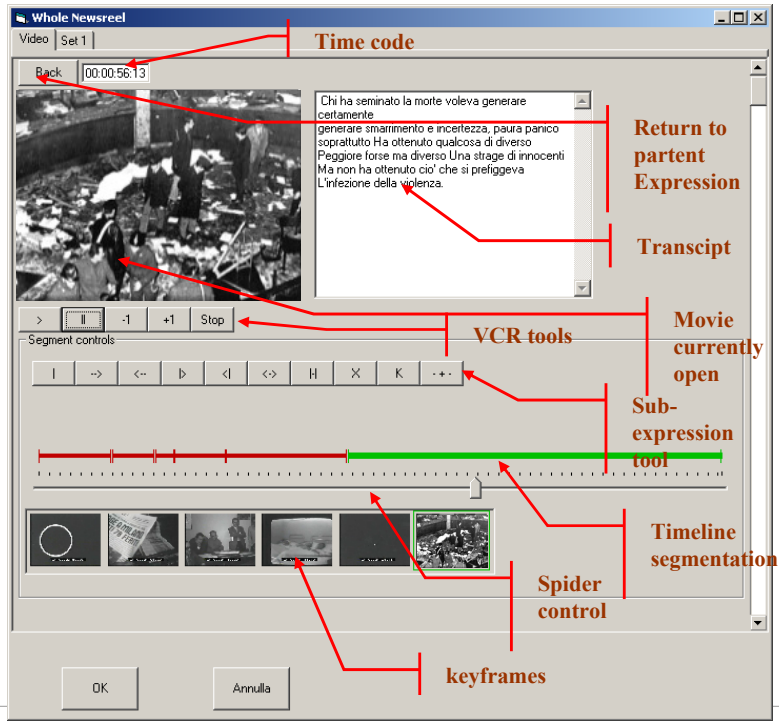
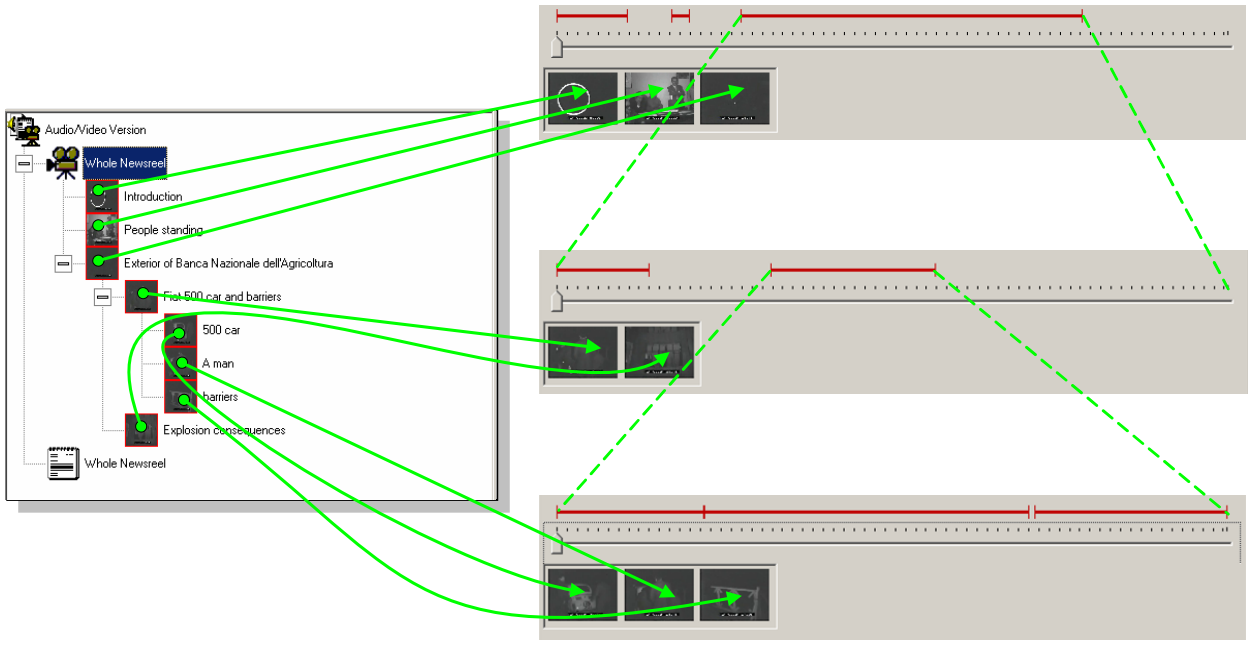
Expression Tool



Browse the Expression



Create, update and delete

- **Create**
  - 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 "**|**".
  - Push the button "**|-|**". A dialog box will allow you to select the start/end timecodes boundaries of the new segment.

Create, update and delete (2)

- **Modify**
  - Push the button "**|>**" ("<|"). This will change the end (begin) of the selected segment to the begin (end) to the (preceding) succeeding segment.
  - Push the button "<->". A dialog box will allow modifying the start/end timecodes boundaries of the selected segment.
  - 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.
- **Delete**
  - Select a segment and push the button "**X**" or the key "**Del**" of the keyboard.

Updating the keyframes

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

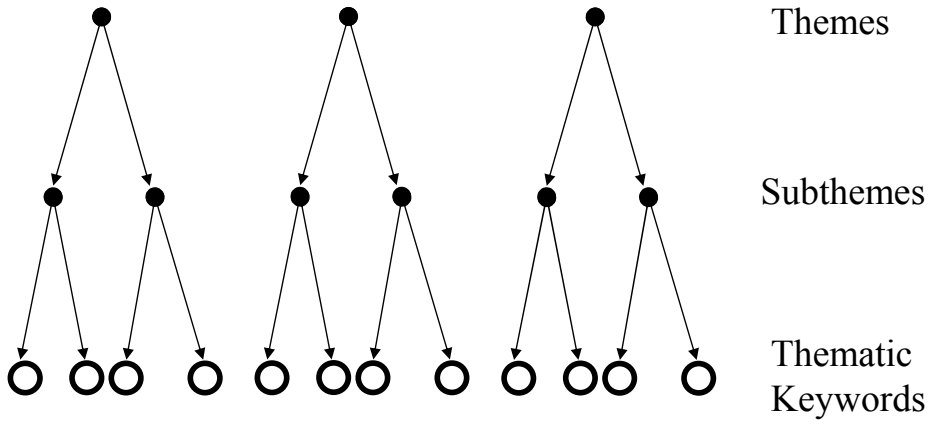
Creating a new AVDocument

- 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.

Cross Language features

- 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

Keywords tree



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Browsing the metadata: the Echo Retrieval Interface

Logging

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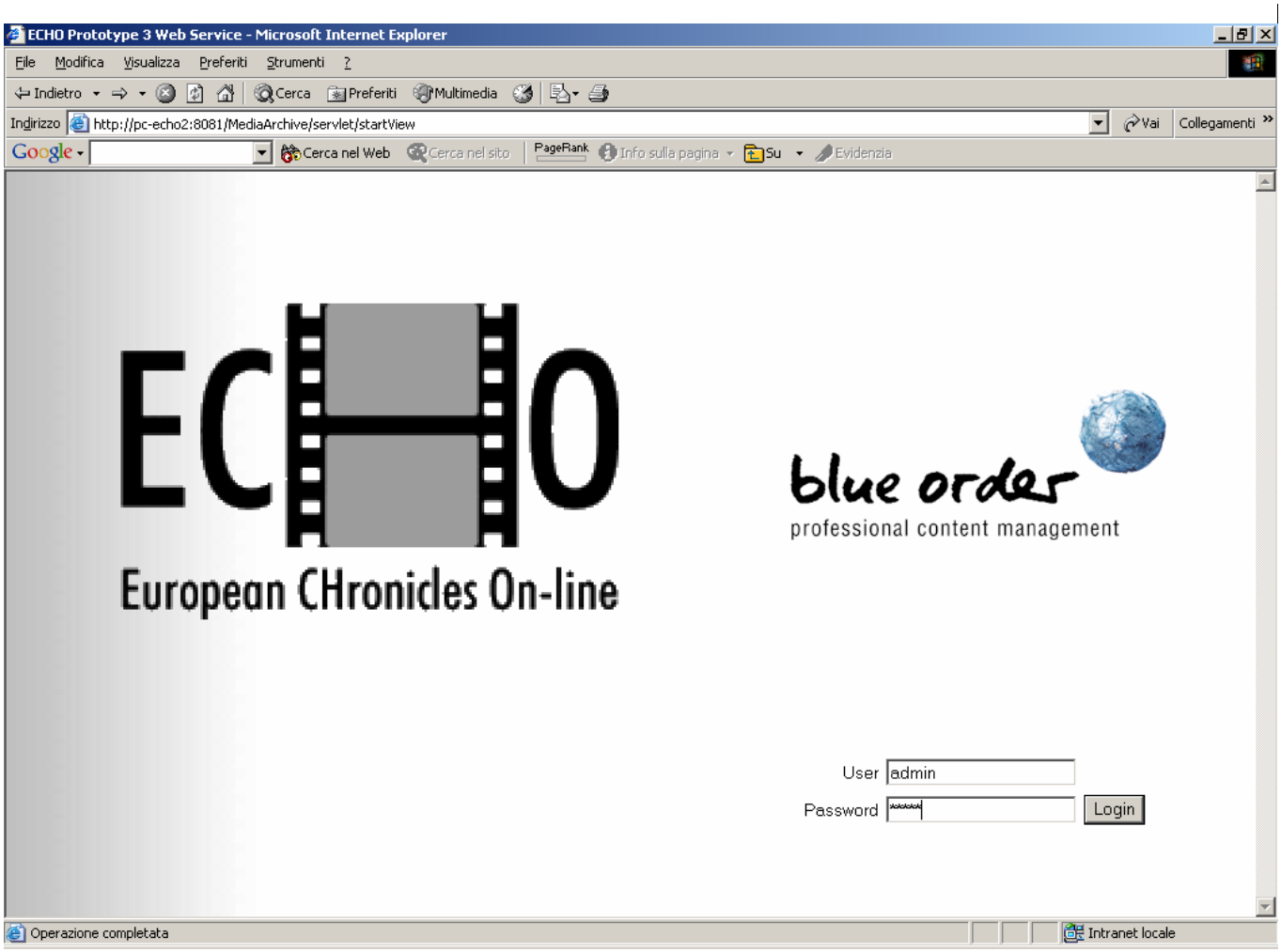

The retrieval Interface presentation

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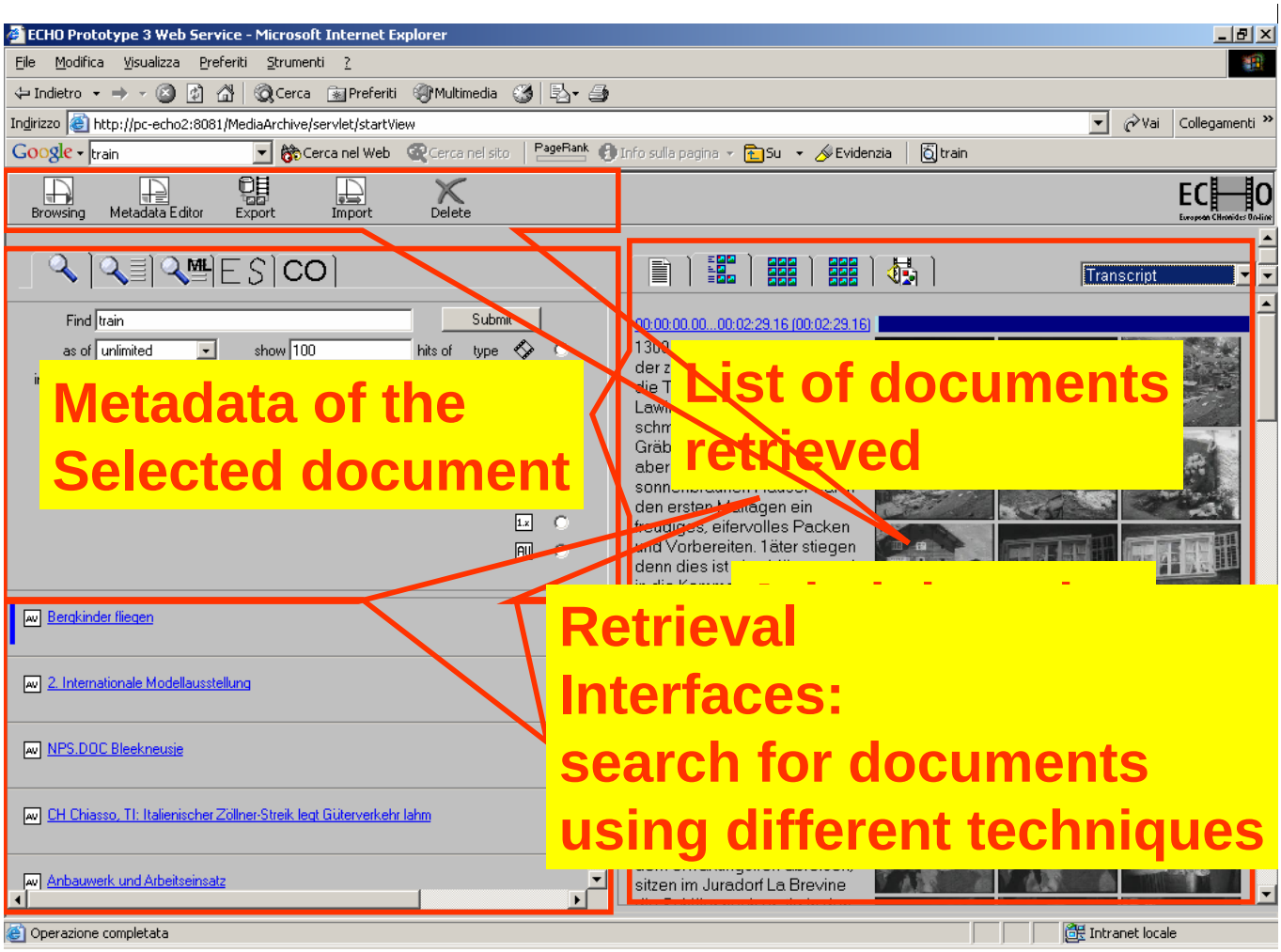

Retrieval tools interfaces

European CHronicles On-line

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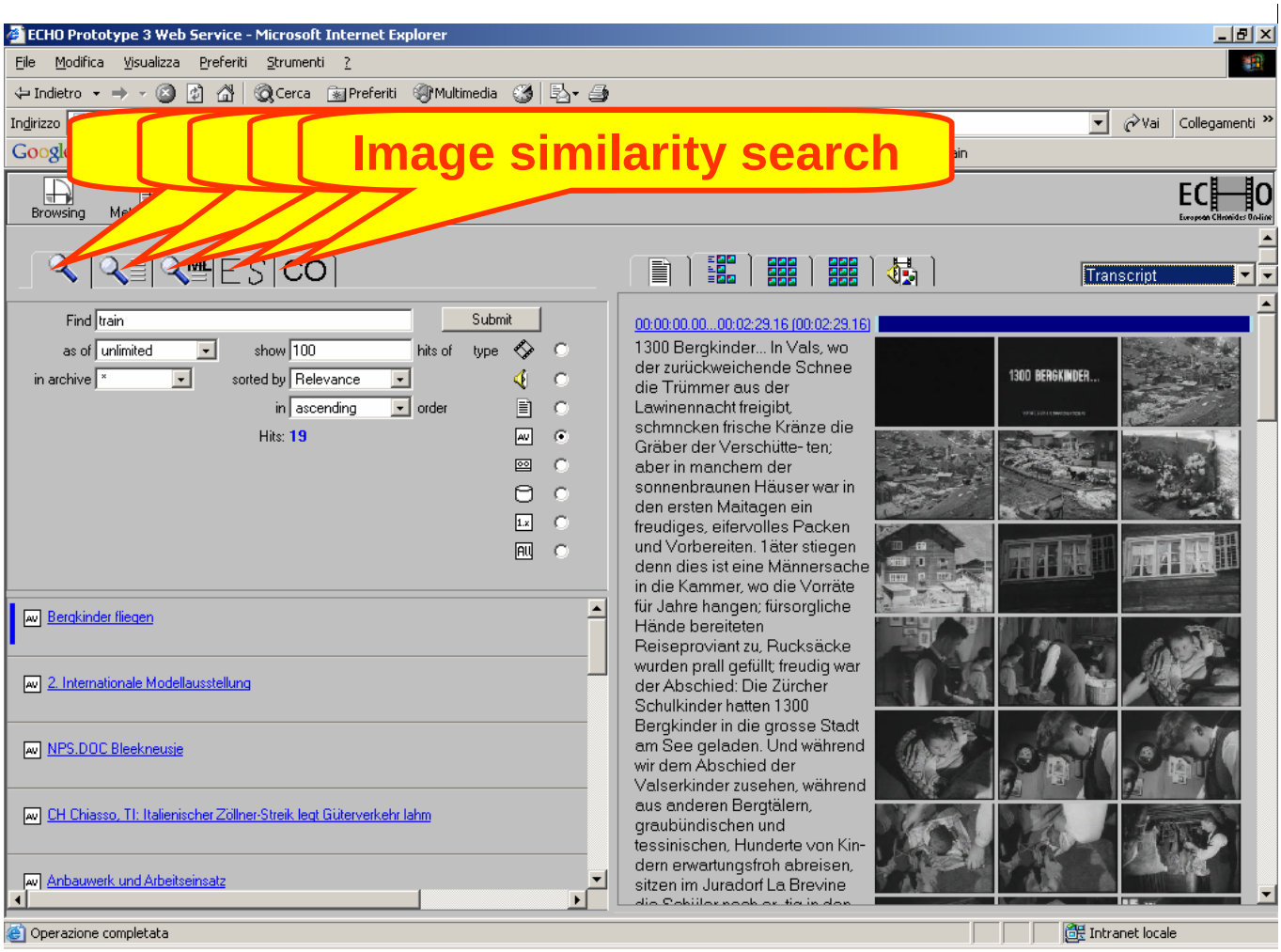

Free text search interface

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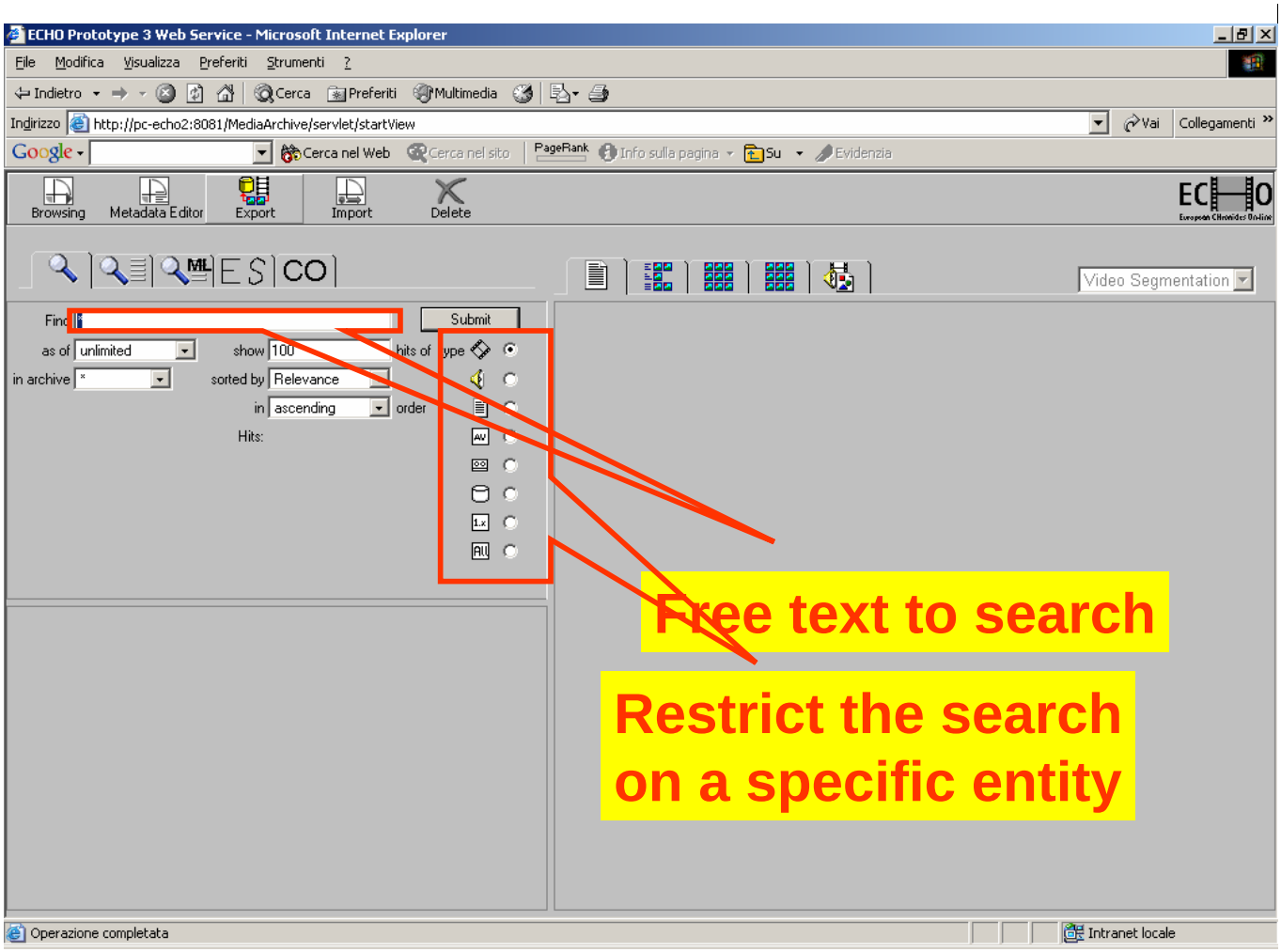
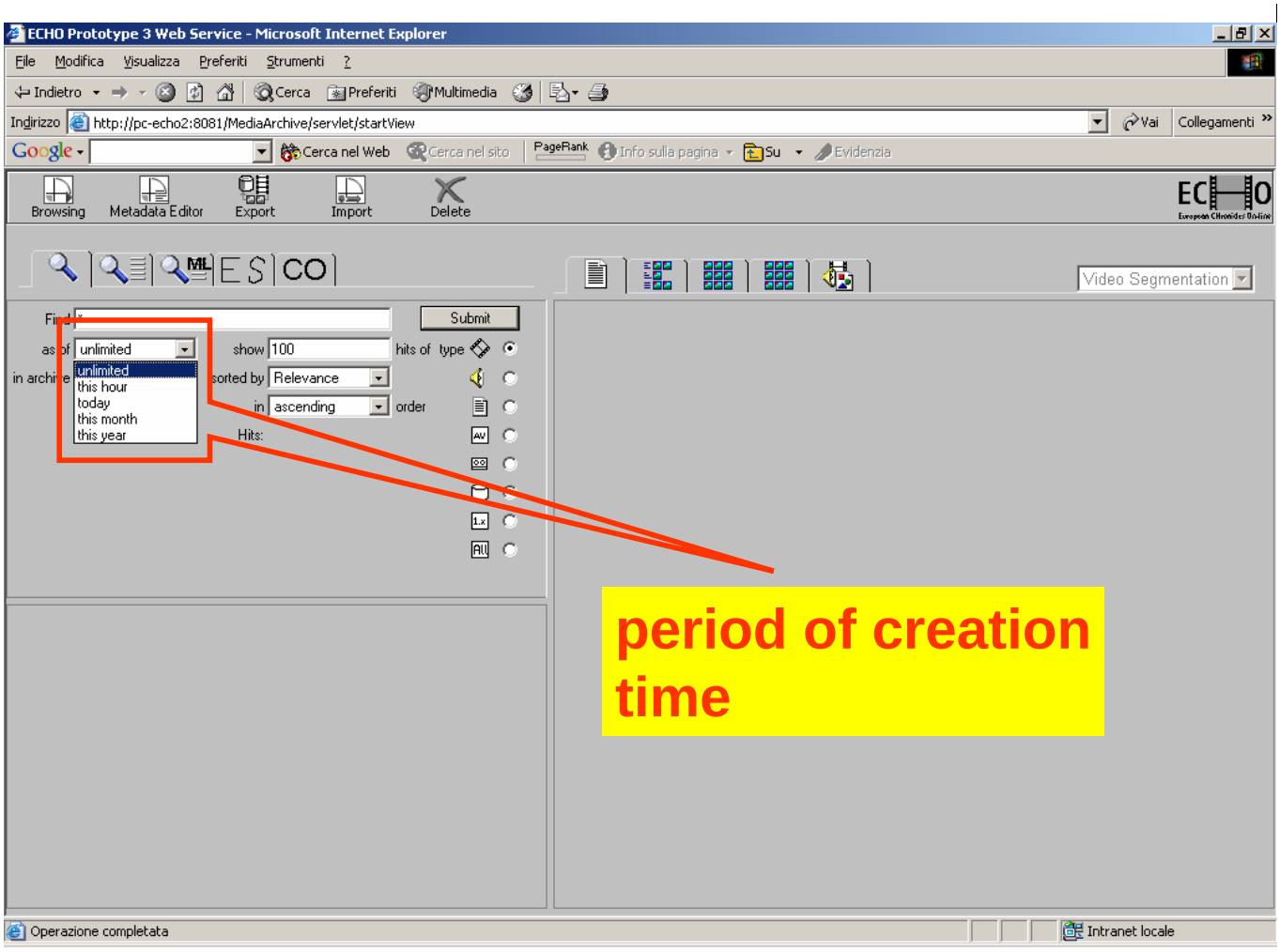
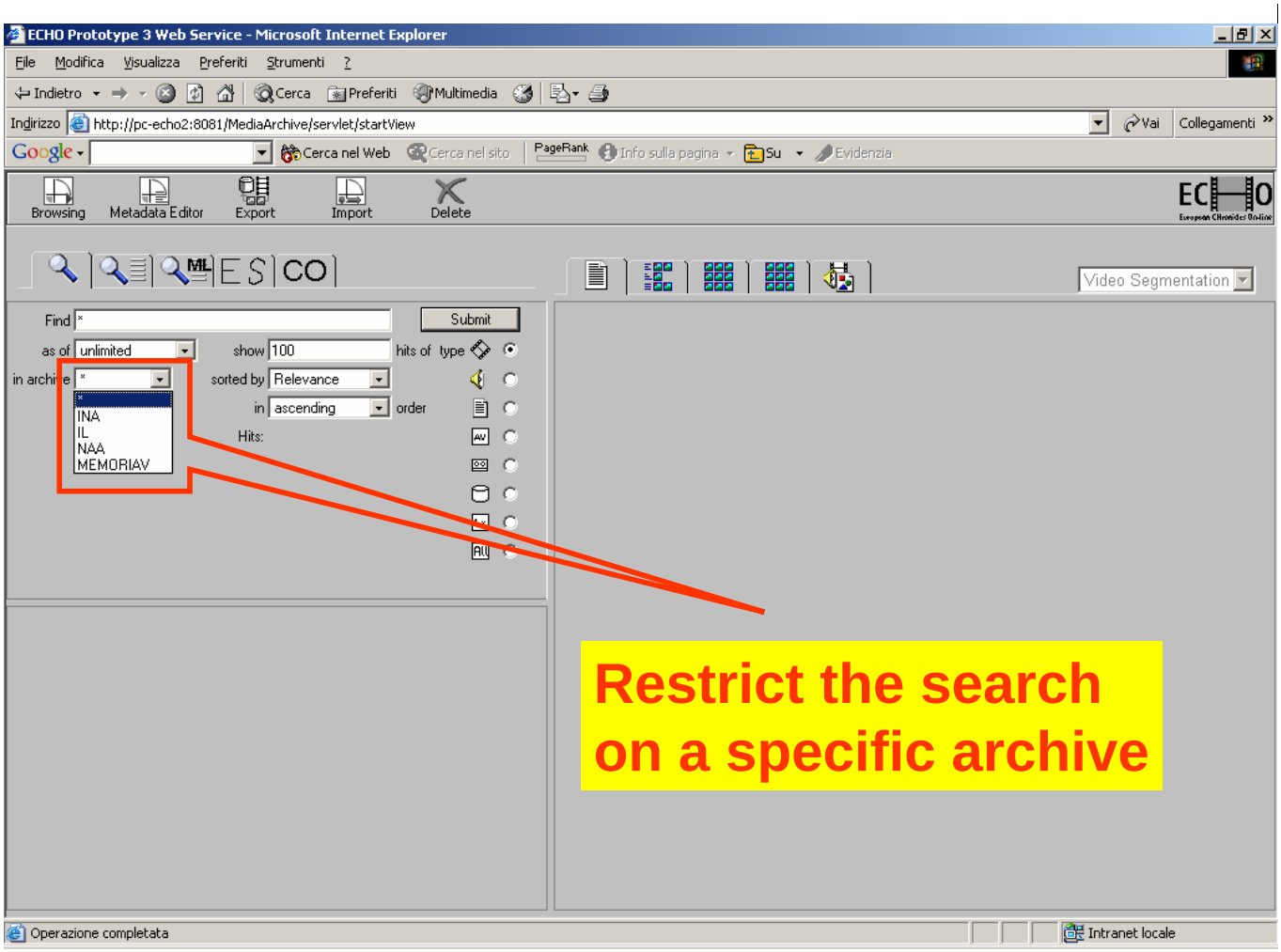
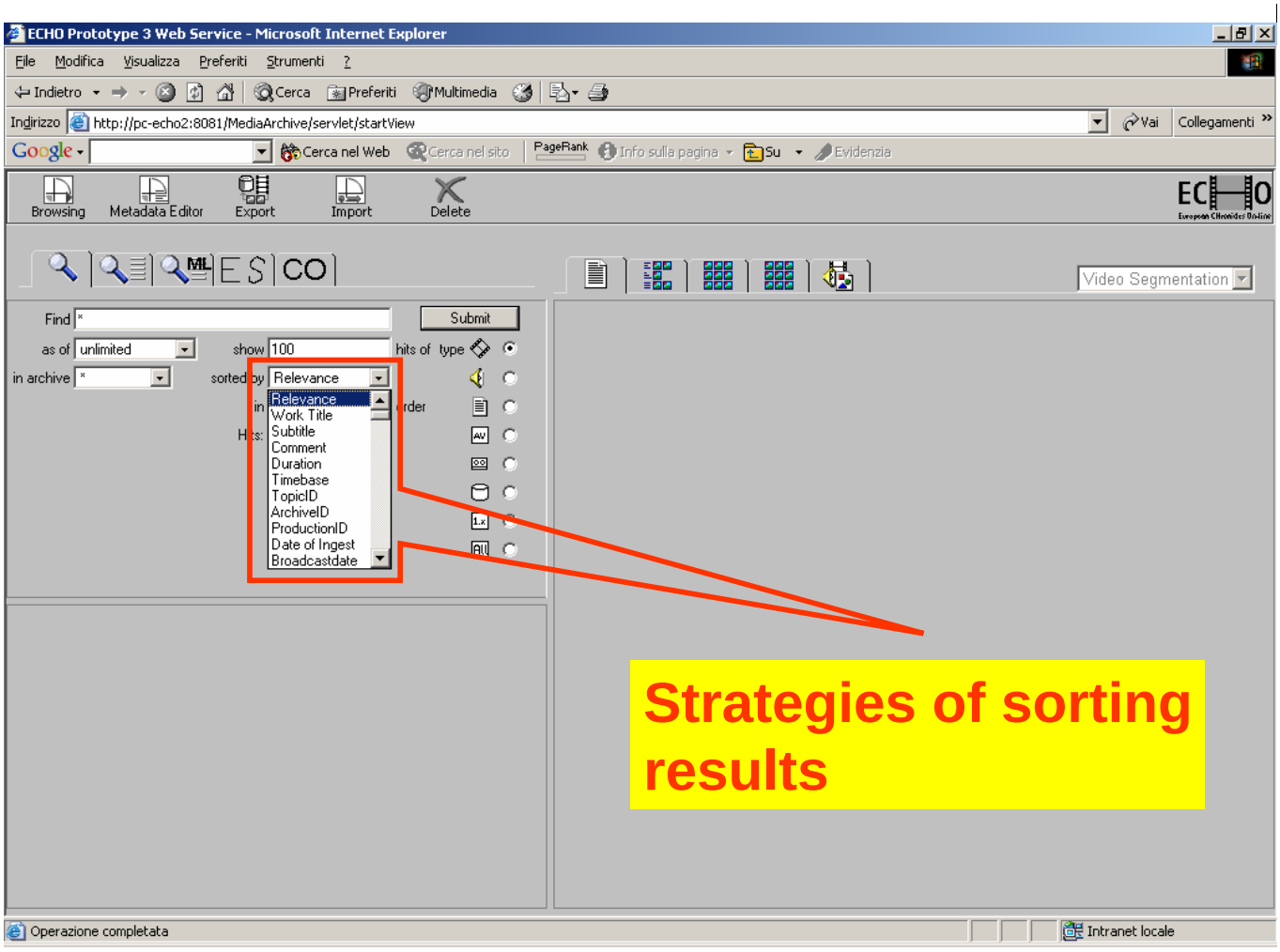
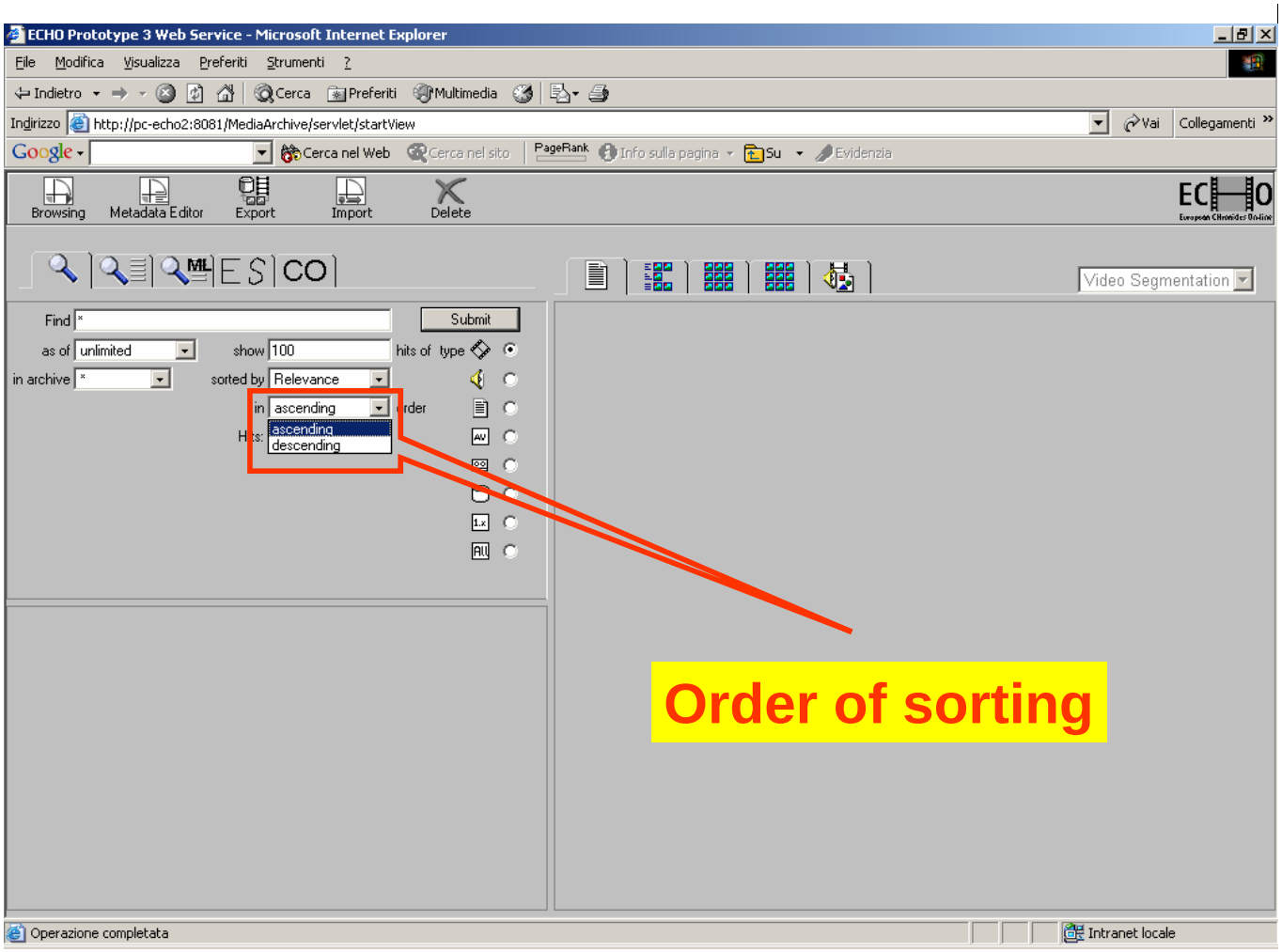
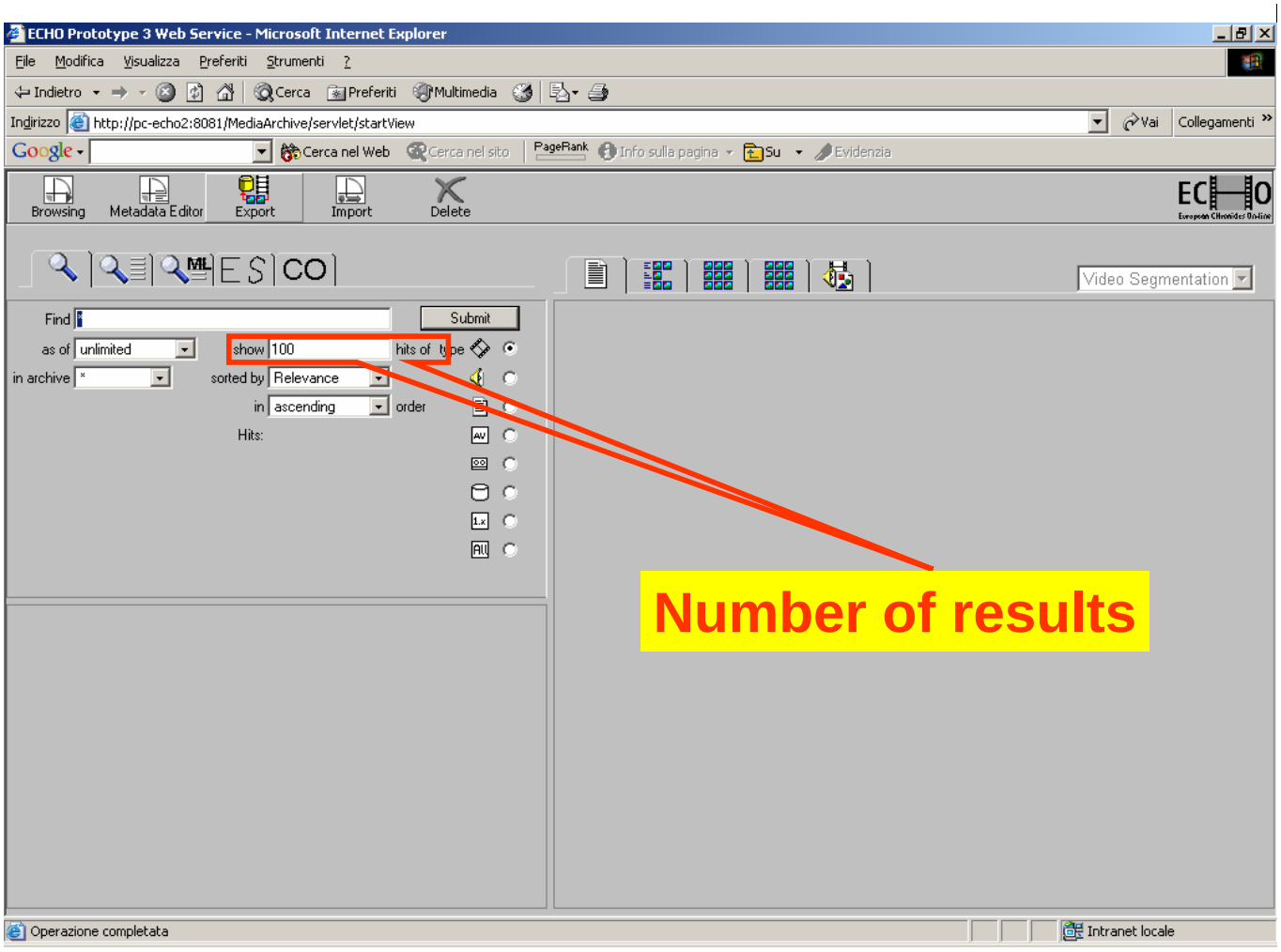

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Submit
as of unlimited
show 100
hits of type
in archive *
sorted by Relevance
in ascending order
Hits:
Free text to search
Restrict the search on a specific entity


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Submit
unlimited
this hour
today
this month
this year
show 100
sorted by Relevance
in ascending order
Hits:
period of creation time

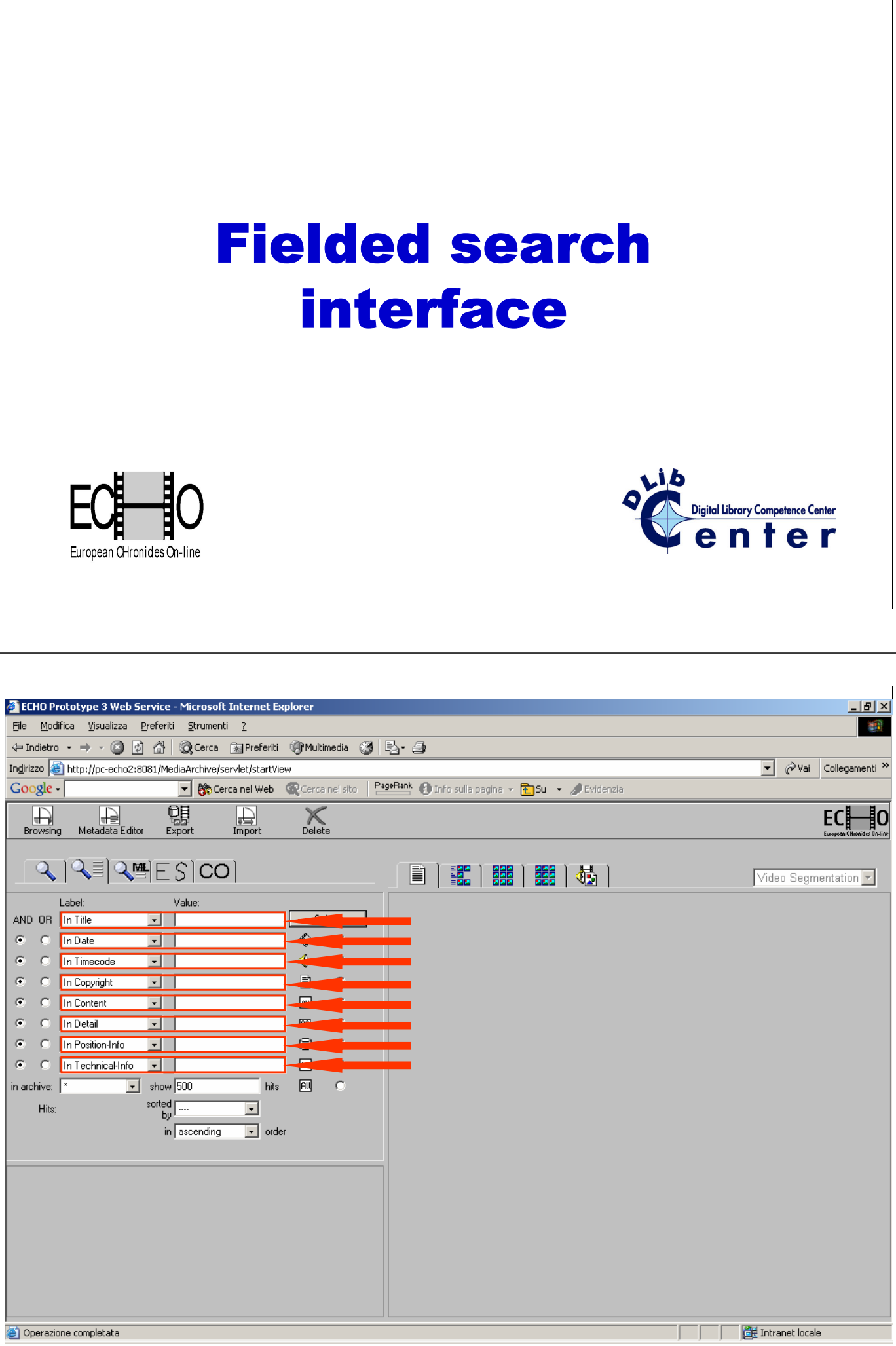

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find
Submit
as of unlimited
show 100
hits of type
in archive
sorted by Relevance
in ascending order
Hits:
INA
IL
NAA
MEMORIAV
Restrict the search on a specific archive
Operazione completata
Intranet locale

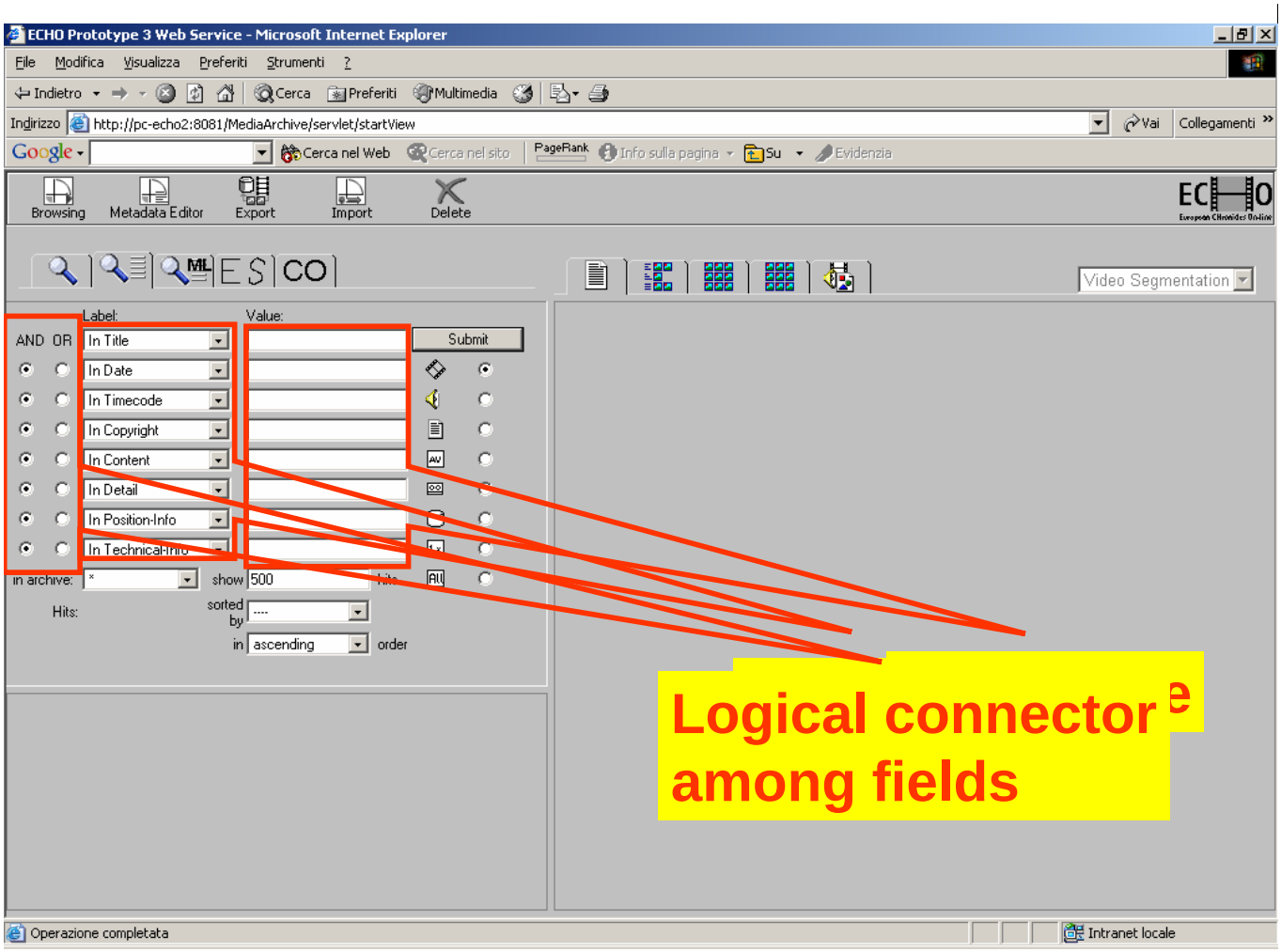

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find
Submit
as of unlimited
show 100
hits of type
in archive
sorted by Relevance
Relevance
Work Title
Subtitle
Comment
Duration
Timebase
TopicID
ArchiveID
ProductionID
Date of Ingest
Broadcastdate
Strategies of sorting results
Operazione completata
Intranet locale

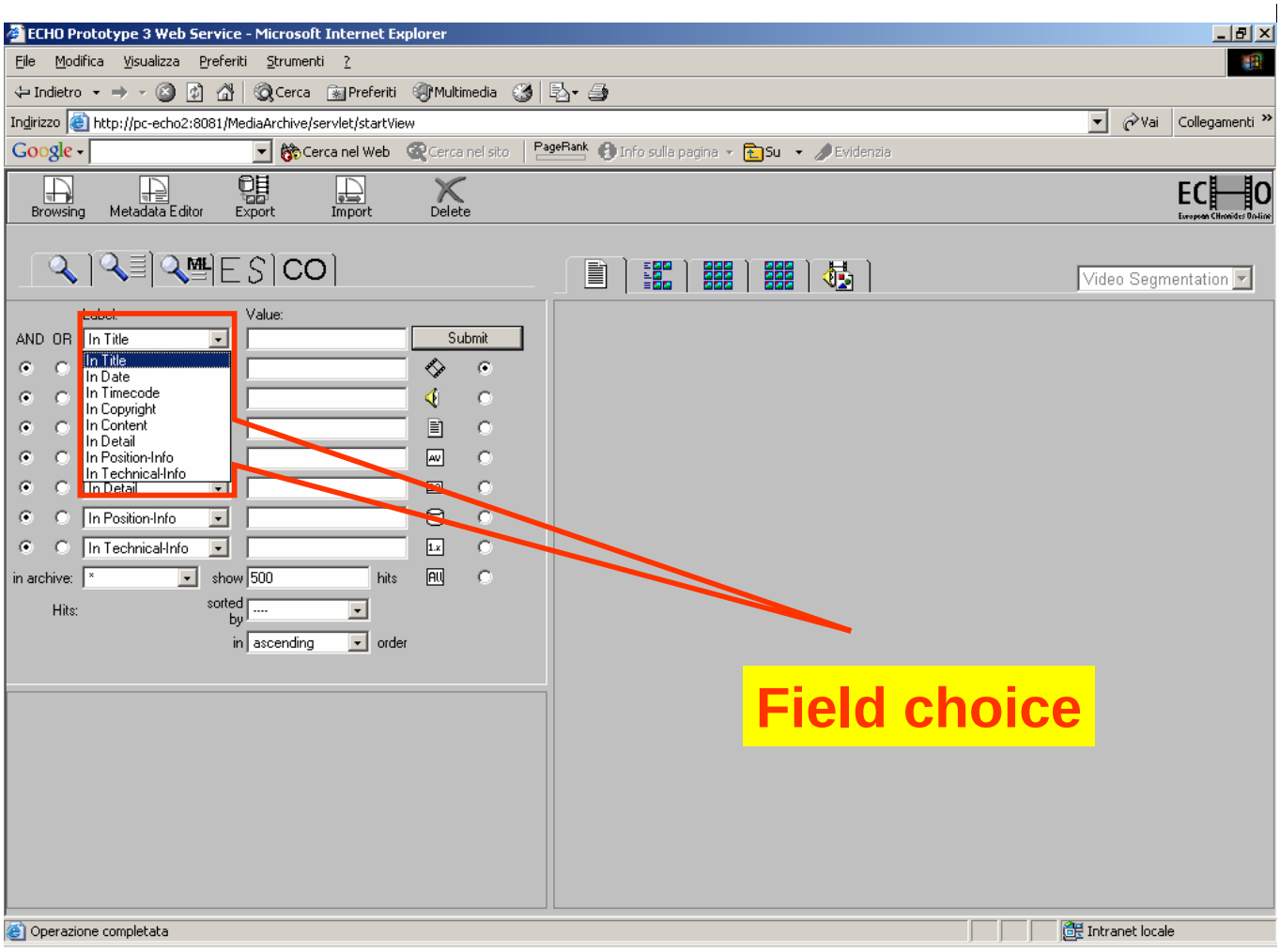

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find
Submit
as of unlimited
show 100
hits of type
in archive
sorted by Relevance
in ascending
order
ascending
descending
Hits:
Order of sorting
Operazione completata
Intranet locale

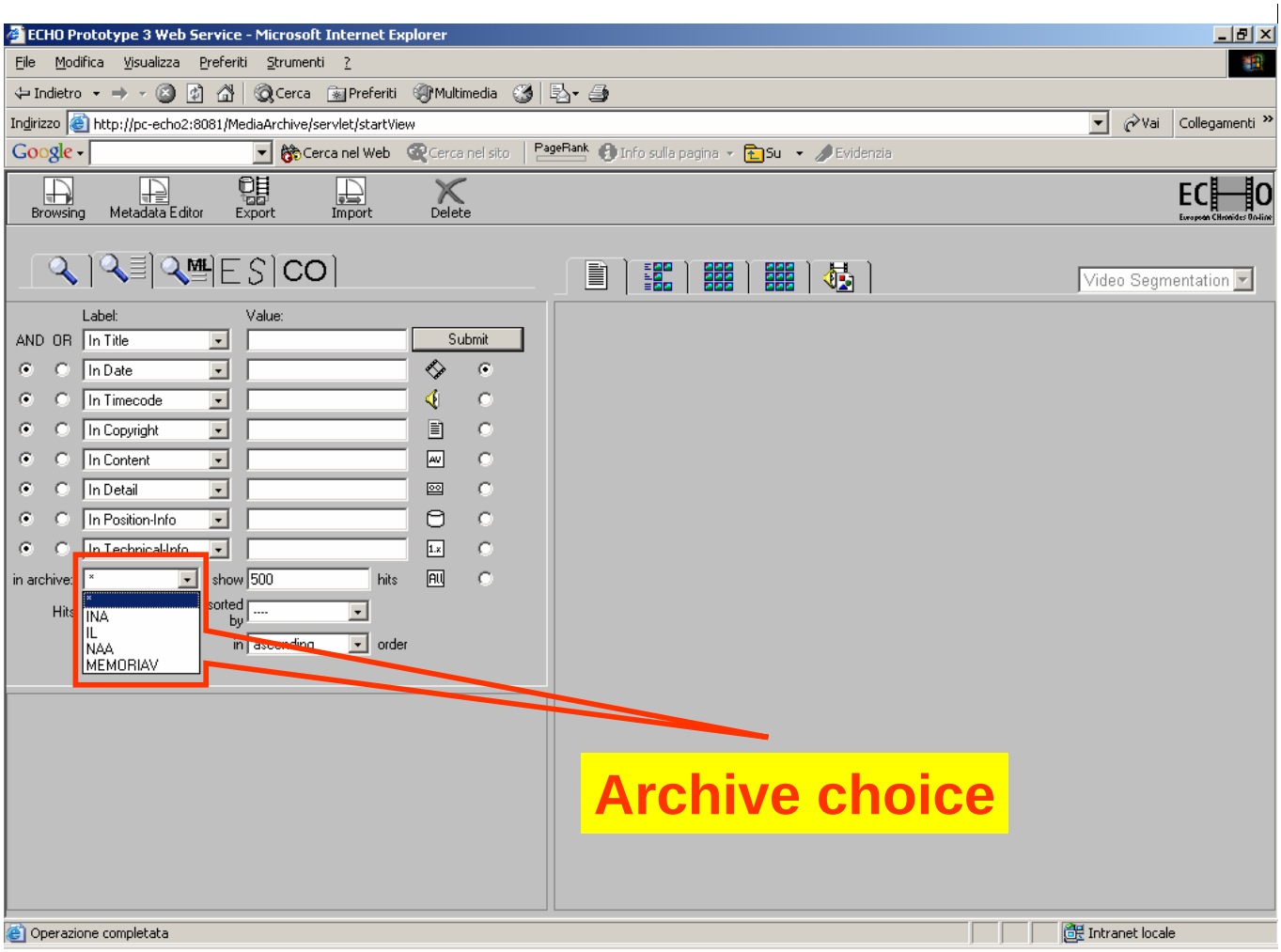

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find
Submit
as of unlimited
show 100
hits of type
in archive
sorted by Relevance
in ascending
order
Hits:
Number of results
Operazione completata
Intranet locale

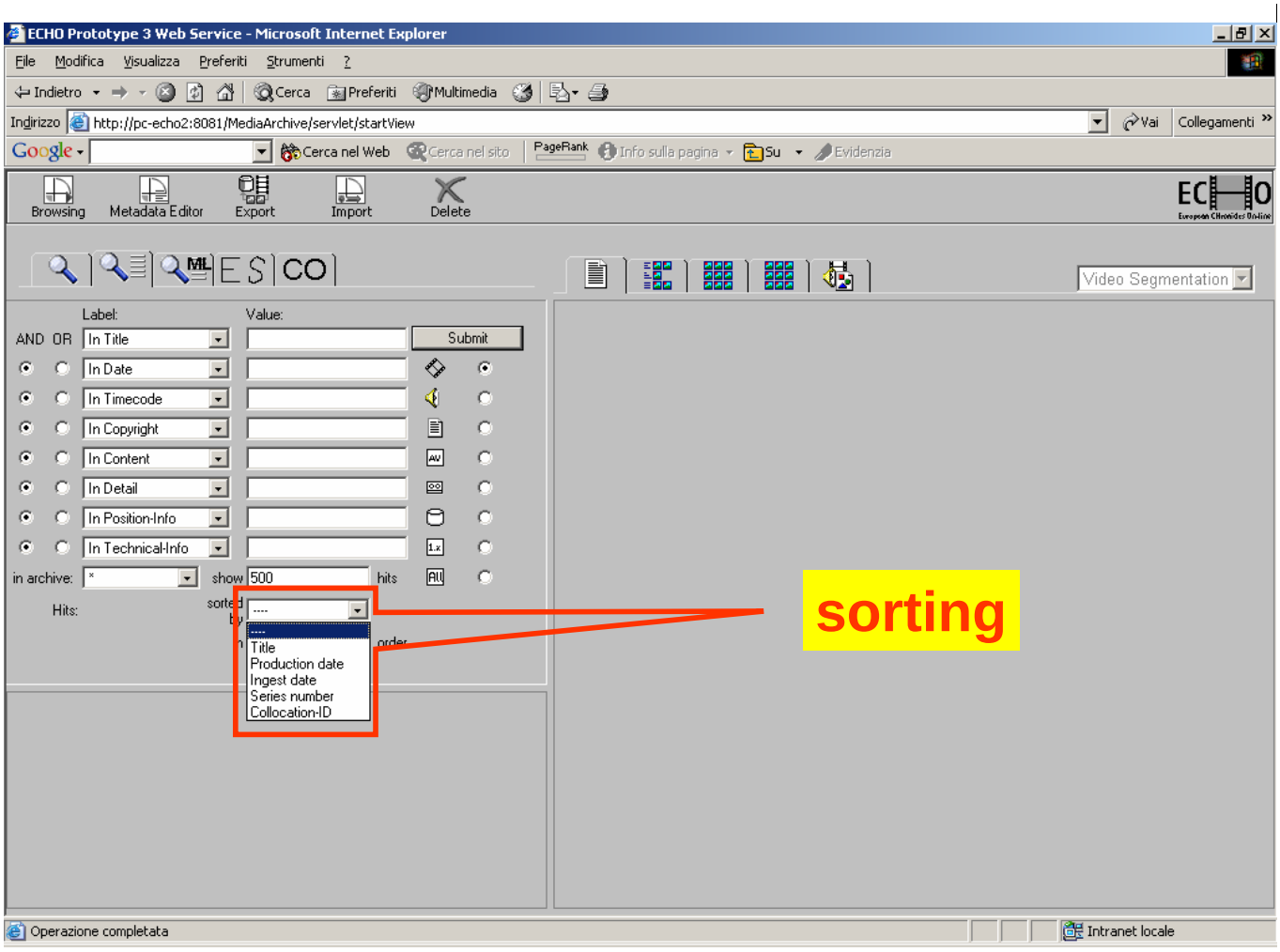
Fielded search interface

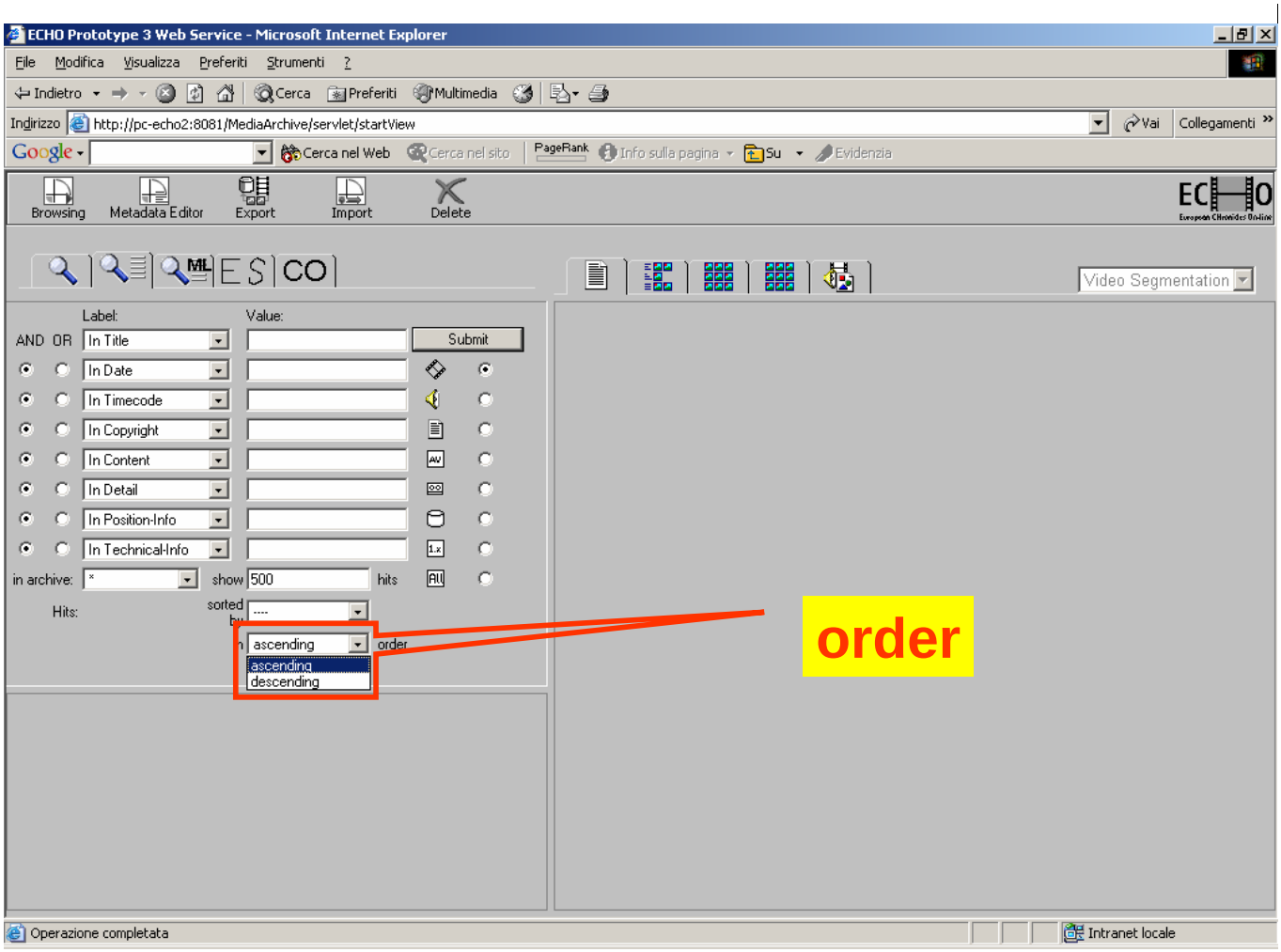



ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Label: Value:
AND OR
In Title
In Date
In Timecode
In Copyright
In Content
In Detail
In Position-Info
In Technical-Info
Submit
in archive: *
show 500 hits
Hits:
sorted by ----
in ascending order
Logical connector among fields
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Label: Value:
AND OR
In Title
In Date
In Timecode
In Copyright
In Content
In Detail
In Position-Info
In Technical-Info
Submit
in archive: *
show 500 hits
Hits:
sorted by ----
in ascending order
Field choice
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Label:
Value:
AND OR
In Title
In Date
In Timecode
In Copyright
In Content
In Detail
In Position-Info
In Technical-Info
Submit
in archive:
show
500
hits
Hits:
sorted by
order
INA
IL
NAA
MEMORIAV
Archive choice
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Label:
Value:
AND OR
In Title
In Date
In Timecode
In Copyright
In Content
In Detail
In Position-Info
In Technical-Info
Submit
in archive:
show
500
hits
Hits:
sorted by
order
Title
Production date
Ingest date
Series number
Collocation-ID
sorting
Operazione completata
Intranet locale



Multilingual classification

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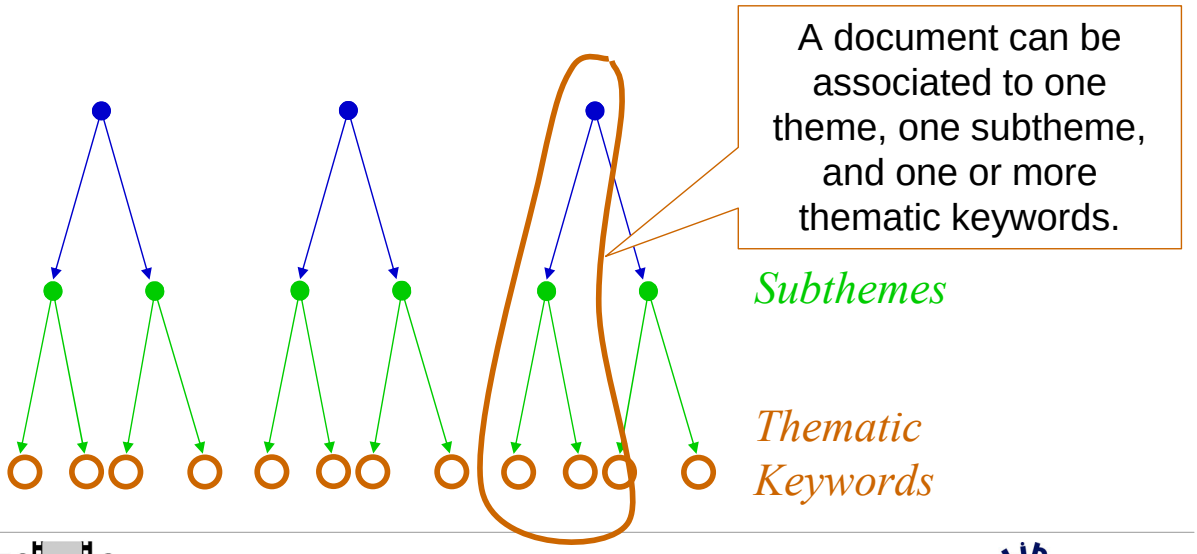
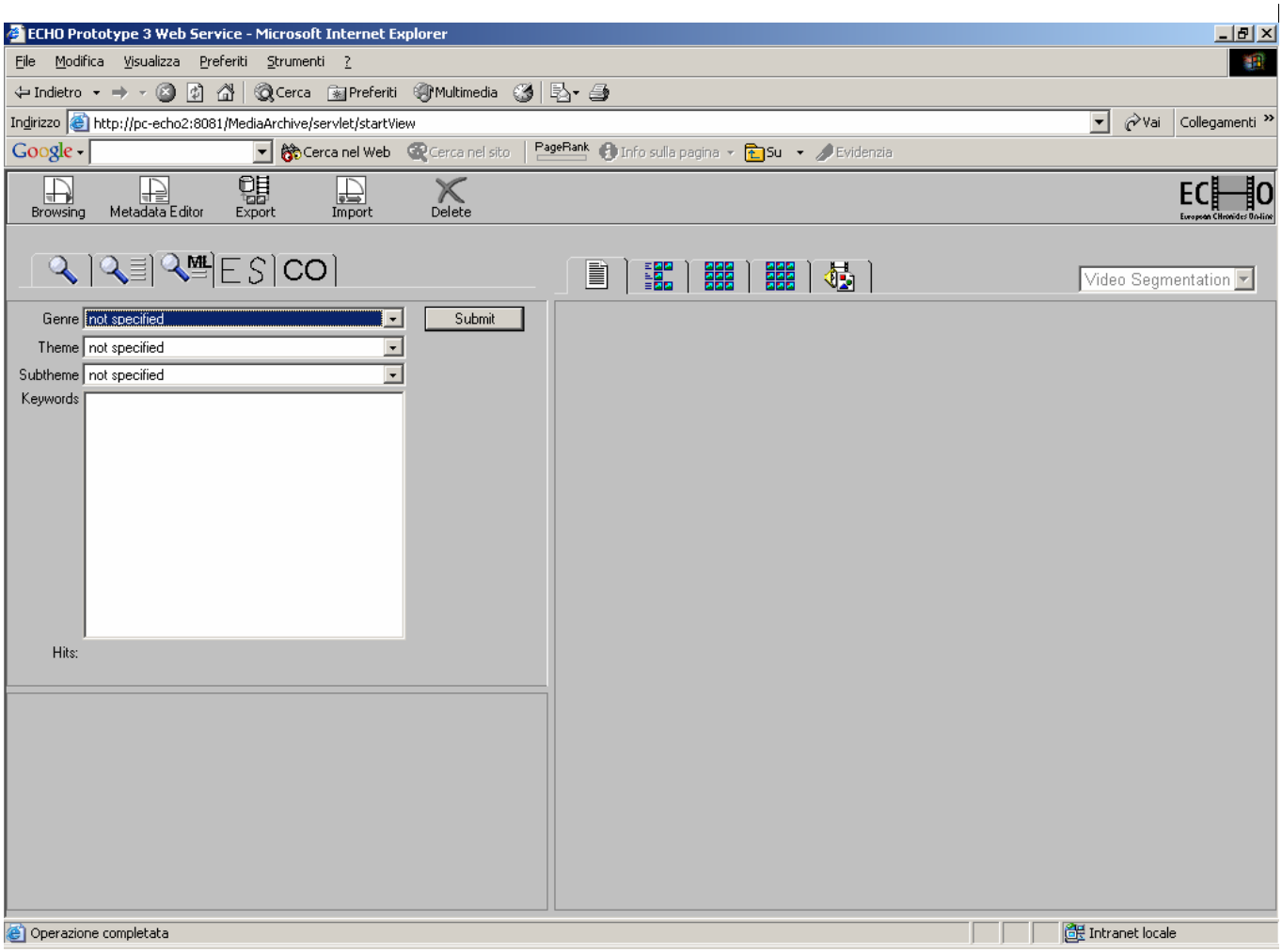
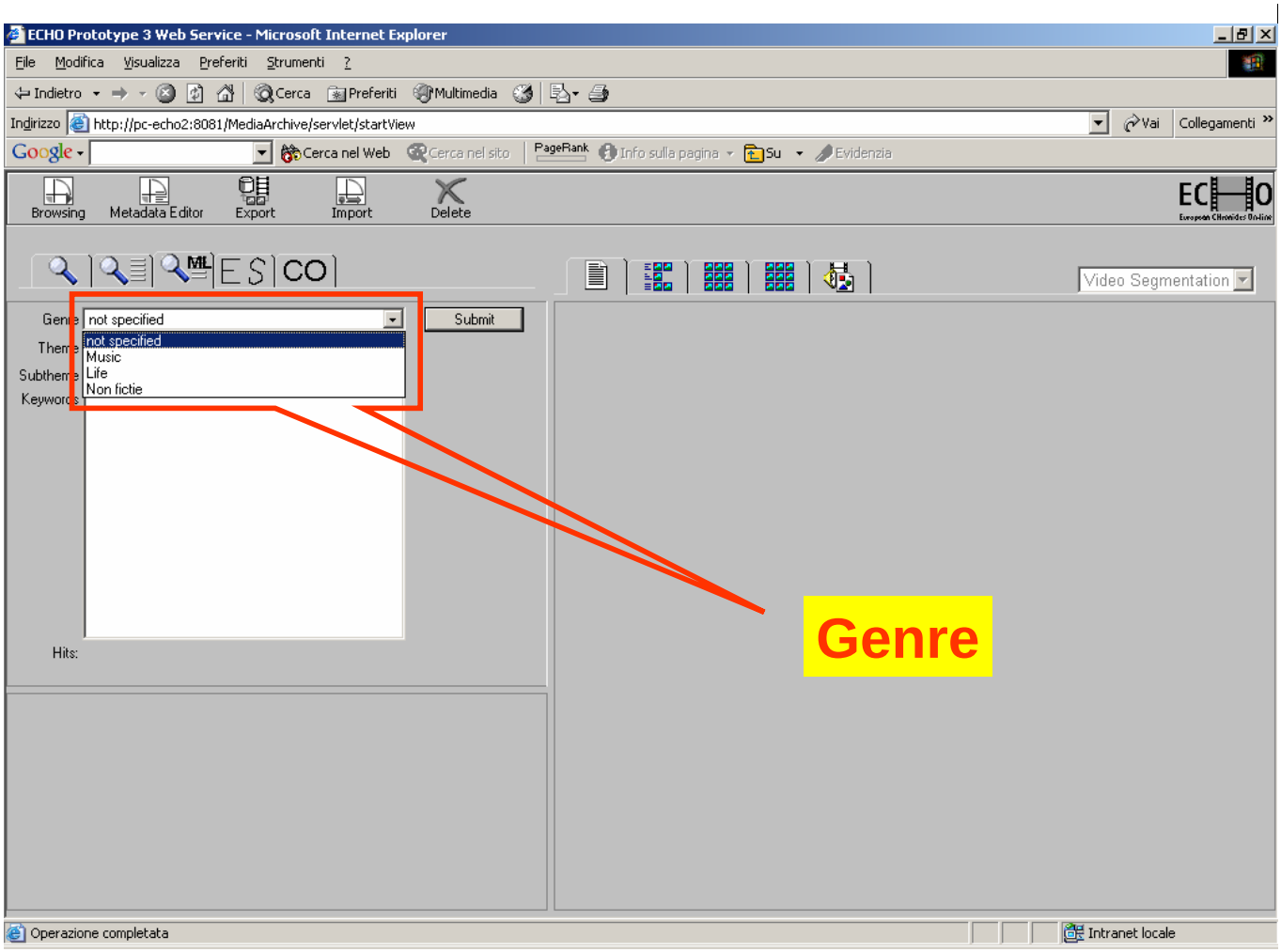
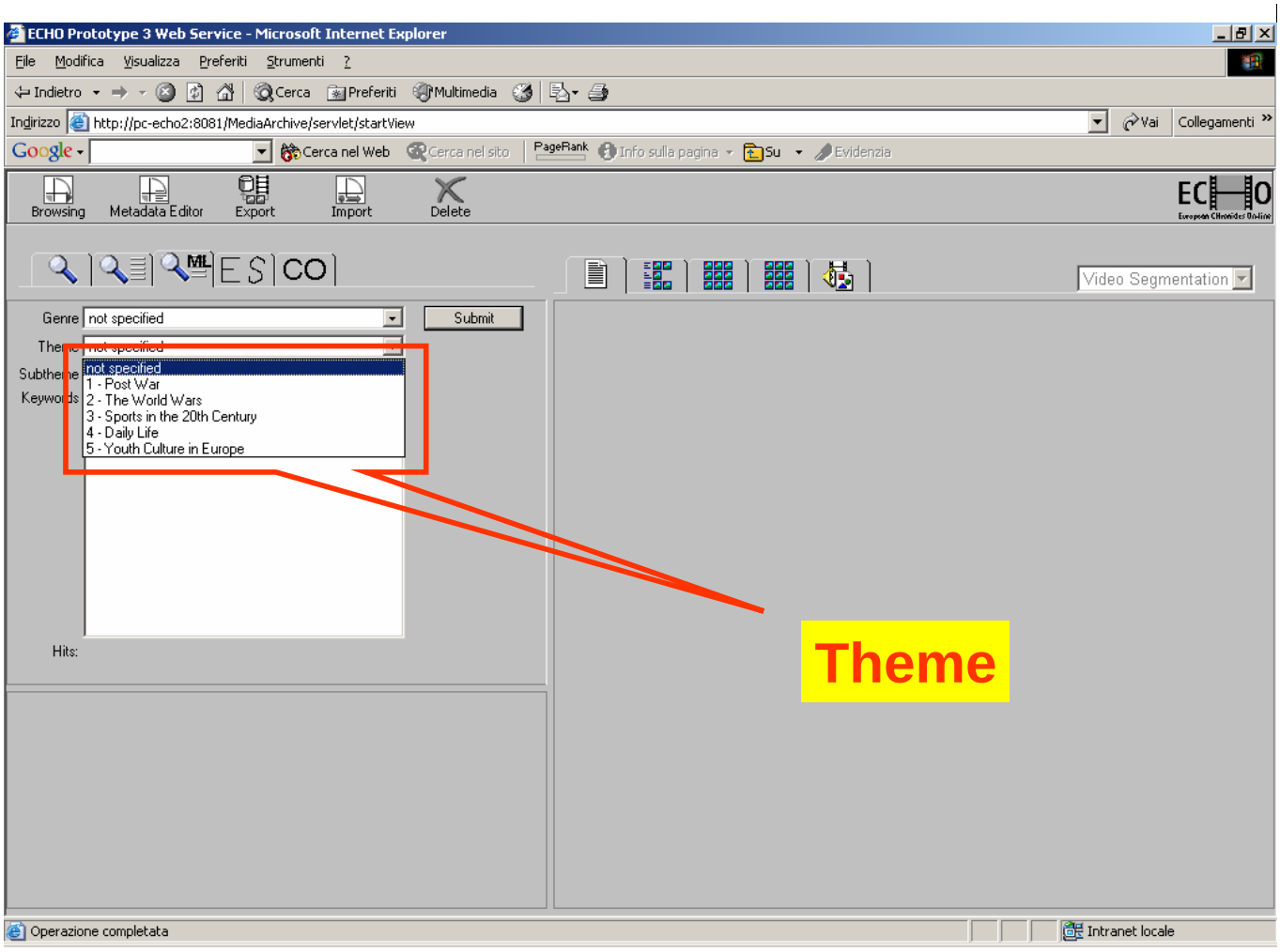
Classification tree

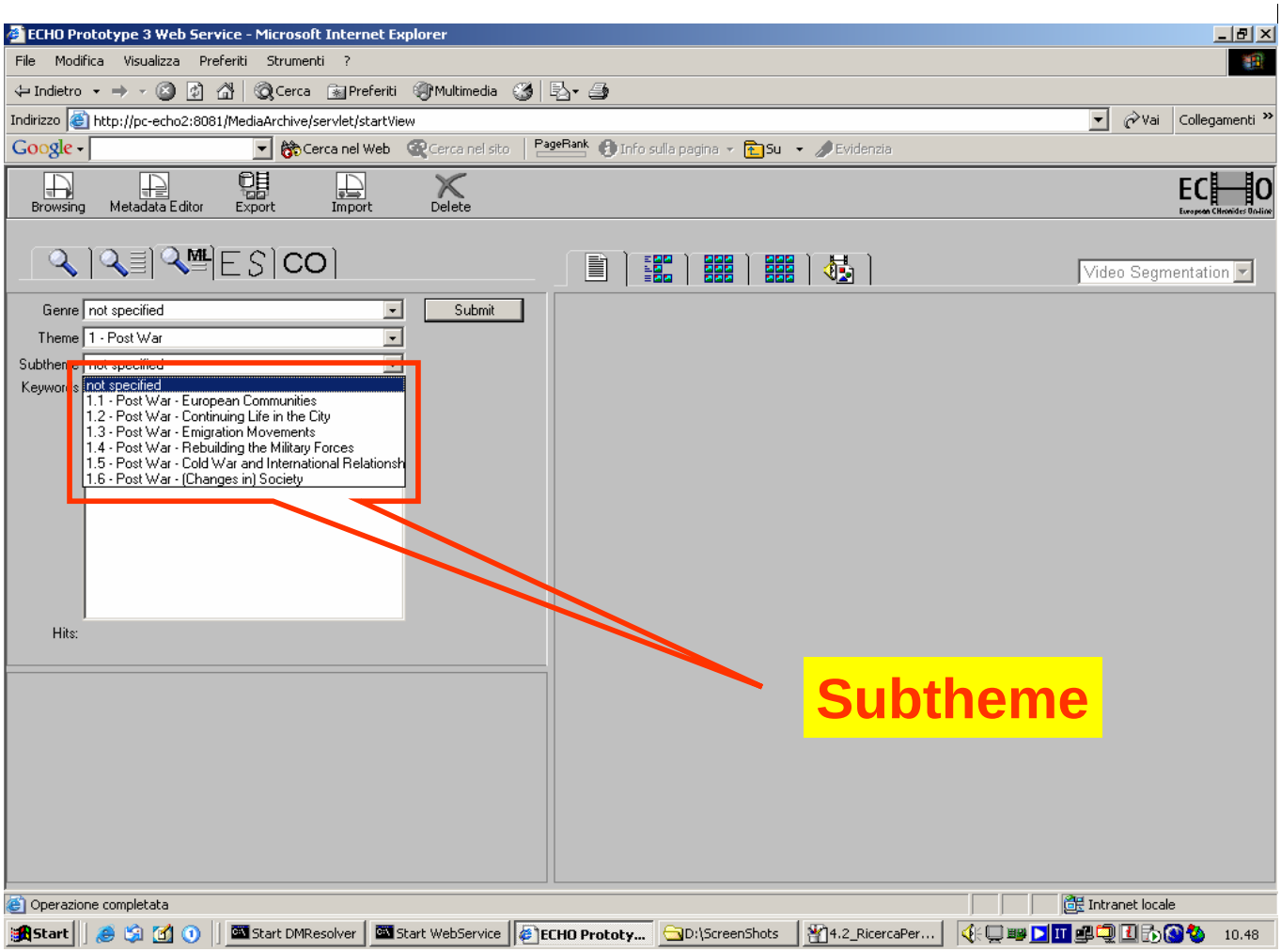
- The documents in the collection are classified on the basis of Genres, and Themes, Subthemes, and Thematic keywords. The label of these categories are translated in 5 language (English, Italian, Dutch, French, and German).

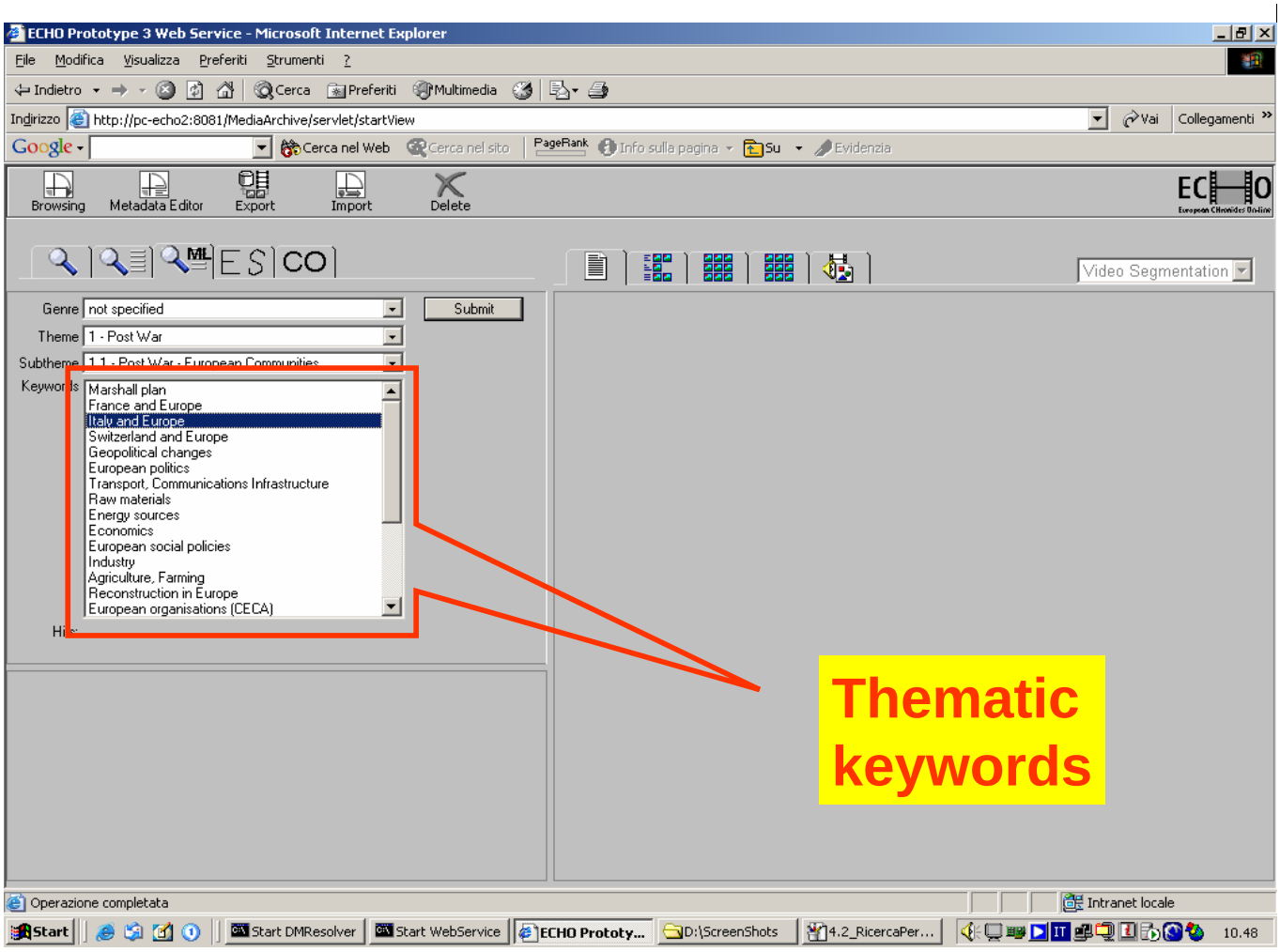





ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Genre not specified
Submit
not specified
Music
Life
Non fictie
Hits:
Genre
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Genre not specified
Submit
not specified
1 - Post War
2 - The World Wars
3 - Sports in the 20th Century
4 - Daily Life
5 - Youth Culture in Europe
Hits:
Theme
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Genre
not specified
Submit
Theme
1 - Post War
Subtheme
Keywords
not specified
1.1 - Post War - European Communities
1.2 - Post War - Continuing Life in the City
1.3 - Post War - Emigration Movements
1.4 - Post War - Rebuilding the Military Forces
1.5 - Post War - Cold War and International Relationsh
1.6 - Post War - (Changes in) Society
Hits:
Subtheme


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Genre
not specified
Submit
Theme
1 - Post War
Subtheme
1.1 - Post War - European Communities
Keywords
Marshall plan
France and Europe
Italy and Europe
Switzerland and Europe
Geopolitical changes
European politics
Transport, Communications Infrastructure
Raw materials
Energy sources
Economics
European social policies
Industry
Agriculture, Farming
Reconstruction in Europe
European organisations (CECA)
Thematic keywords

Crosslanguage retrieval interface

ECHO
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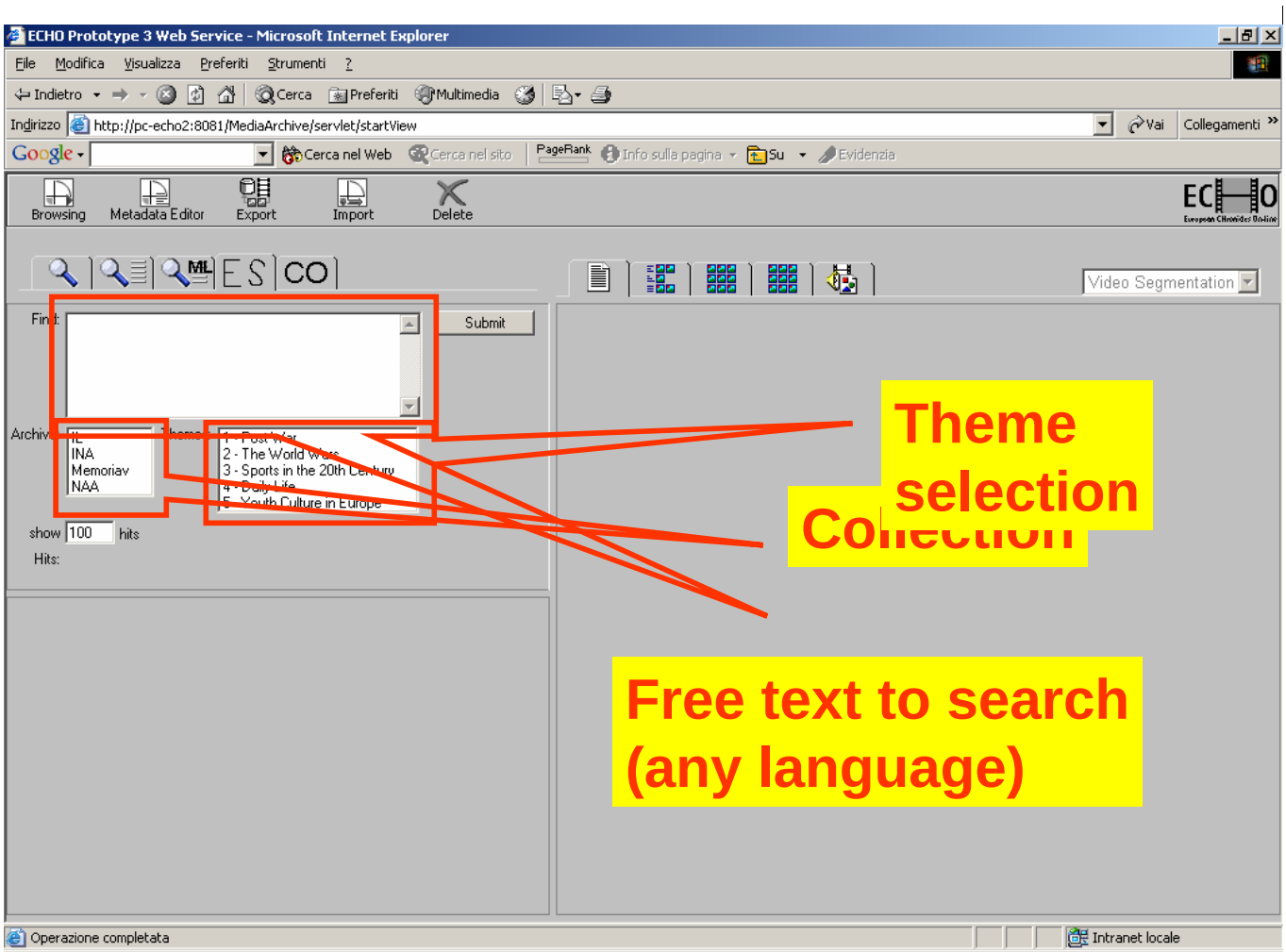
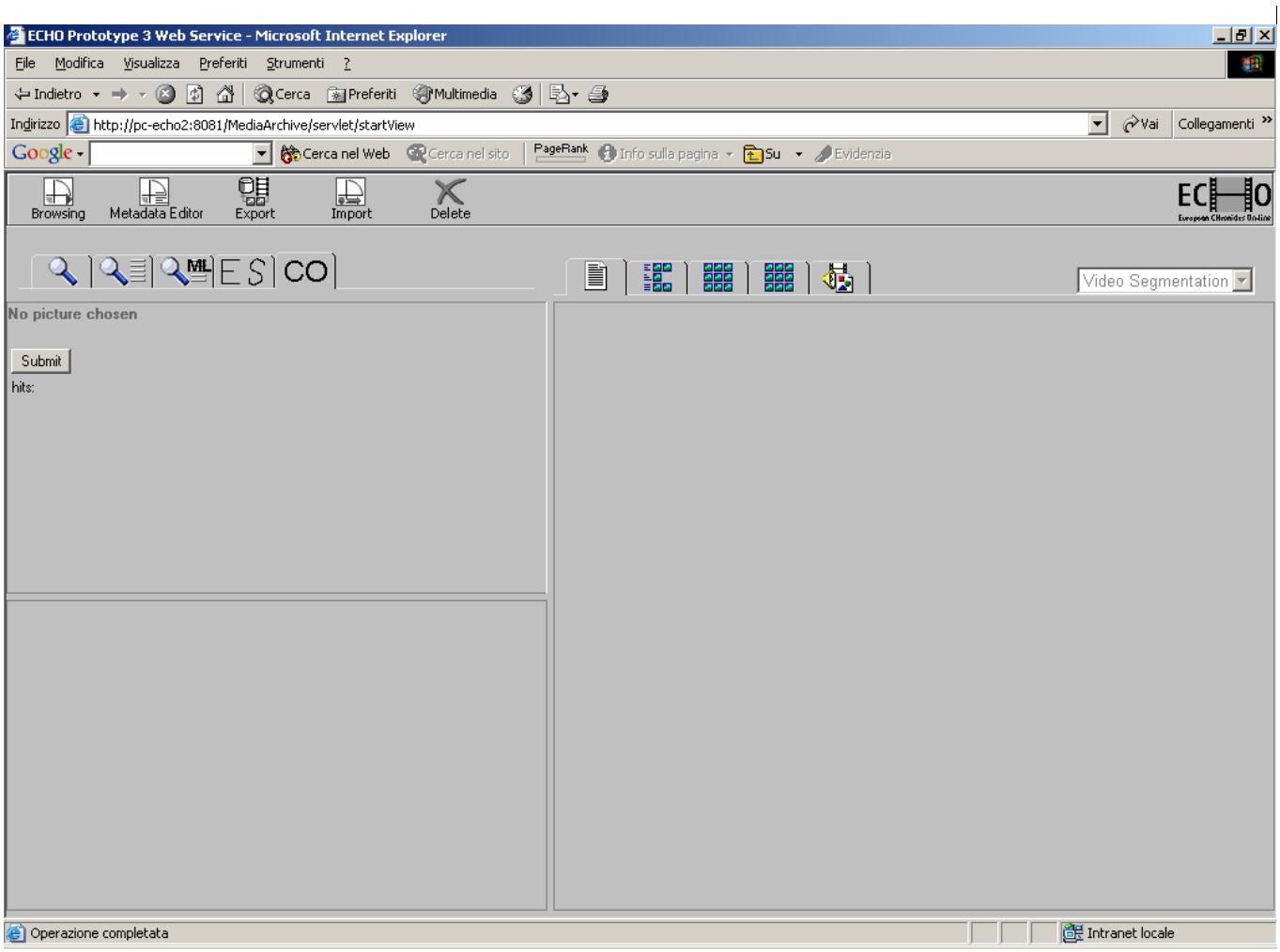


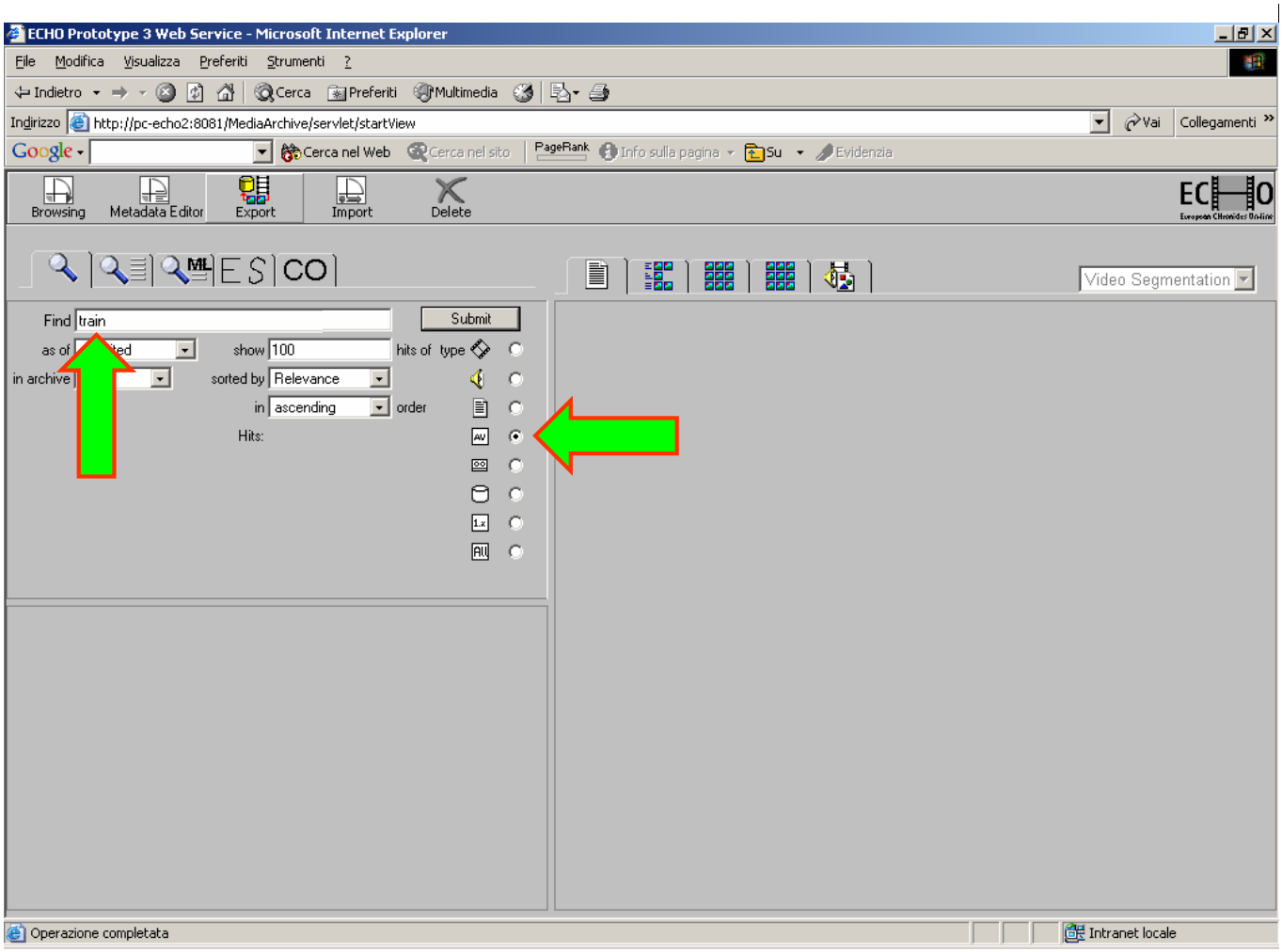
Image similarity search

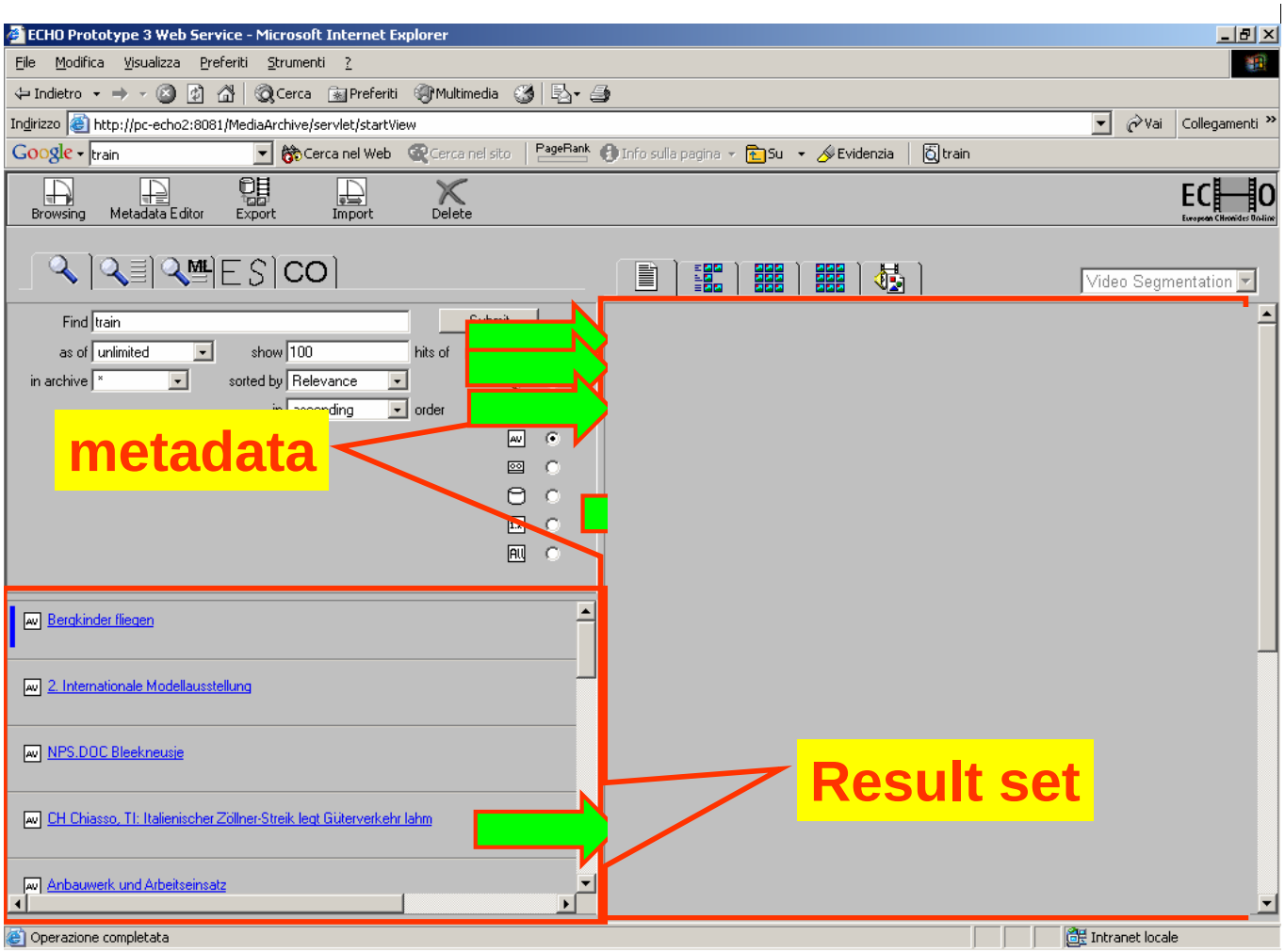


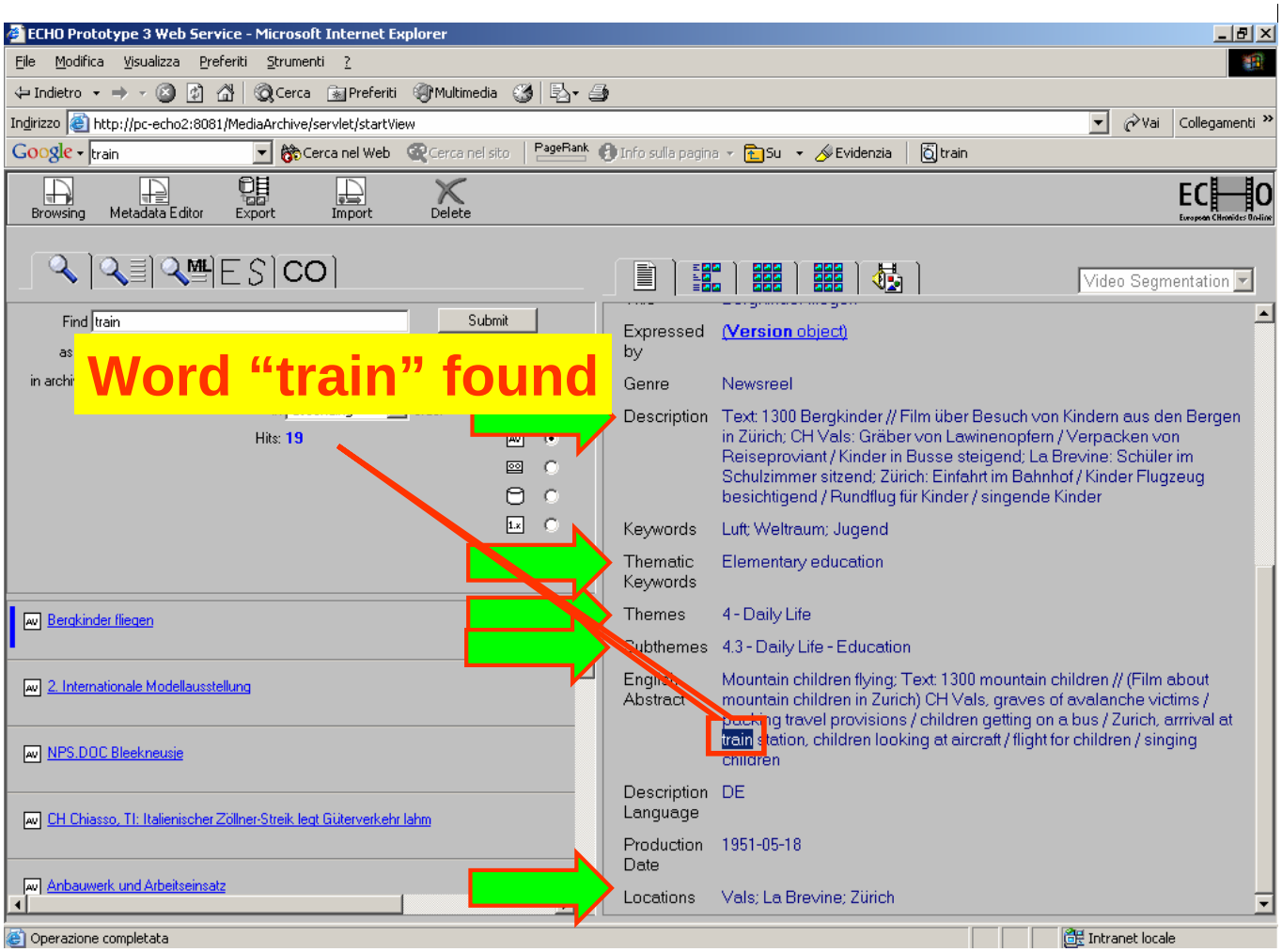
Browsing the document structure

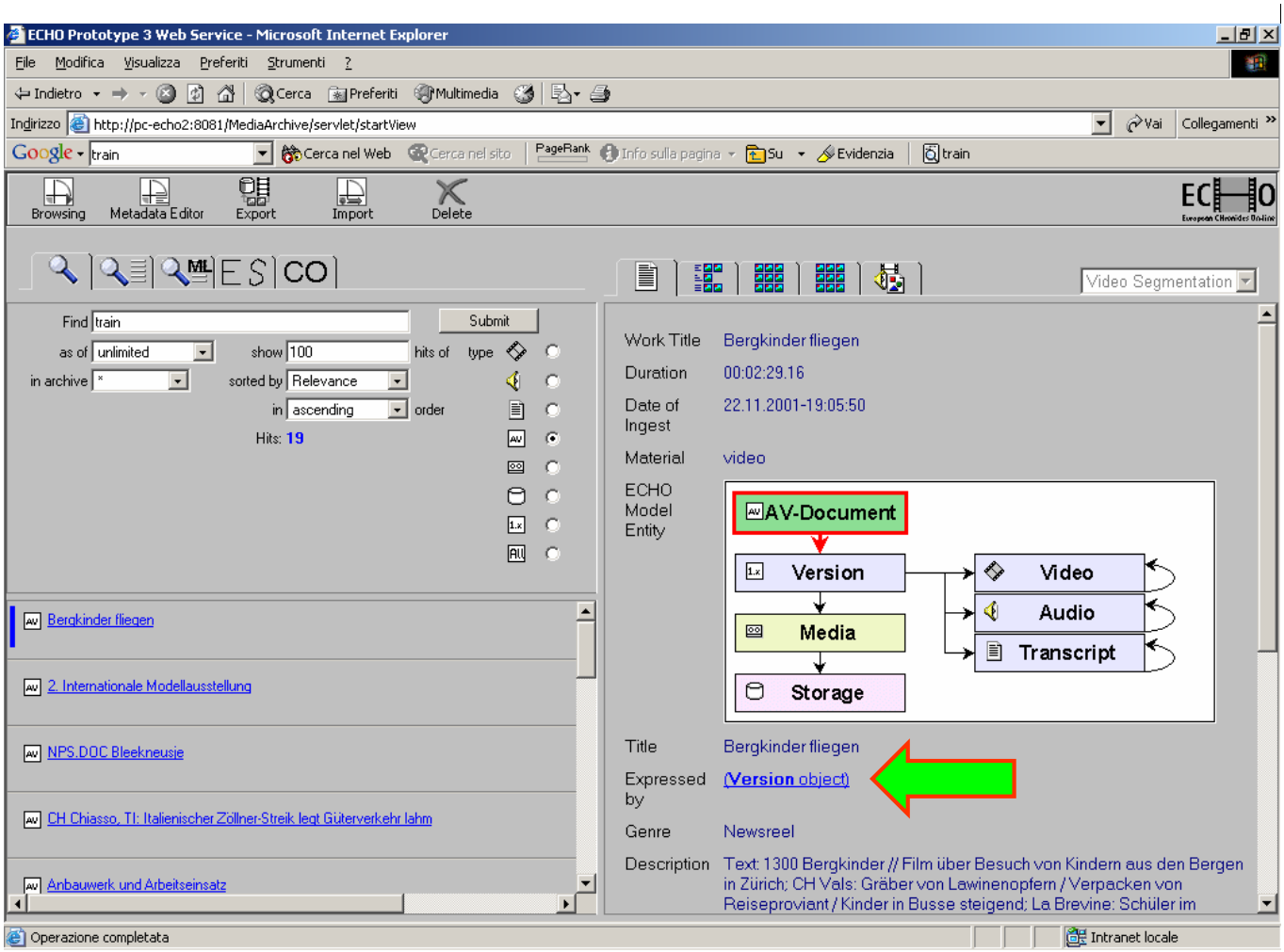
European CHronicles On-line

Digital Library Competence Center




ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find train
as of unlimited
show 100 hits of
in archive *
sorted by Relevance
order
metadata
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusje
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Result set
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find train
Submit
Word “train” found
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusje
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Expressed by (Version object)
Genre Newsreel
Description Text: 1300 Bergkinder // Film über Besuch von Kindern aus den Bergen in Zürich; CH Vals: Gräber von Lawinenopfern / Verpacken von Reiseproviant / Kinder in Busse steigend; La Brevine: Schüler im Schulzimmer sitzend; Zürich: Einfahrt im Bahnhof / Kinder Flugzeug besichtigend / Rundflug für Kinder / singende Kinder
Keywords Luft; Weltraum; Jugend
Thematic Keywords Elementary education
Themes 4 - Daily Life
Subthemes 4.3 - Daily Life - Education
Abstract Mountain children flying; Text: 1300 mountain children // (Film about mountain children in Zurich) CH Vals, graves of avalanche victims / packing travel provisions / children getting on a bus / Zurich, arrival at train station, children looking at aircraft / flight for children / singing children
Description Language DE
Production Date 1951-05-18
Locations Vals; La Brevine; Zürich
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
http://pc-echo2:8081/MediaArchive/servlet/startView
Browsing
Metadata Editor
Export
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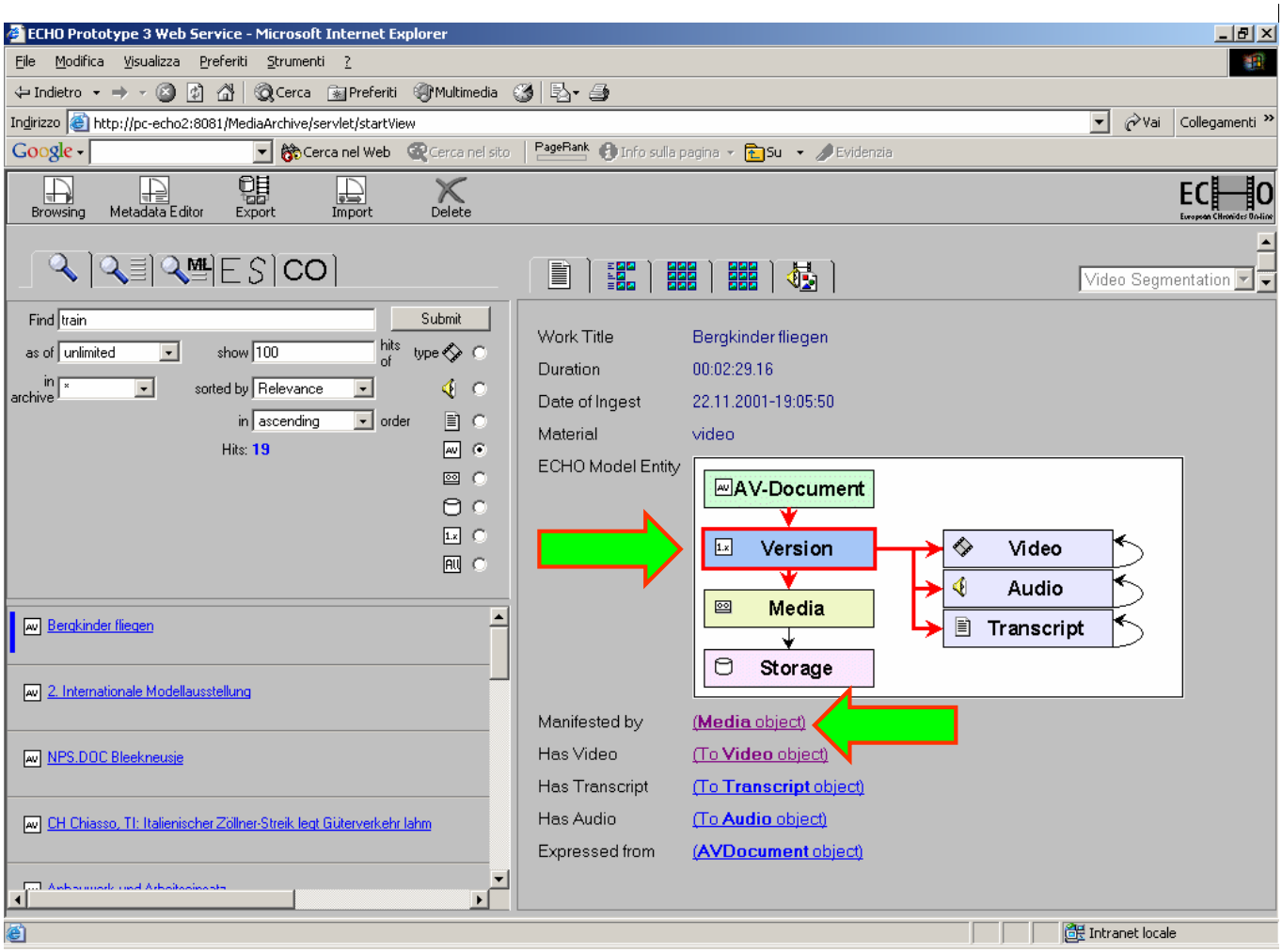
Video Segmentation
Find train
Submit
as of unlimited
show 100
hits of
type
in archive *
sorted by Relevance
in ascending order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusje
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Work Title Bergkinder fliegen
Duration 00:02:29.16
Date of Ingest 22.11.2001-19:05:50
Material video
ECHO Model Entity
AV-Document
Version
Media
Storage
Video
Audio
Transcript
Title Bergkinder fliegen
Expressed by (Version object)
Genre Newsreel
Description Text: 1300 Bergkinder // Film über Besuch von Kindern aus den Bergen in Zürich; CH Vals: Gräber von Lawinenopfern / Verpacken von Reiseproviant / Kinder in Busse steigend; La Brevine: Schüler im
Operazione completata
Intranet locale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as of unlimited
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in archive *
sorted by Relevance
in ascending order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusje
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Work Title Bergkinder fliegen
Duration 00:02:29.16
Date of Ingest 22.11.2001-19:05:50
Material video
ECHO Model Entity
AV-Document
Version
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Transcript
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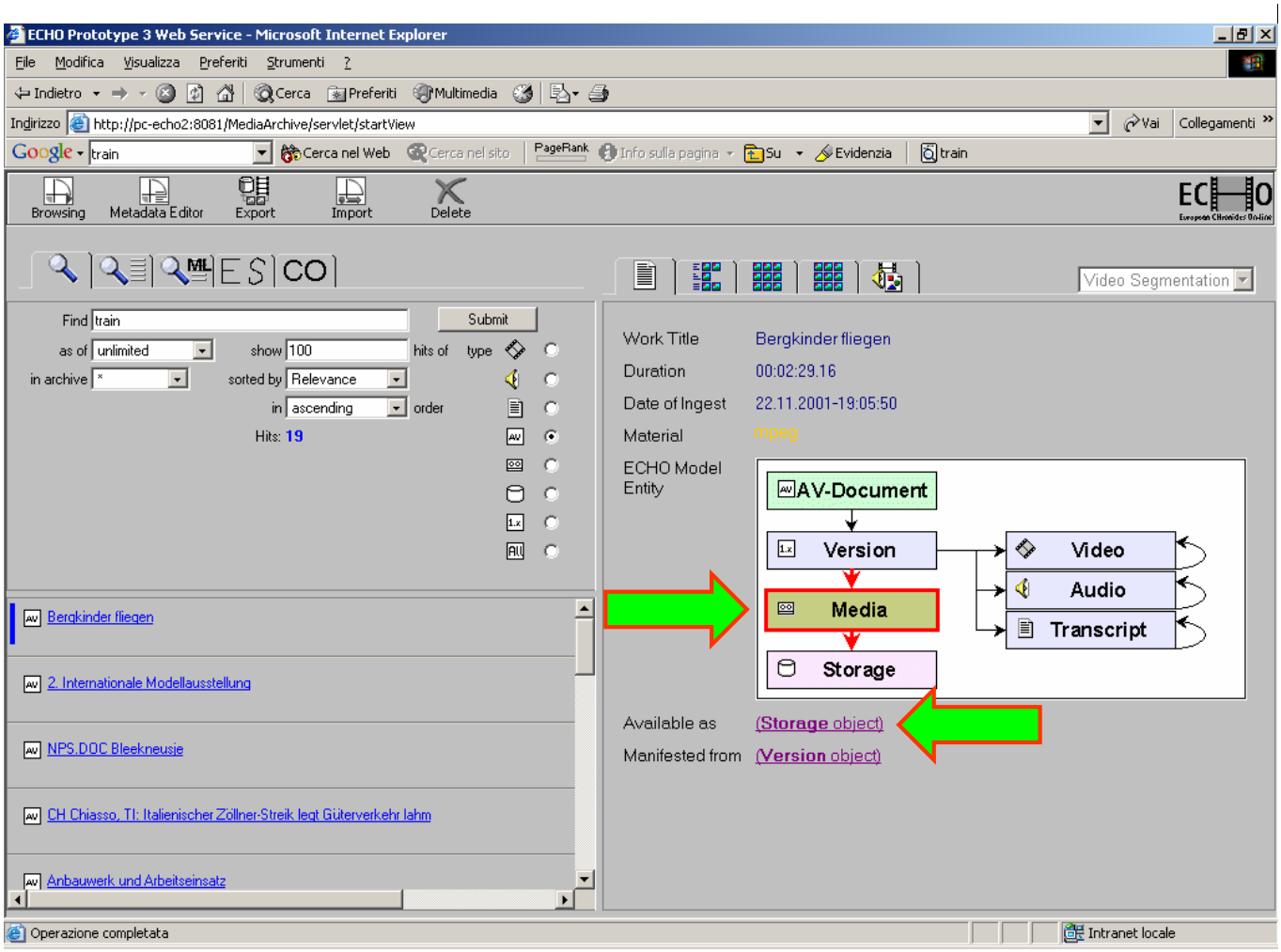
Has Transcript (To Transcript object)
Has Audio (To Audio object)
Expressed from (AVDocument object)
Intranet locale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Video Segmentation
Find train
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as of unlimited
show 100
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in archive *
sorted by Relevance
in ascending
order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Work Title
Bergkinder fliegen
Duration
00:02:29.16
Date of Ingest
22.11.2001-19:05:50
Material
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ECHO Model Entity
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Storage
Video
Audio
Transcript
Available as
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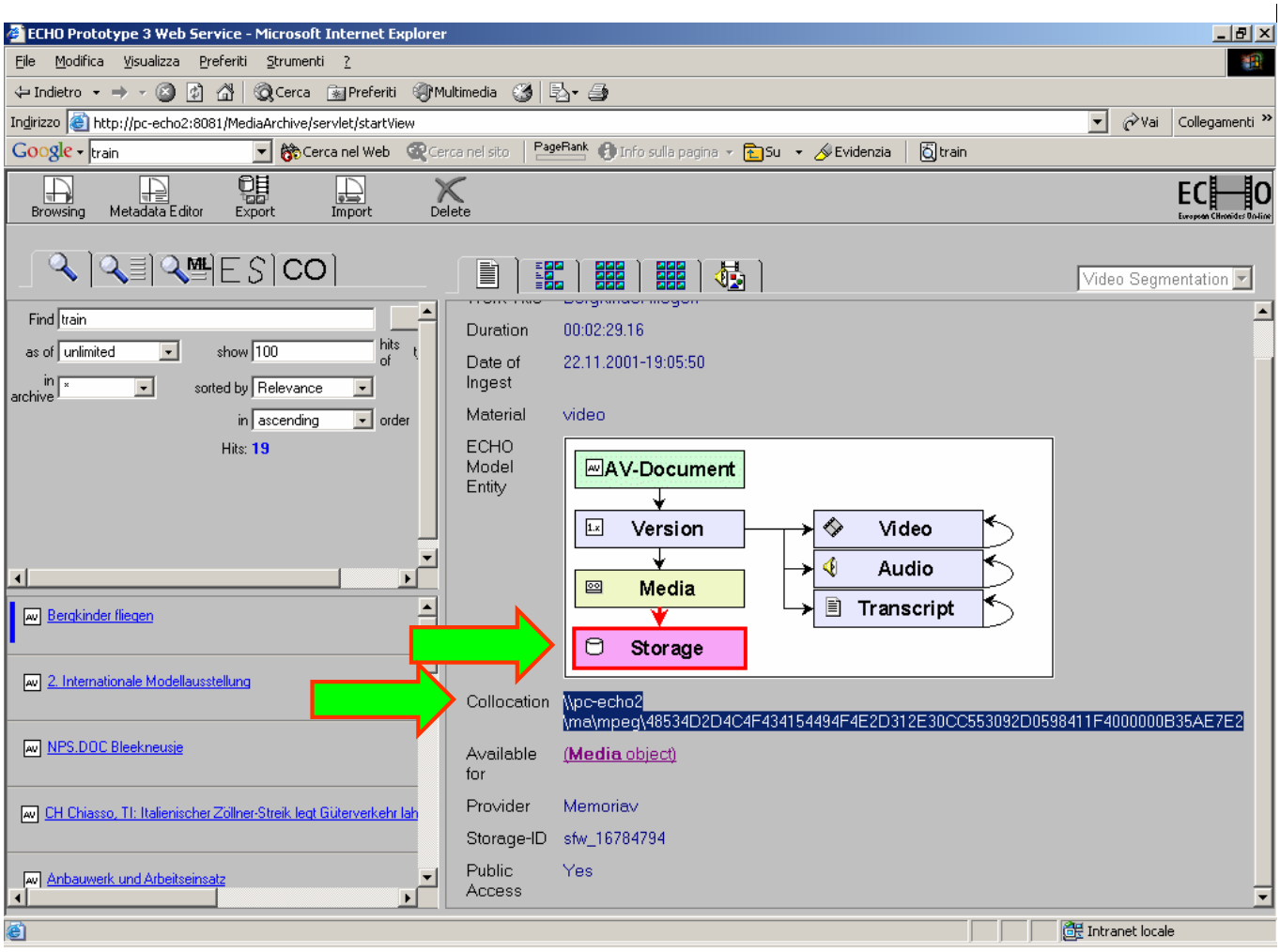
Manifested from
(Version object)
Operazione completata
Intranet locale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Metadata Editor
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Video Segmentation
Find train
as of unlimited
show 100
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in archive *
sorted by Relevance
in ascending
order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
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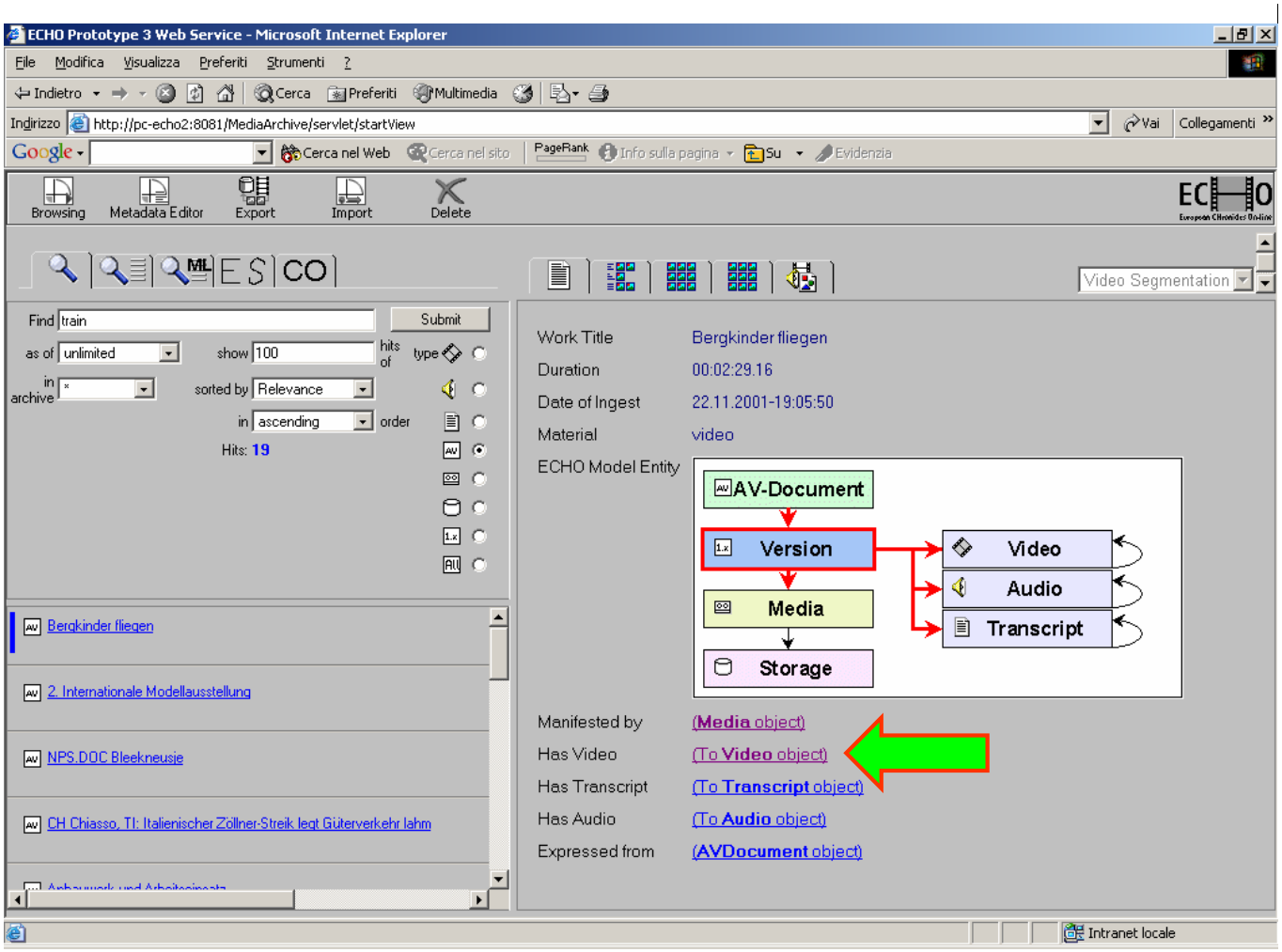
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lah
Anbauwerk und Arbeitseinsatz
Duration
00:02:29.16
Date of Ingest
22.11.2001-19:05:50
Material
video
ECHO Model Entity
AV-Document
Version
Media
Storage
Video
Audio
Transcript
Collocation
\\pc-echo2
\ma\mpeg\48534D2D4C4F434154494F4E2D312E30CC553092D0598411F4000000B35AE7E2
Available for
(Media object)
Provider
Memoriav
Storage-ID
sfw_16784794
Public Access
Yes
Intranet locale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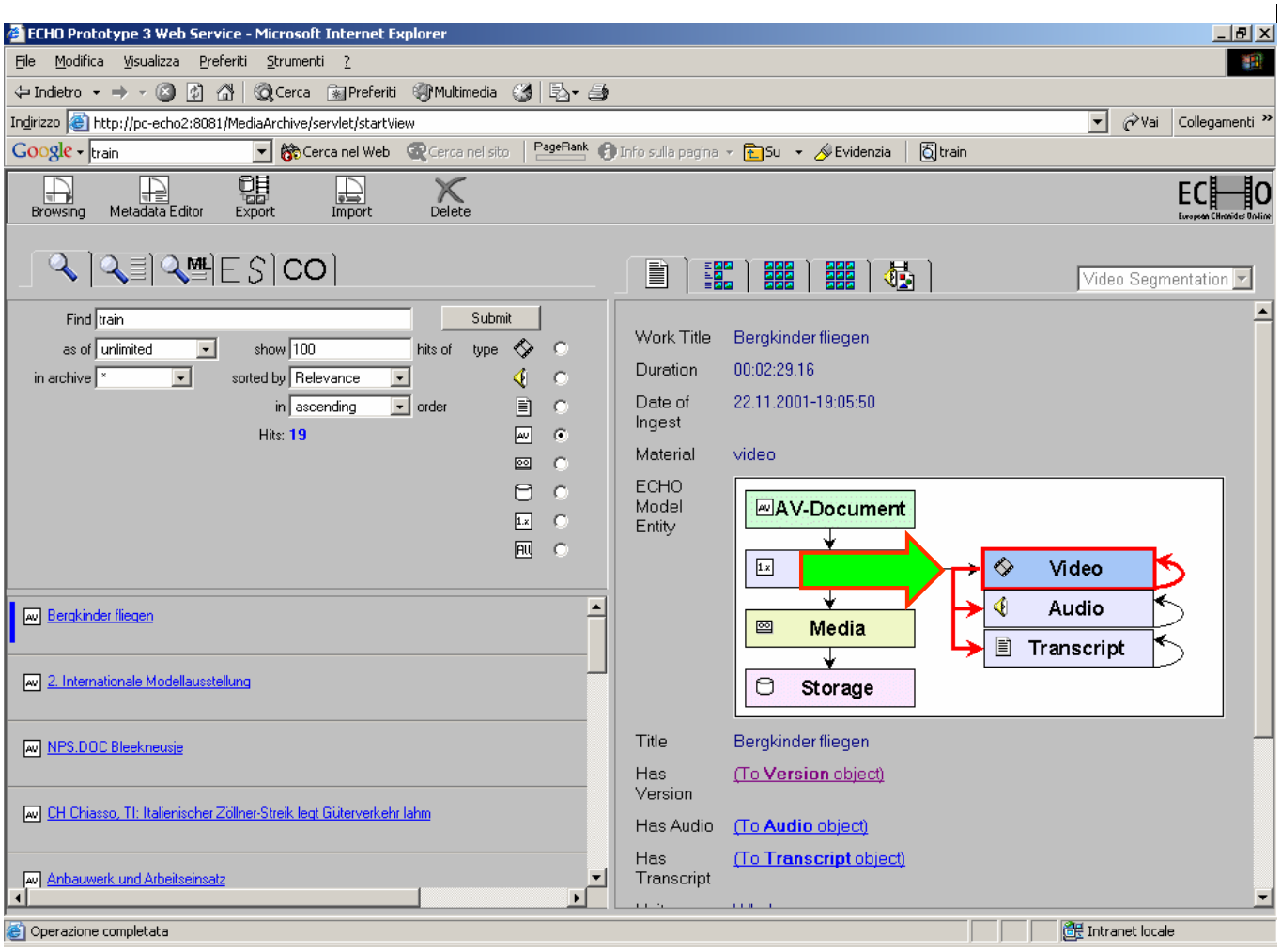
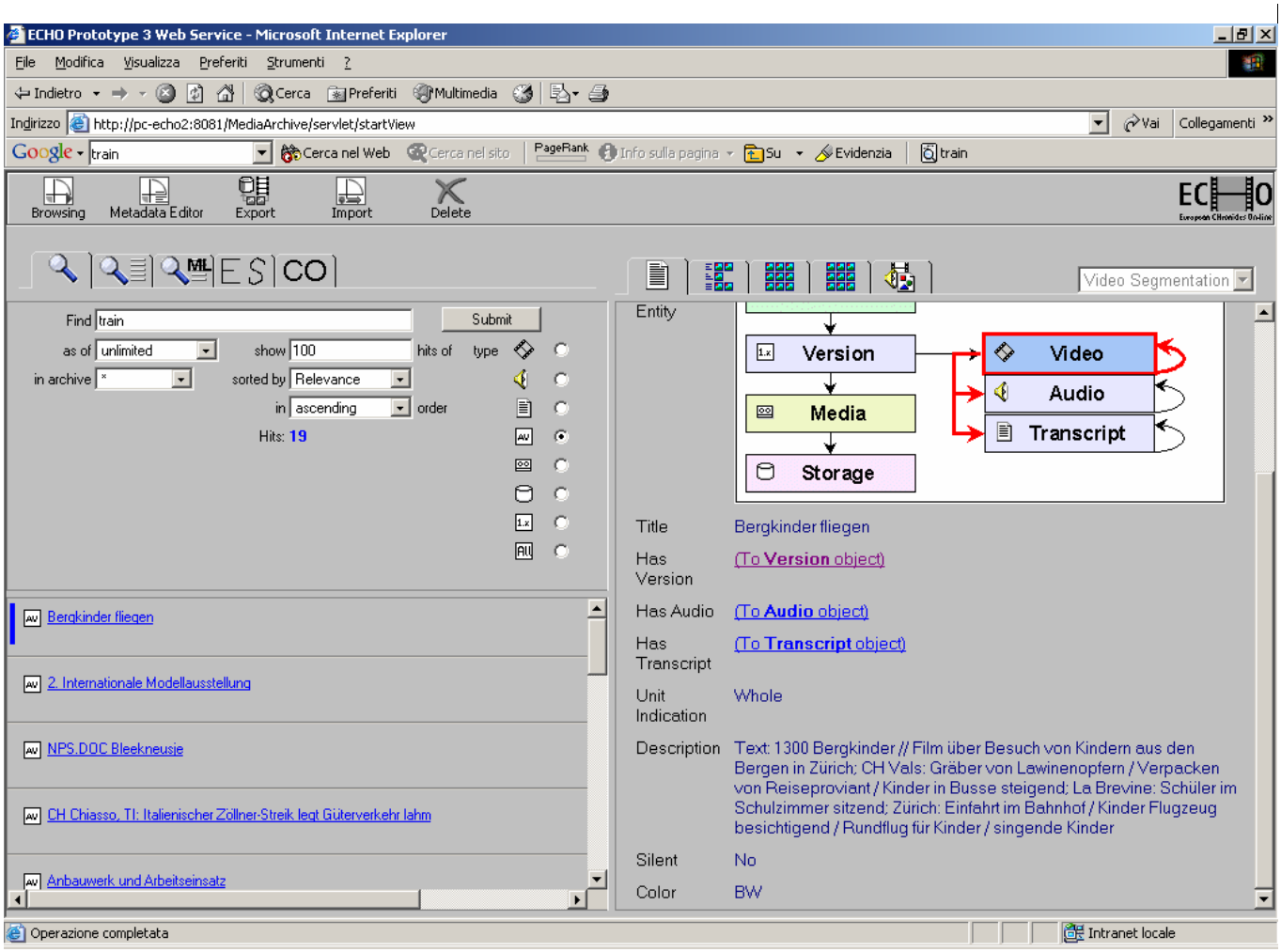
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Find train Submit
as of unlimited show 100 hits of type
in archive * sorted by Relevance
in ascending order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusje
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Work Title Bergkinder fliegen
Duration 00:02:29.16
Date of Ingest 22.11.2001-19:05:50
Material video
ECHO Model Entity
AV-Document
Version
Media
Storage
Video
Audio
Transcript
Manifested by (Media object)
Has Video (To Video object)
Has Transcript (To Transcript object)
Has Audio (To Audio object)
Expressed from (AVDocument object)
Intranet locale

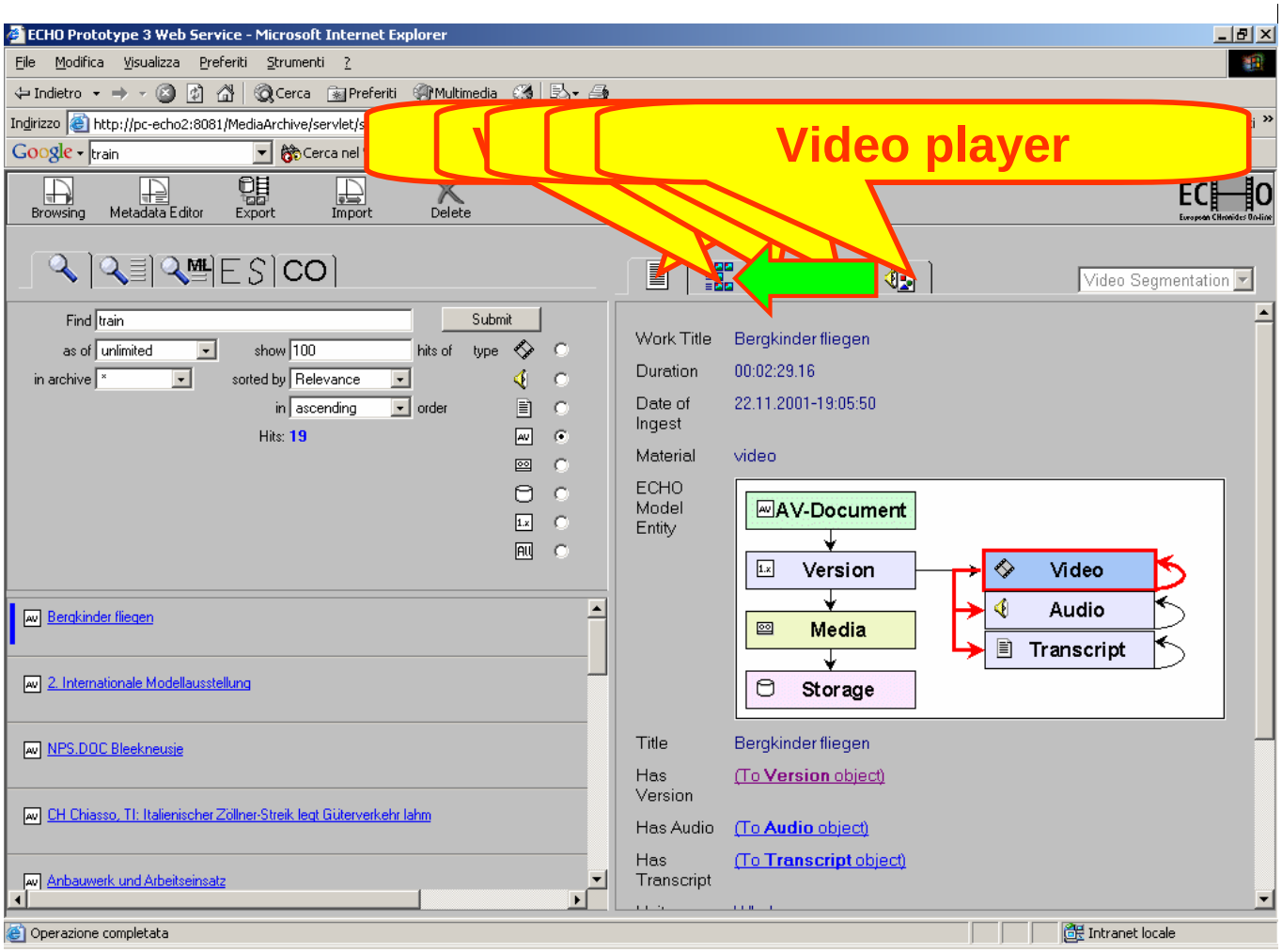

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google train Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia train
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Find train Submit
as of unlimited show 100 hits of type
in archive * sorted by Relevance
in ascending order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusje
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Work Title Bergkinder fliegen
Duration 00:02:29.16
Date of Ingest 22.11.2001-19:05:50
Material video
ECHO Model Entity
AV-Document
Media
Storage
Video
Audio
Transcript
Title Bergkinder fliegen
Has Version (To Version object)
Has Audio (To Audio object)
Has Transcript (To Transcript object)
Operazione completata
Intranet locale

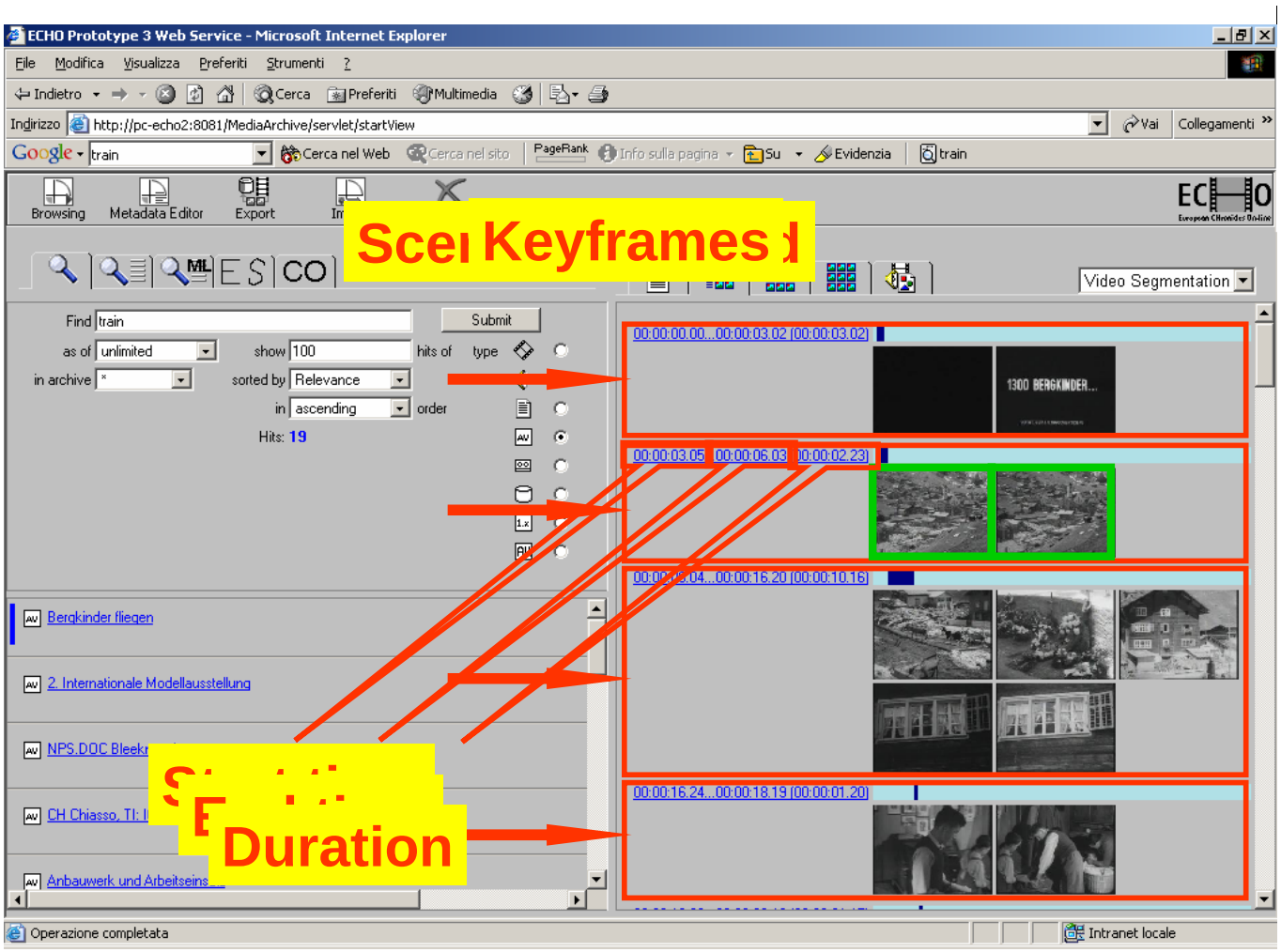


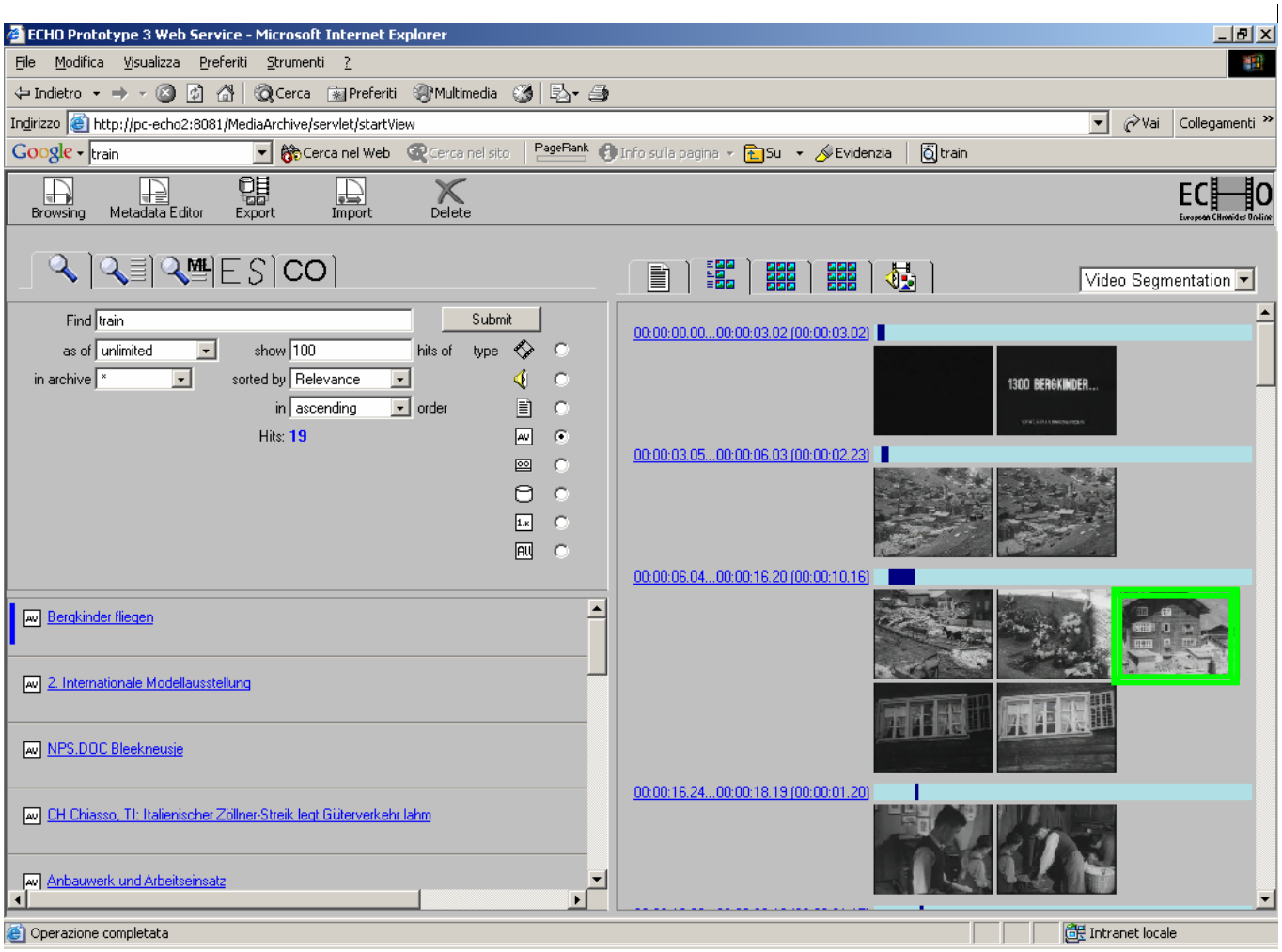
The multimedia metadata

European CHronicles On-line

Digital Library Competence Center


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Video player
Browsing
Metadata Editor
Export
Import
Delete
Video Segmentation
Find train
Submit
as of unlimited
show 100
hits of
type
in archive *
sorted by Relevance
in ascending
order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Work Title Bergkinder fliegen
Duration 00:02:29.16
Date of Ingest 22.11.2001-19:05:50
Material video
ECHO Model Entity
AV-Document
Version
Media
Storage
Video
Audio
Transcript
Title Bergkinder fliegen
Has Version (To Version object)
Has Audio (To Audio object)
Has Transcript (To Transcript object)
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Video Segmentation
Find train
Submit
as of unlimited
show 100
hits of
type
in archive *
sorted by Relevance
in ascending
order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
Anbauwerk und Arbeitseins
00:00:00.00...00:00:03.02 (00:00:03.02)
00:00:03.05
00:00:06.03
00:00:16.20 (00:00:10.16)
00:00:16.24...00:00:18.19 (00:00:01.20)
Duration
Operazione completata
Intranet locale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File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google train Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia train
Browsing Metadata Editor Export Import Delete
ECHO
Video Segmentation
Find train Submit
as of unlimited show 100 hits of type
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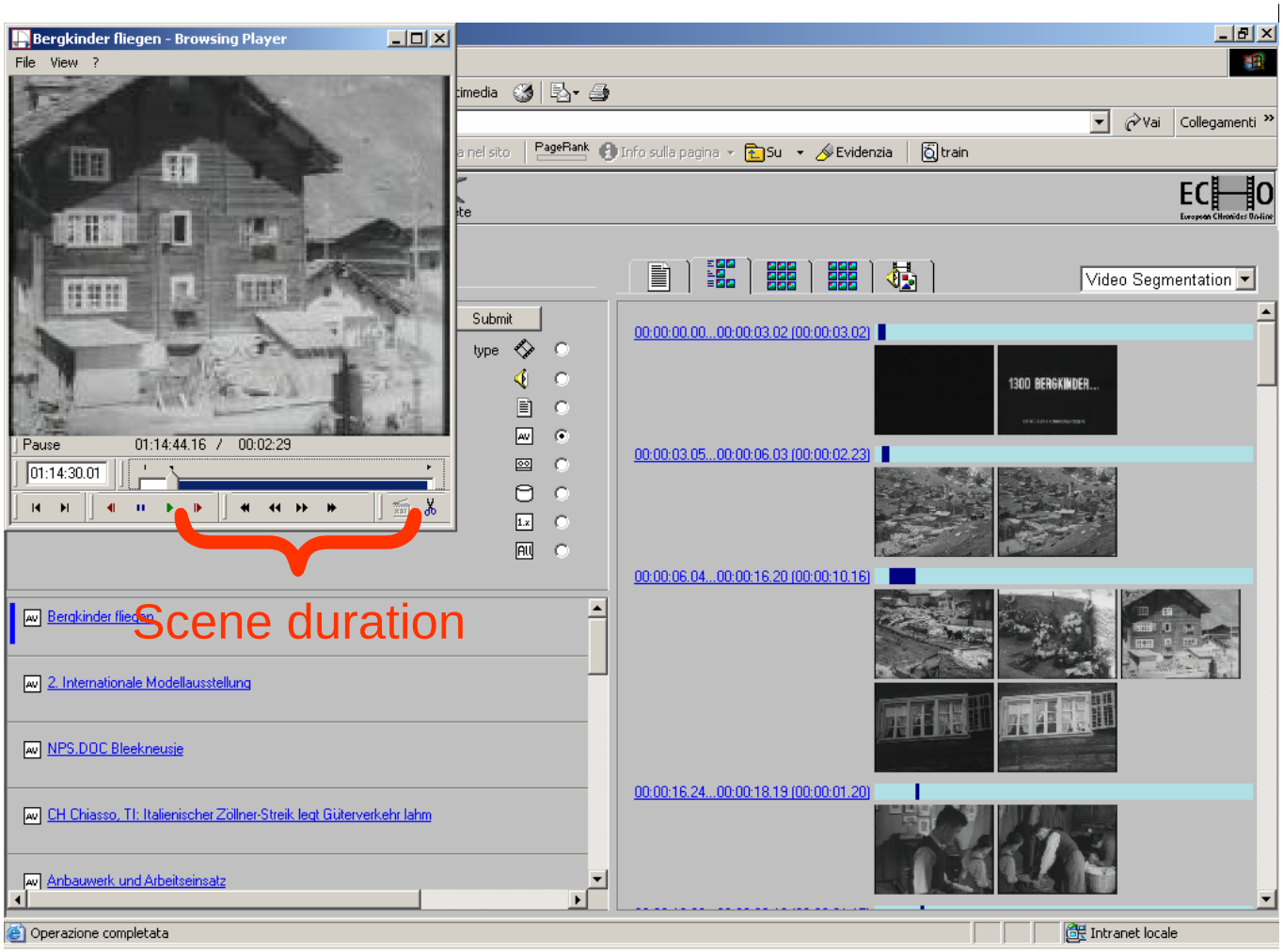
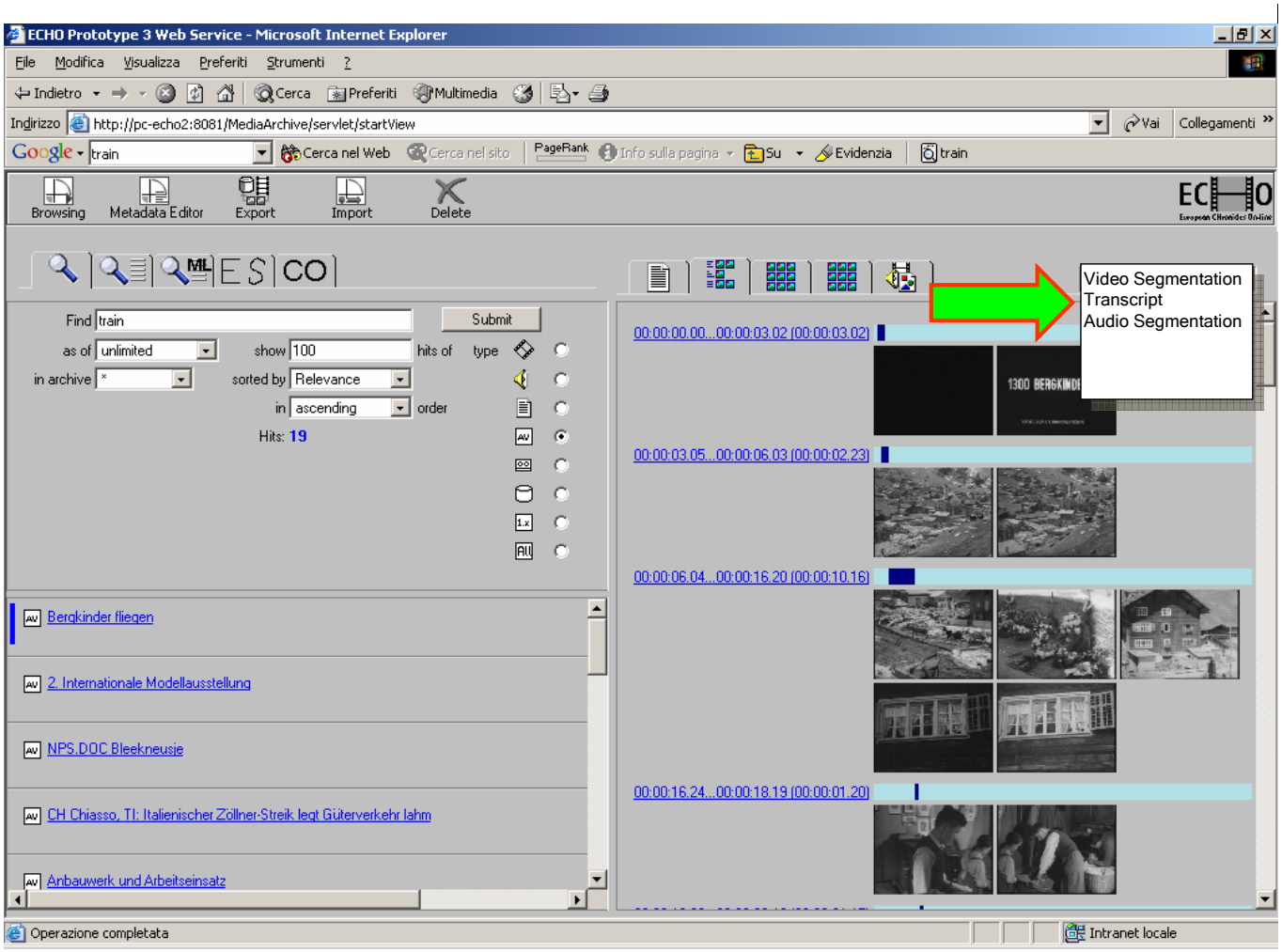
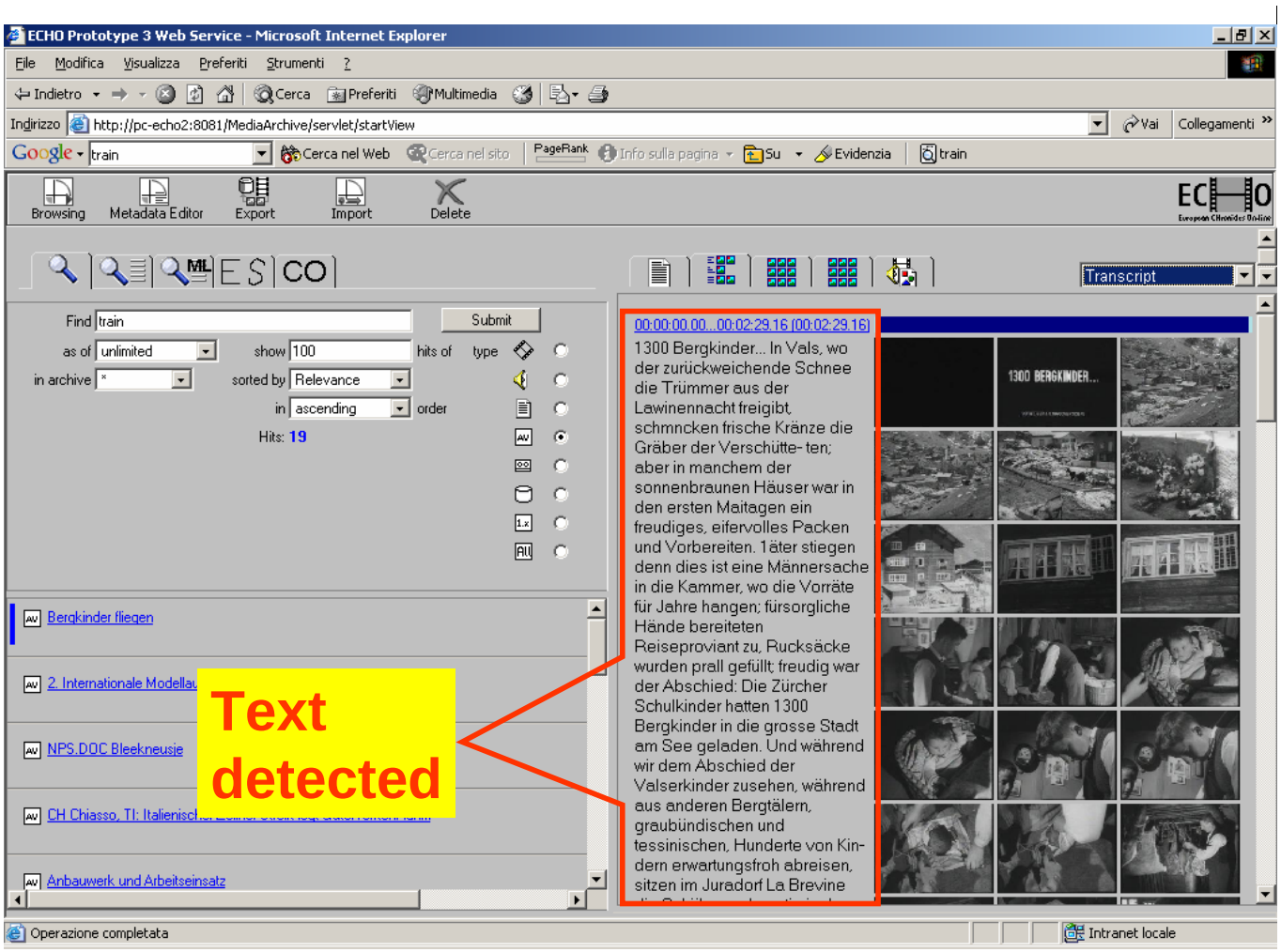
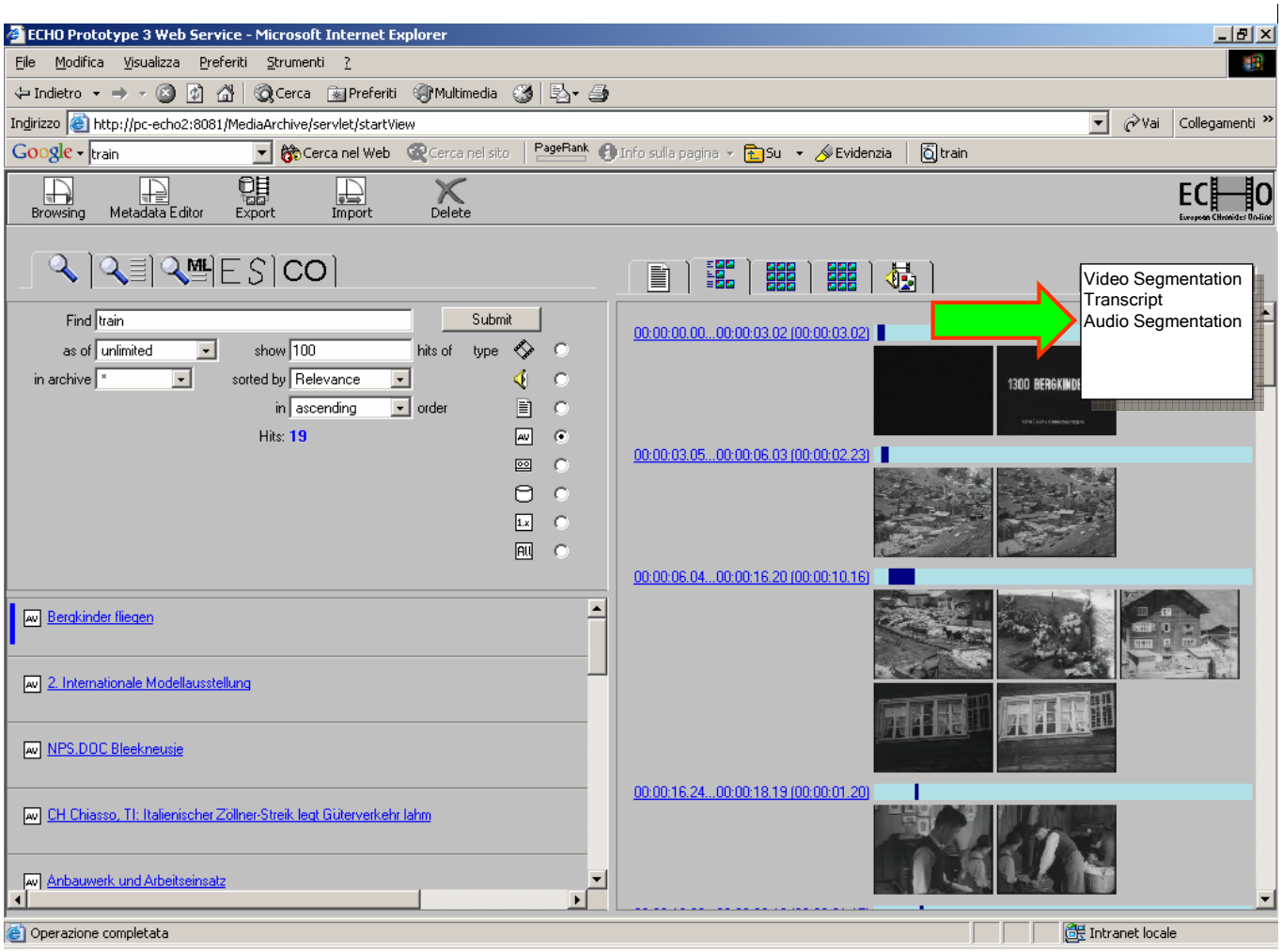
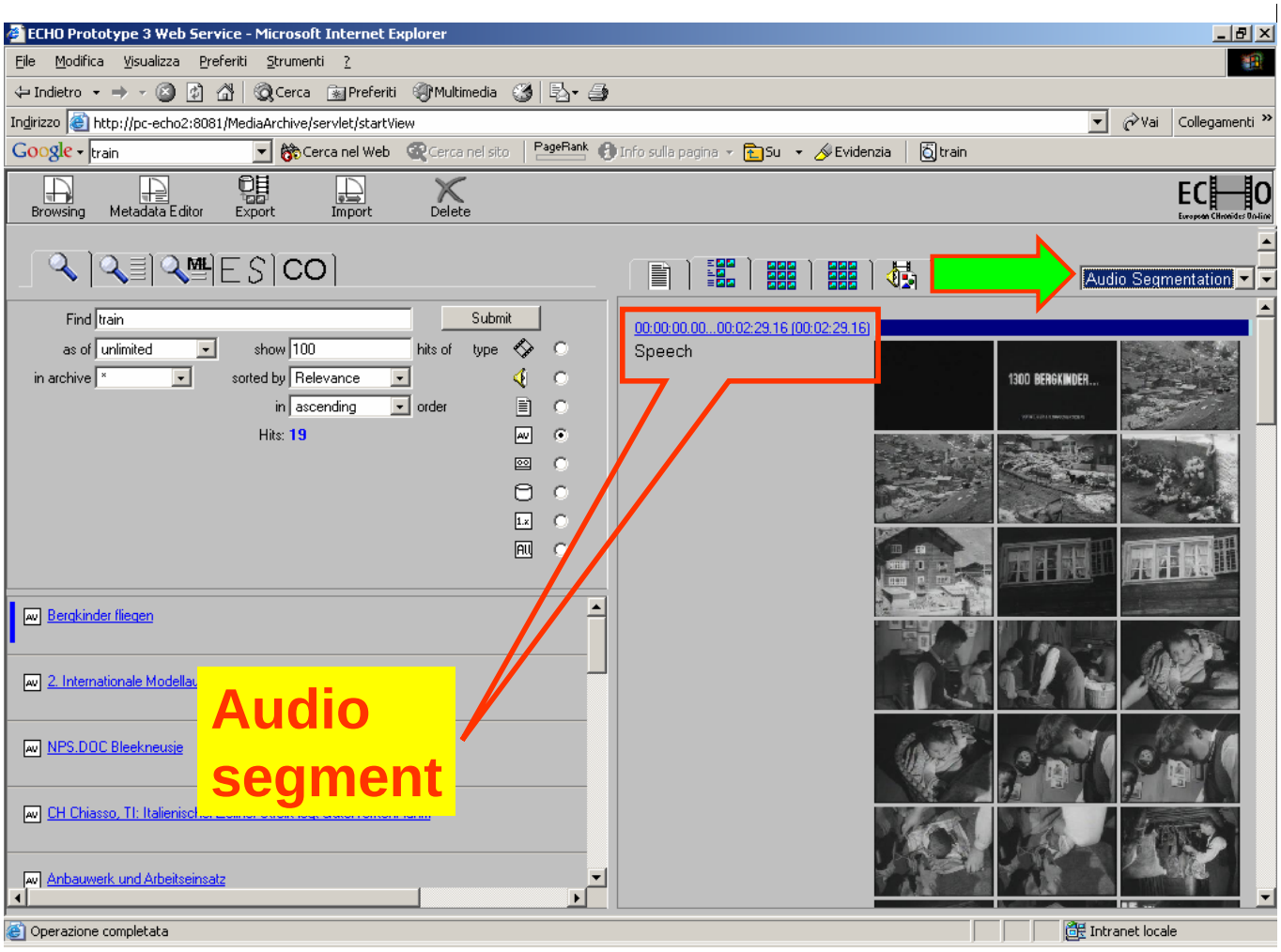
in ascending order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
00:00:00.00...00:00:03.02 (00:00:03.02)
00:00:03.05...00:00:06.03 (00:00:02.23)
00:00:06.04...00:00:16.20 (00:00:10.16)
00:00:16.24...00:00:18.19 (00:00:01.20)
1300 BERGKINDER...
Operazione completata
Intranet locale


Bergkinder fliegen - Browsing Player
File View ?
Pause 01:14:44.16 / 00:02:29
01:14:30.01
Scene duration
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Video Segmentation
Submit
type
00:00:00.00...00:00:03.02 (00:00:03.02)
00:00:03.05...00:00:06.03 (00:00:02.23)
00:00:06.04...00:00:16.20 (00:00:10.16)
00:00:16.24...00:00:18.19 (00:00:01.20)
1300 BERGKINDER...
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Video Segmentation
Transcript
Audio Segmentation
Find train
Submit
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Transcript
Text detected
1300 Bergkinder... In Vals, wo der zurückweichende Schnee die Trümmer aus der Lawinennacht freigibt, schmncken frische Kränze die Gräber der Verschütte- ten; aber in manchem der sonnenbraunen Häuser war in den ersten Maitagen ein freudiges, eifervolles Packen und Vorbereiten. 1äter stiegen denn dies ist eine Männersache in die Kammer, wo die Vorräte für Jahre hangen; fürsorgliche Hände bereiteten Reiseproviant zu, Rucksäcke wurden prall gefüllt; freudig war der Abschied: Die Zürcher Schulkinder hatten 1300 Bergkinder in die grosse Stadt am See geladen. Und während wir dem Abschied der Valserkinder zusehen, während aus anderen Bergtälern, graubündischen und tessinischen, Hunderte von Kin- dern erwartungsfroh abreisen, sitzen im Juradorf La Brevine


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google train Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia train
Browsing Metadata Editor Export Import Delete
ECHO
Find train Submit
as of unlimited show 100 hits of type
in archive * sorted by Relevance
in ascending order
Hits: 19
Video Segmentation
Transcript
Audio Segmentation
00:00:00.00...00:00:03.02 (00:00:03.02)
00:00:03.05...00:00:06.03 (00:00:02.23)
00:00:06.04...00:00:16.20 (00:00:10.16)
00:00:16.24...00:00:18.19 (00:00:01.20)
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Operazione completata
Intranet locale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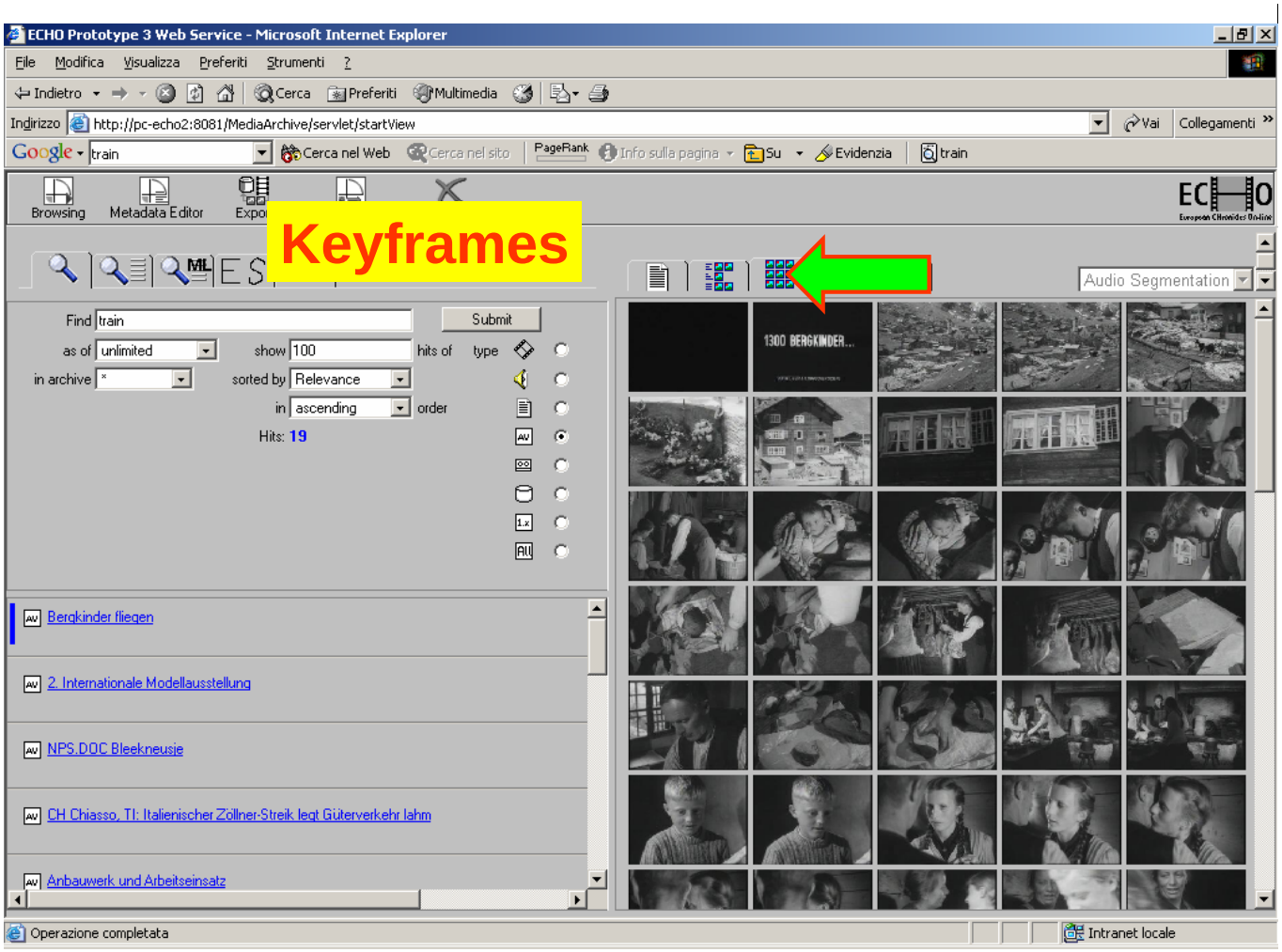
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google train Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia train
Browsing Metadata Editor Export Import Delete
ECHO
Audio Segmentation
Find train Submit
as of unlimited show 100 hits of type
in archive * sorted by Relevance
in ascending order
Hits: 19
00:00:00.00...00:02:29.16 (00:02:29.16)
Speech
Bergkinder fliegen
2. Internationale Modellau
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienisch
Anbauwerk und Arbeitseinsatz
Audio segment
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Keyframes
Audio Segmentation
Find train
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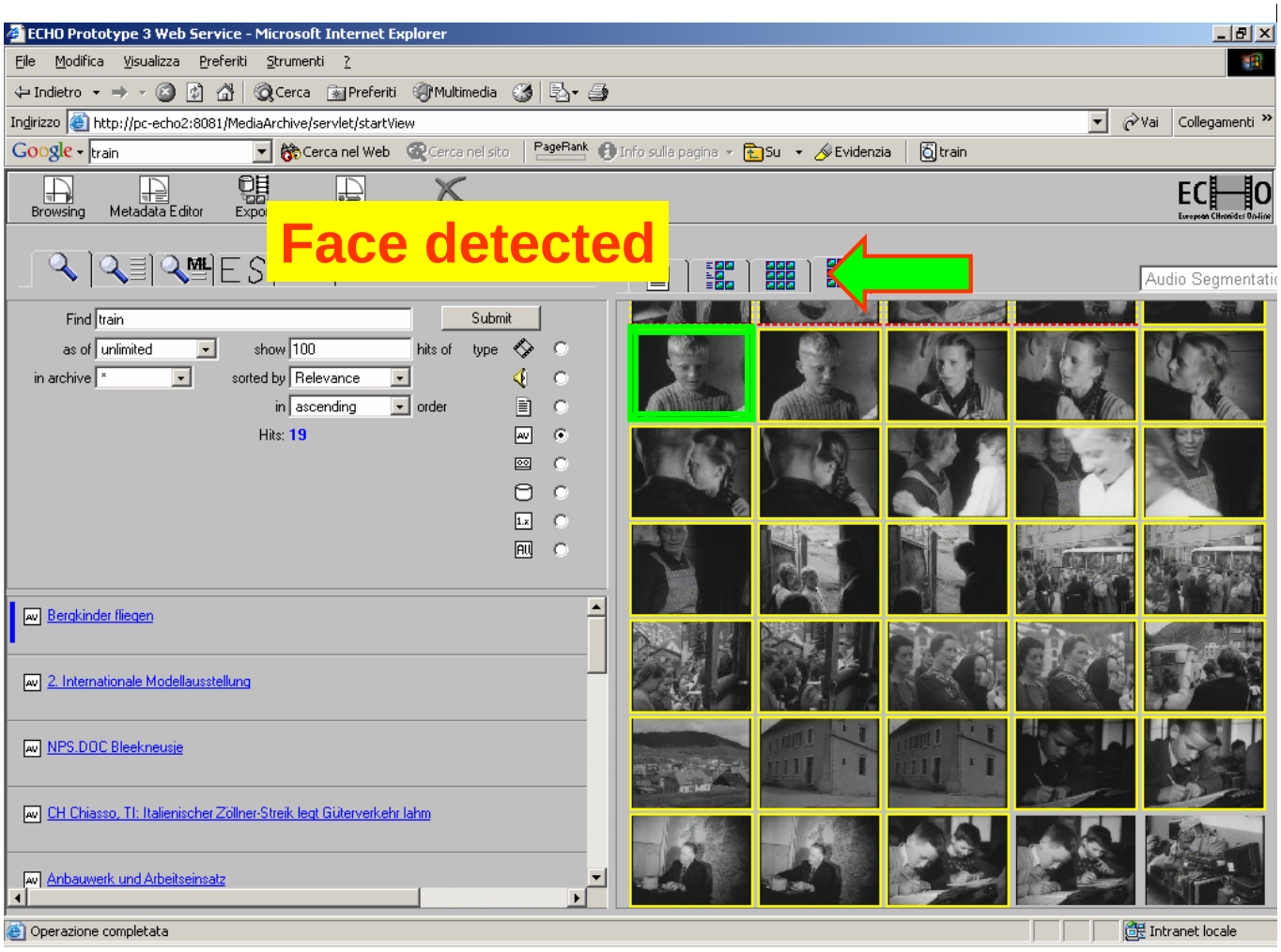
sorted by Relevance
in ascending
order
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Face detected
Audio Segmentatio
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sorted by Relevance
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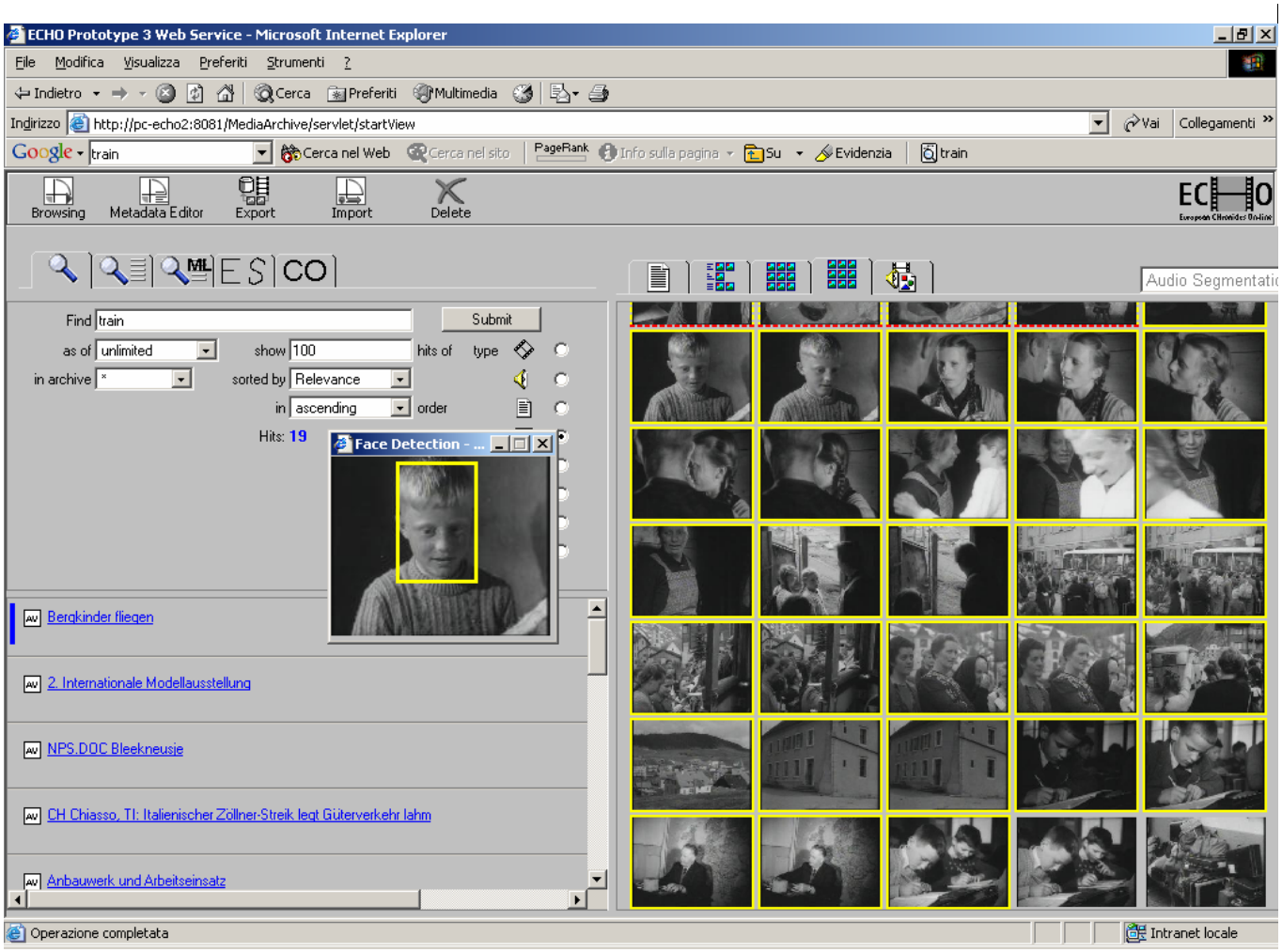
Hits: 19
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Operazione completata
Intranet locale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File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google train Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia train
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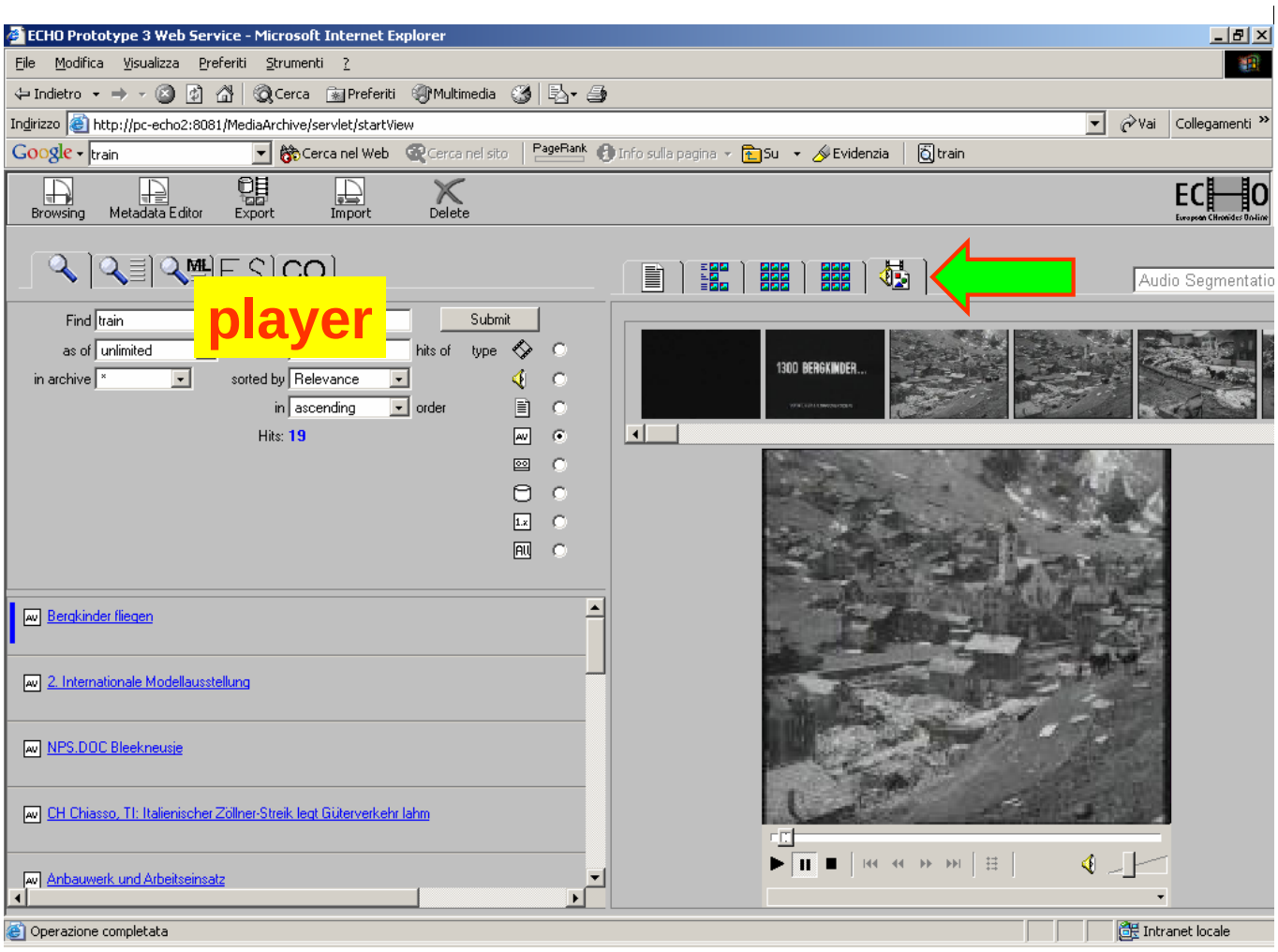
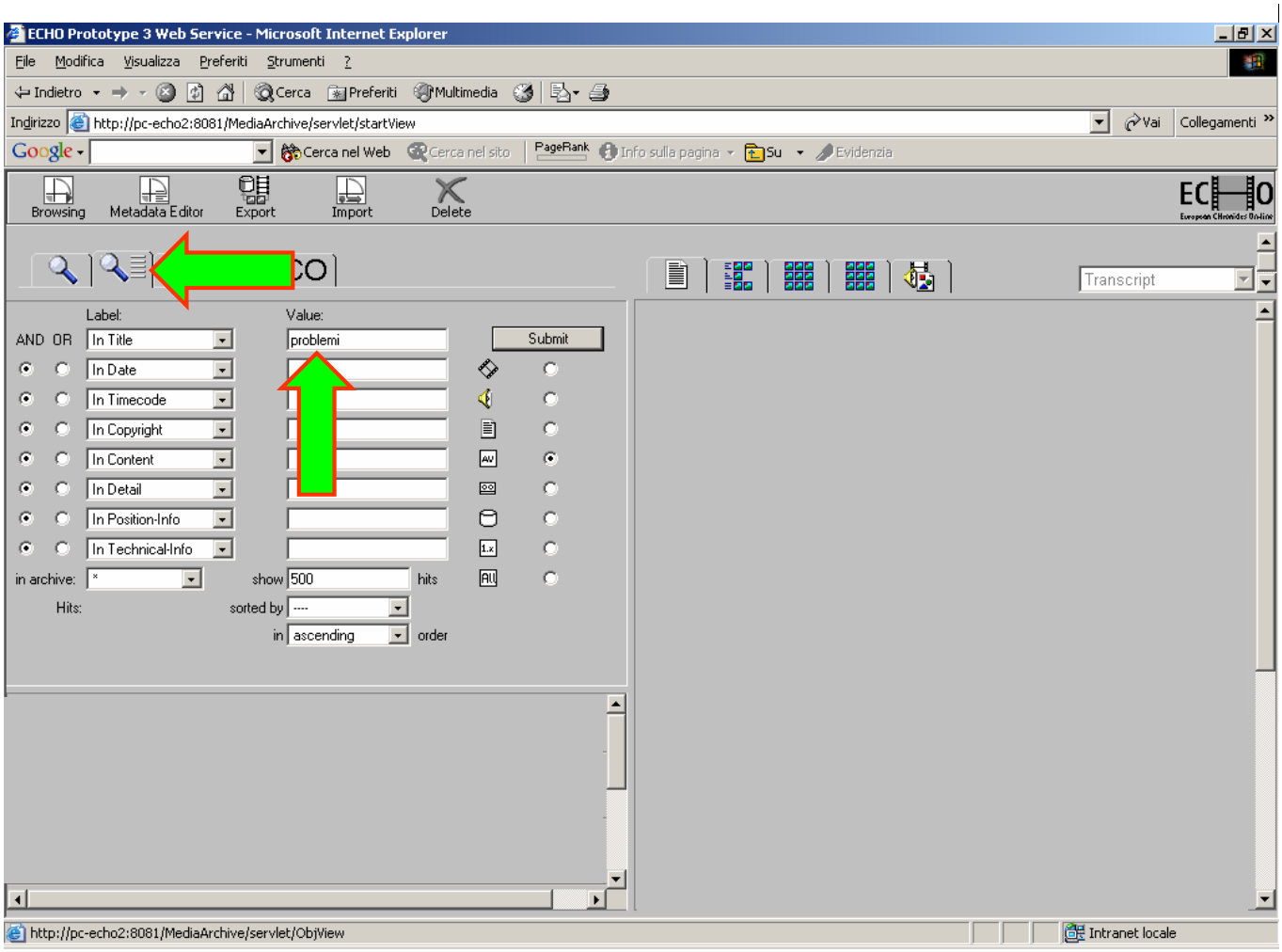
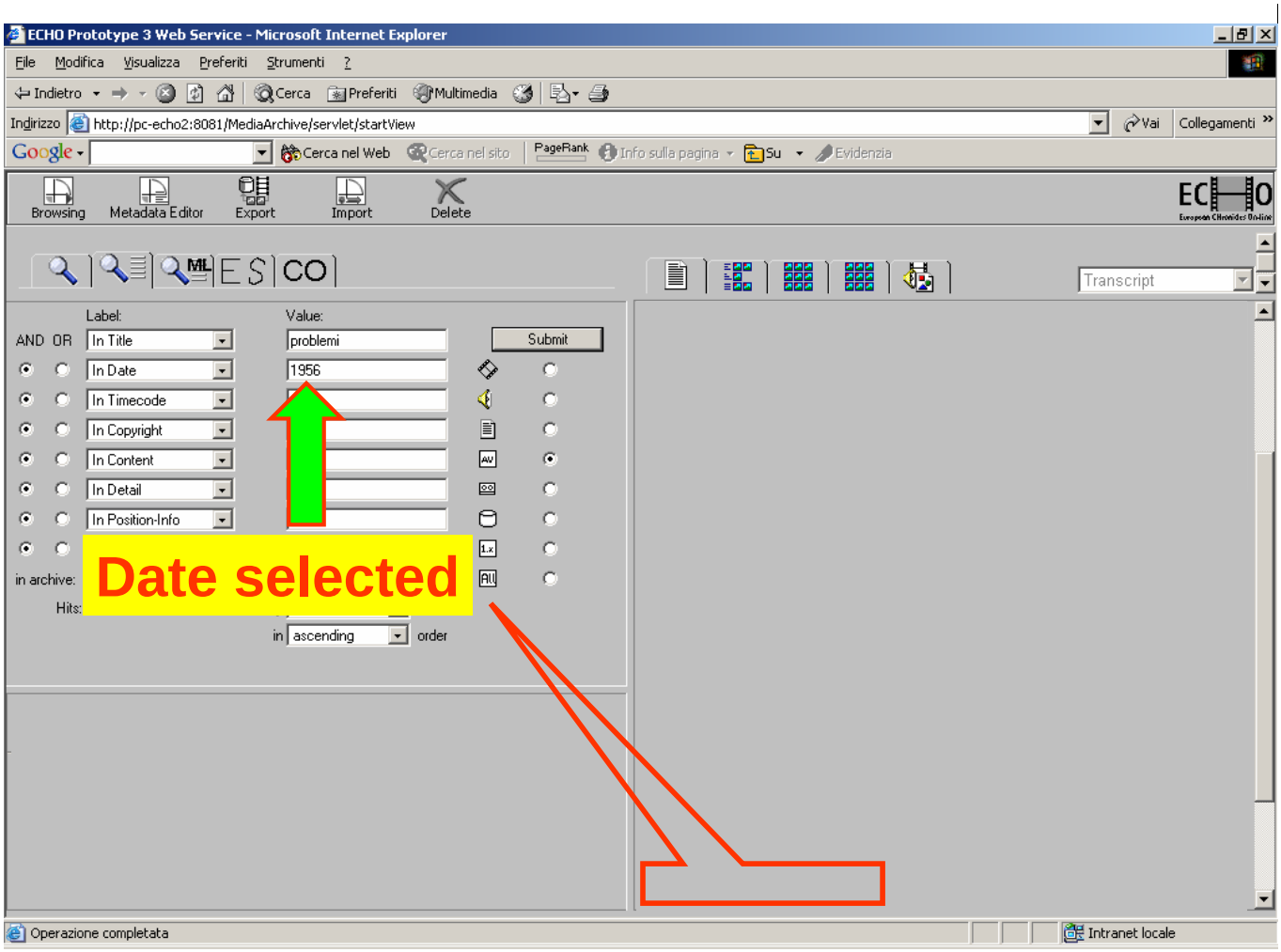
Audio Segmentatio
Find train Submit
as of unlimited show 100 hits of type
in archive * sorted by Relevance
in ascending order
Hits: 19
Face Detection - ...
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Operazione completata
Intranet locale


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google train Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia train
Browsing Metadata Editor Export Import Delete
ECHO
Audio Segmentatio
player
Find train Submit
as of unlimited hits of type
in archive * sorted by Relevance
in ascending order
Hits: 19
1300 BERGKINDER...
Bergkinder fliegen
2. Internationale Modellausstellung
NPS.DOC Bleekneusie
CH Chiasso, TI: Italienischer Zöllner-Streik legt Güterverkehr lahm
Anbauwerk und Arbeitseinsatz
Operazione completata
Intranet locale

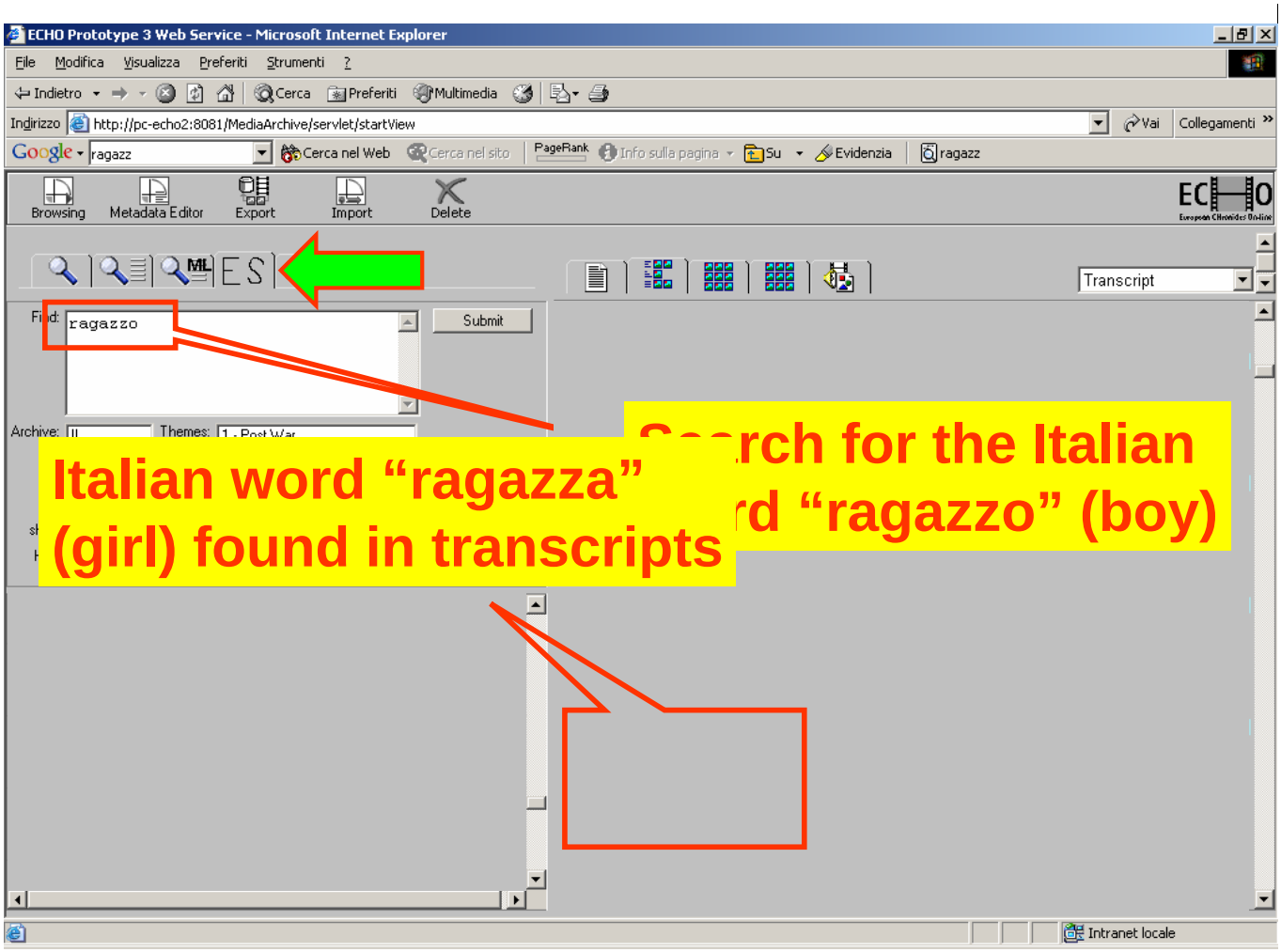
The fielded search

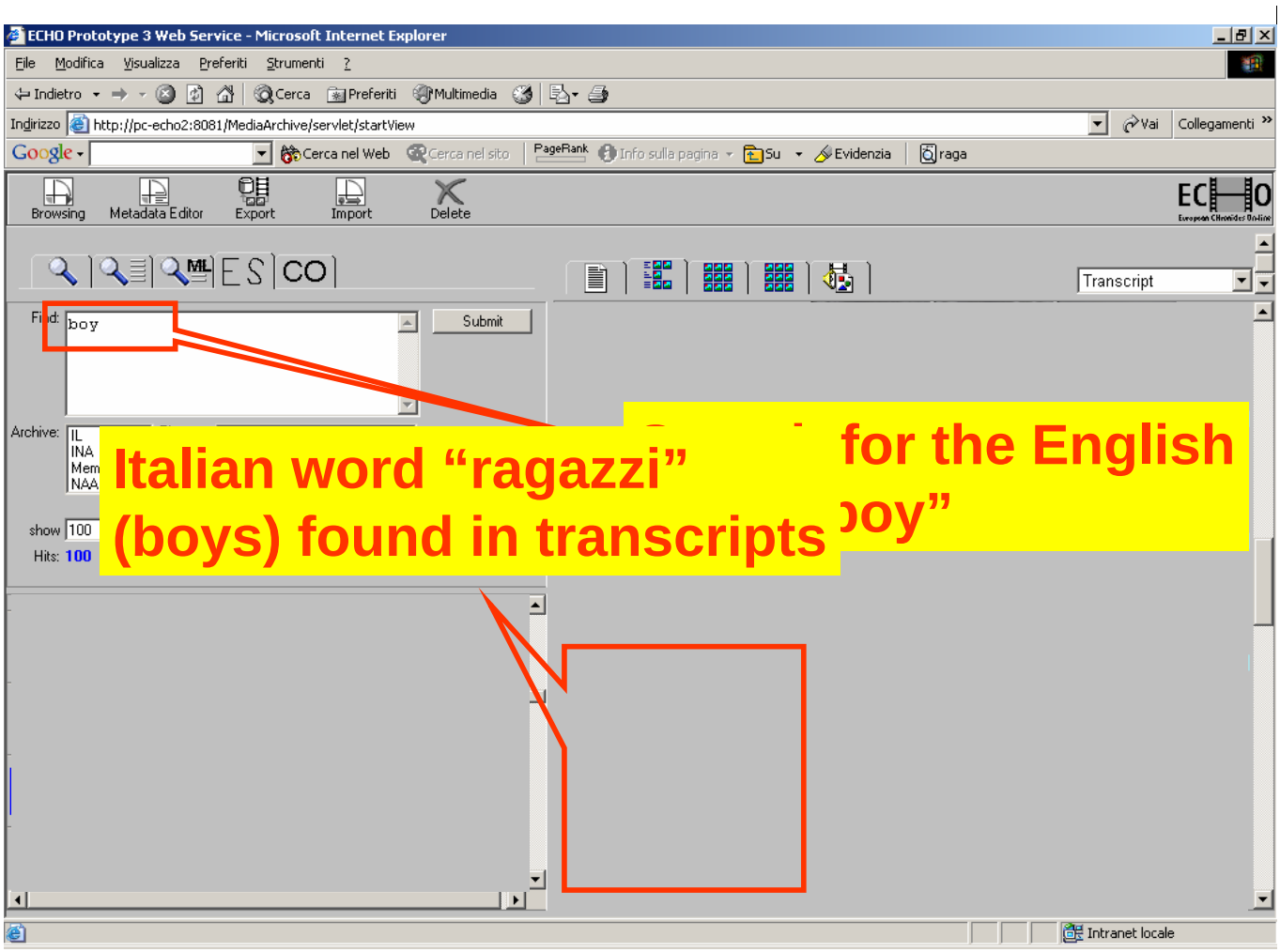


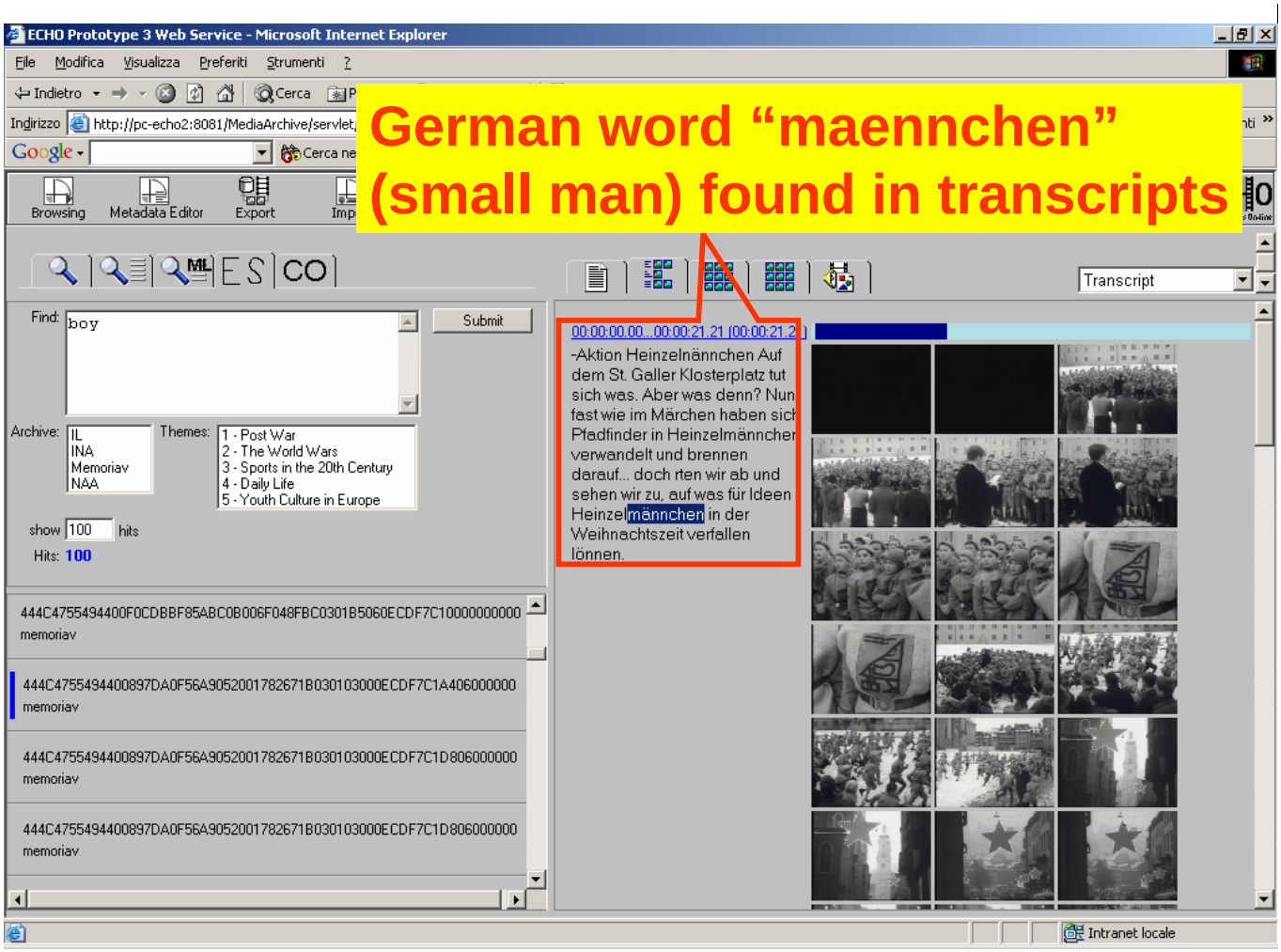


The (Eurospider) CrossLanguage Retrieval on Trancripts

- The transcript of a video can be in Italian, French, German, or Dutch.
- The CL retrieval allows to search the transcripts using any of these 4 languages, and the English language.


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Import
Delete
Transcript
ragazzo
Submit
Italian word “ragazza” (girl) found in transcripts
Search for the Italian word “ragazzo” (boy)

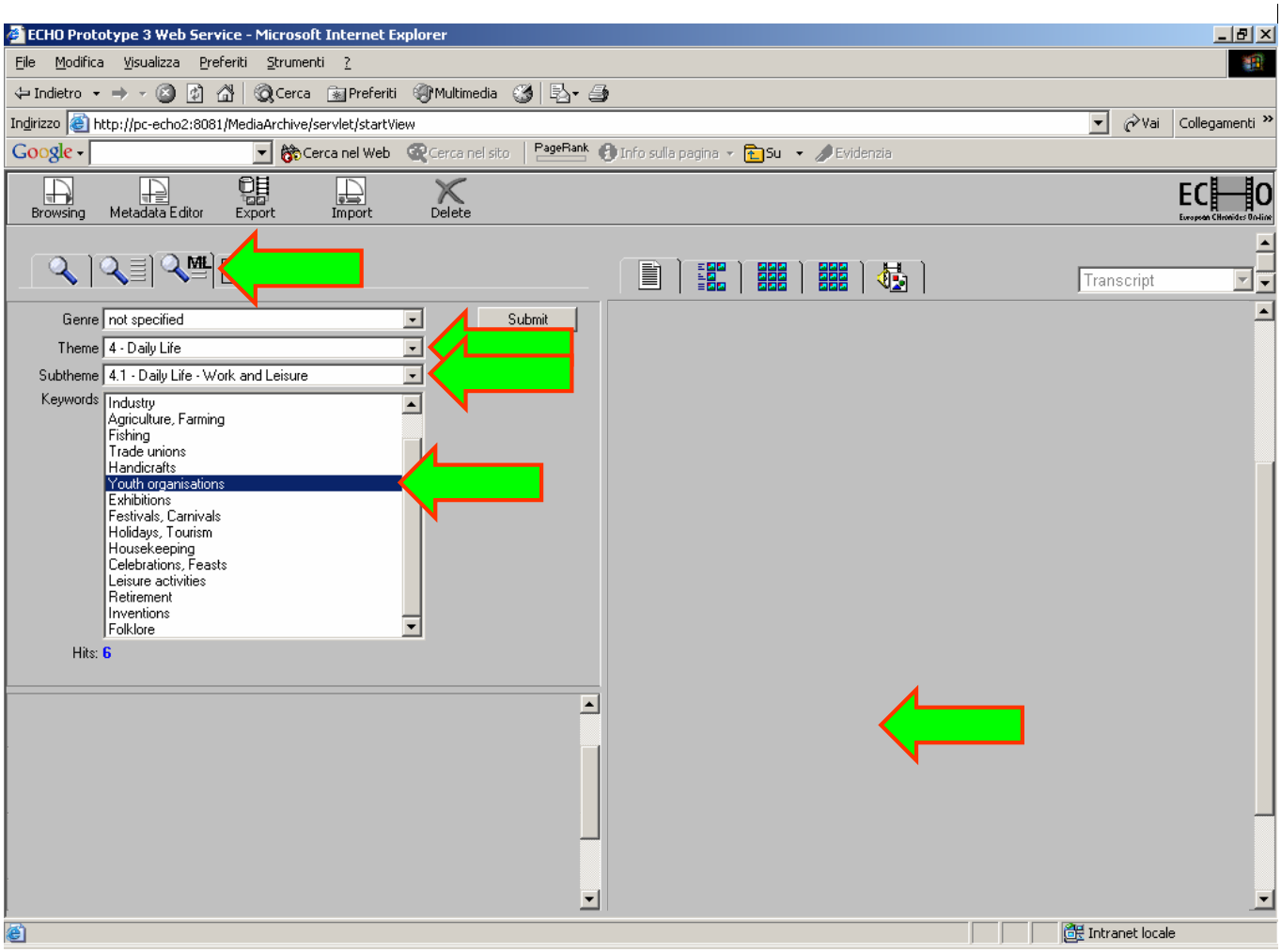

ECHO Prototype 3 Web Service - Microsoft Internet Explorer
Browsing
Metadata Editor
Export
Import
Delete
Transcript
boy
Submit
Italian word “ragazzi” (boys) found in transcripts
Search for the English word “boy”



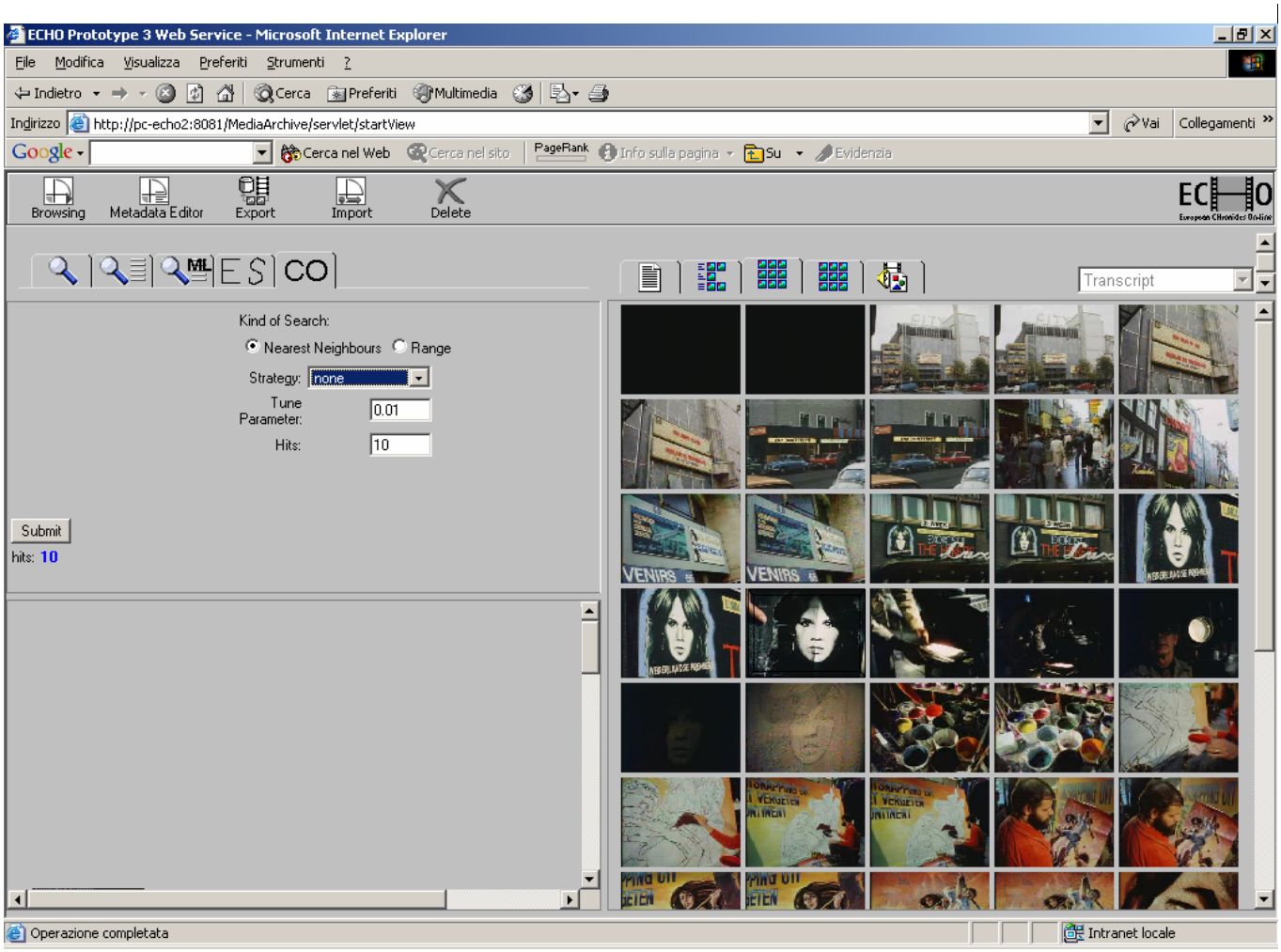
The MultiLingual Classification

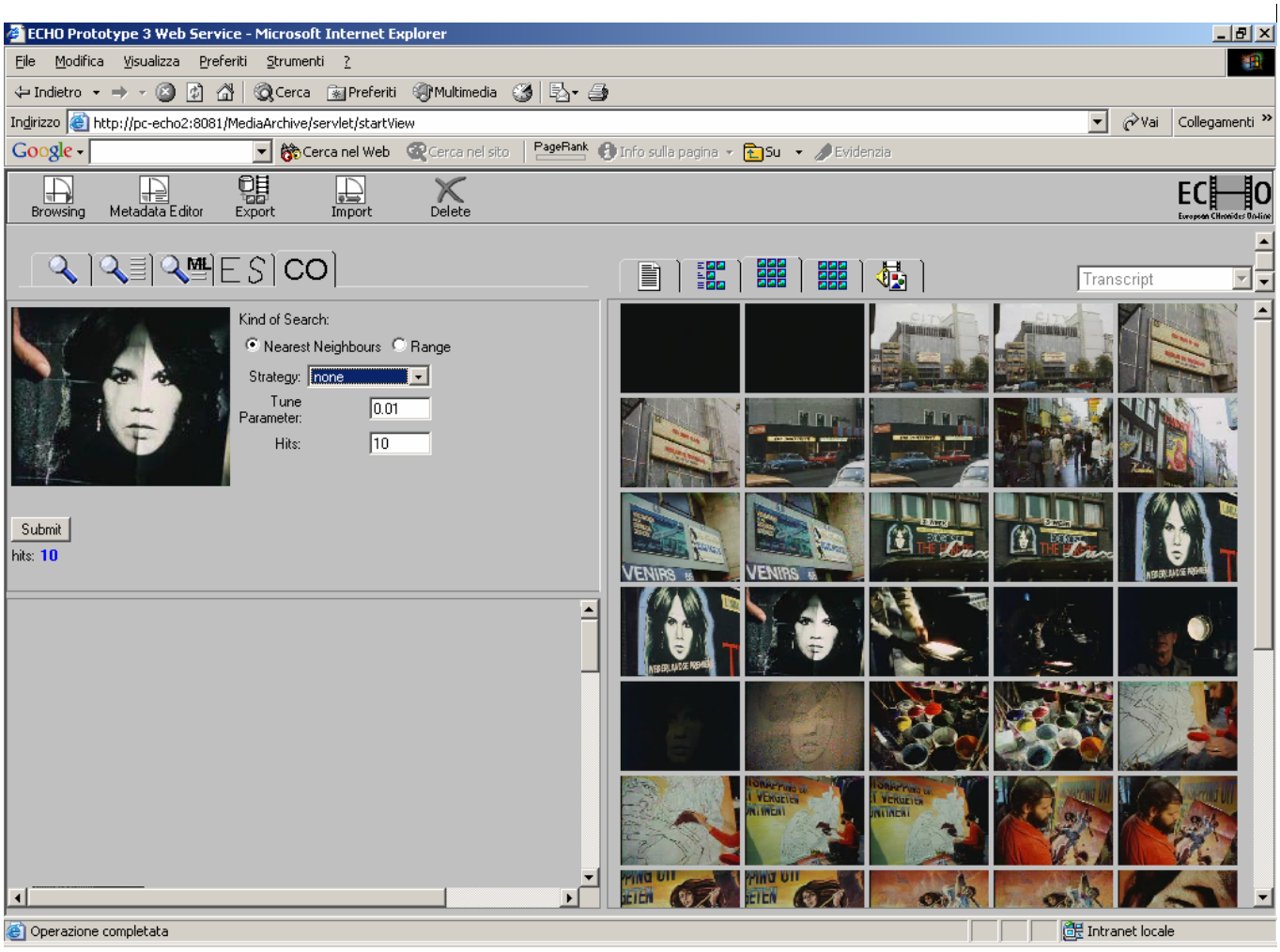
European CHronicles On-line

Digital Library Competence Center



The Image Similarity search


ECHO Prototype 3 Web Service - Microsoft Internet Explorer
File Modifica Visualizza Preferiti Strumenti ?
Indietro Cerca Preferiti Multimedia
Indirizzo http://pc-echo2:8081/MediaArchive/servlet/startView
Vai Collegamenti
Google Cerca nel Web Cerca nel sito PageRank Info sulla pagina Su Evidenzia
Browsing Metadata Editor Export Import Delete
ECHO
ES CO
Transcript
Kind of Search:
Nearest Neighbours Range
Strategy: none
Tune Parameter: 0.01
Hits: 10
Submit
hits: 10
Operazione completata
Intranet locale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Submit
hits: 10
Operazione completata
Intranet locale

The End

Regia architecture

Claudio Gennaro

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European CHronicles On-line

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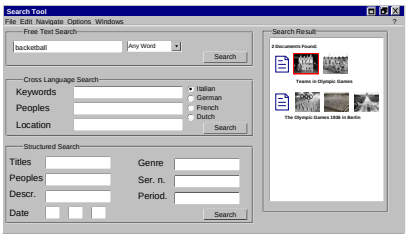
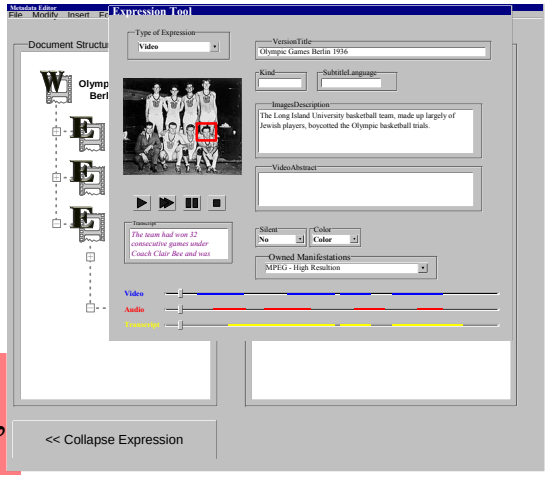
The editor behavior

Search interface



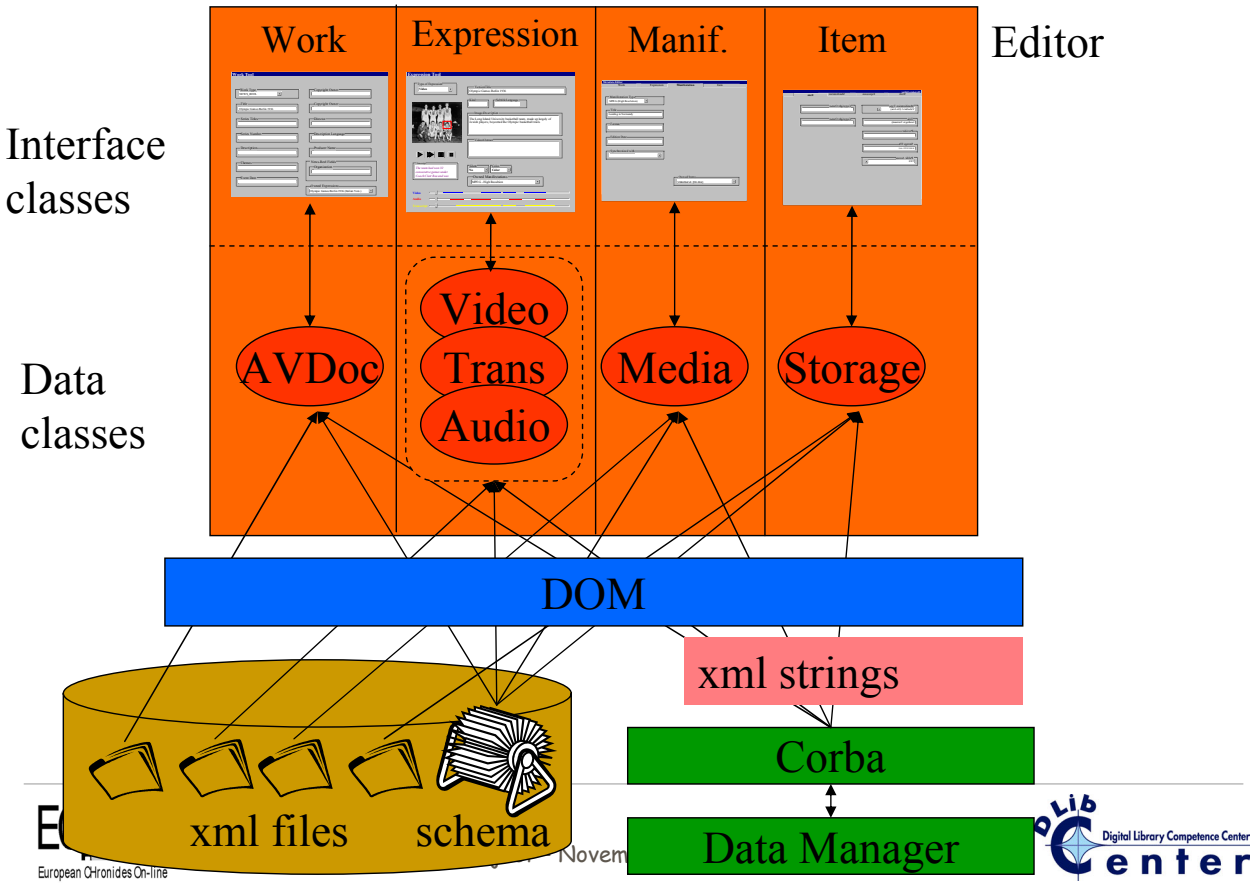
run:
editor “GUID”



GIUDs (XML)

mpeg file GUID (all)

The Editor architecture



How the xml schema is used

- It defines the schema of the echo xml “documents” (AVDocument, Video, etc.);
- It is used as configuration file for the editor:
  - When the editor opens an xml document it reads the schema;
  - In this way it is possible to modify the schema of the document;
  - It is also possible to say to the editor that a field is readonly or to be ignored.

Editing the xml schema

- The editor recognizes the following data-types:
- xsd:string, xsd:integer, xsd:date, xsd:float, xsd:boolean (predefined in XSD)
- SetOfString (a simple list of string items)
- Close Lists
- Multimedia type (objects, faces, etc.)

Example of xml schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2000/10/XMLSchema"
elementFormDefault="qualified">
  <xsd:element name="AVDocument">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Title" type="xsd:string">
          <xsd:annotation>
            <xsd:documentation>Title of the av document (original title if known otherwise
assigned)</xsd:documentation>
            <xsd:appinfo>readonly</xsd:appinfo>
          </xsd:annotation>
        </xsd:element>
        <xsd:element …>
        …
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
```

This defines the AVDocument

Which is a sequence of "fields"

This defines the first field of AVDocument

It declares the field "Title" as readonly

Whose name is "Title"

Whose type is string

and so on…

This is an annotation for the human reader, which is also showed as tip on the editor interface

Example of xml schema

- I can define a close list as following:

```
<xsd:simpleType name="CutType">
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="HardCut"/>
        <xsd:enumeration value="FadeIn"/>
        <xsd:enumeration value="FadeOut"/>
        <xsd:enumeration value="FadeInFadeOut"/>
    </xsd:restriction>
</xsd:simpleType>
```

The list of items

- Which appears as combo box in the editor interface

Example of xml document

```
<AVDocument xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="C:\Documenti\Schema\echo_schema.xsd">
        <Title>La vita di Fellini</Title>
        <SeriesTitle>I don't know</SeriesTitle>
        <SeriesNumber>323224</SeriesNumber>
        <Genre>Documentario</Genre>
        <Description>Racconta la vita del grande regista Fellini</Description>
        <PersonNames>
                <StringItem>Marcello Mastroianni</StringItem>
                <StringItem>Giulietta Masini</StringItem>
        </PersonNames>
        <Themes>Biografie</Themes>
        <Subthemes>Registi</Subthemes>
        <ThematicKeywords/>
        <EnglishAbstract>This is a documentary film describing the life of the
famous Italian director Fellini</EnglishAbstract>
        <EventDate>2001-05-11</EventDate>
        <DescriptionLanguage>Italian</DescriptionLanguage>
        <ProductionDate>1999-06-12</ProductionDate>
        <ExpressedBy>
                <StringItem>FE4535A32345</StringItem>
                <StringItem>FE4535A32346</StringItem>
        </ExpressedBy>
</AVDocument>
```

2 xsd:string fields

An xsd:integer field

The location of the schema

A SetOfStrings field

A xsd:date field

Editor Demo