Automating Production of Cross Media Content for Multi-channel Distribution

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DE8.1.1.4
Content for Validation and Demonstration

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Deliverable Number: DE8.1.1.4 Contractual Date of Delivery: 29/02/08 Actual Date of Delivery: 07/07/2008 Title of Deliverable: AXMEDIS Content for Test Cases and Validation Work-Package contributing to the Deliverable: WP8, WP9, WP12 Task contributing to the Deliverable: WP8.1, WP8.2 Nature of the Deliverable: Other Author(s): VRS, ANSC, XIM, AFI, ILABS, DSI
Abstract: This document is the supporting document for deliverable DE8.1.1.4 holding the set of contents available for validation and demonstration, and then for the final phase of the project. Aim of the doc is to provide description and reference to provided content for validation and demonstration and AXCP rules for their production, template and style for automatic formatting, declined for the multichannels. Main sources of contents are reported along with some samples; then are provided details on the available contents in terms of list & references. The document ends with some conclusions on performed work and next steps plus a reference section **Keyword List:** Content, Validation, Demonstrations, Metrics, Results

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1 Executive Summary and Report Scope

The present document is a support document meant to accompany DE8.1.1 which is in essence a collection of objects for the test and demo phases of the project. AXMEDIS content partners have relevant amount of digital content to be used in the project. The initial set of provided objects (fully reported and specified in DE8.1.1 Content For Test Cases and Validation) was mainly including either raw resources or non AXMEDIS objects. Since then partners have been producing a number of significant objects, some of those objects have been used to test and internally validate tools, while others have been turned into AXMEDIS objects to be used in the validation and demonstration phase.
Thus at present the original set of raw content has been complemented by a collection of AXMEDIS objects with the related list of rules and templates.
In the current document we will not report what already reported in the previous version of DE8.1.1 but simply focus on the new objects. It is assumed that all objects previously reported and holding no particular constraints will still be available to partners for the construction of additional objects (per se) or in combinations with the other existing AXMEDIS objects that will be reported hereafter.
Furthermore it is worth recalling that in other deliverables have been described the overall set of requirements addressed and the foreseen test cases that will allow proper validation of achieved results. In this latter document (DE2.2.1) have been pointed out needs in terms of dataset used. So also in the case of this update what reported there is the additional information needed to properly manage the content to be used for the validation and demonstration phase. Activities related and impacting on this document are the ones of the following sub WPs.

WP8.1 Content production for research test cases and validation -- responsible ILABS --
The main goals of this WP are the production and the assessment of test sets for assessing and validating the following algorithms and processes. The following test cases will be produced in their first version in the first 18 months:

- Watermarking content files, fingerprinting content files,
- Audio beat tracking of polyphonic production for music pieces synchronisation,
- Indexing cross media content,
- Analysis of multiple DRM rules enforced into the object,
- Compositional algorithms for creating aggregated content objects,
- Formatting algorithms for producing complex formatted objects to be directly distributed towards the final users,
- Profiling end –users and distributors,
- Sharing simple and complex objects on the AXEPTool,
- Protecting AXMEDIS content object and distributing them,
- Algorithms for direct translation of multilingual content , transcoding content,
- Production and usage of complex technical queries in the AXEPTool,
- Conversion of content in other formats, scaling, decoding, etc.
- Metadata comparison and integration, different catalogues in different formats and containing/including different types of content: images, video, audio, score, lyrics, orchestrations, etc.

The production of this content for test cases will start since the beginning of the research activity and in according with the planned results of that activity. The content partners such as ANSC, ILABS, XIM, etc., agree in supporting the project producing this content under request.

WP8.2 Content Identification for Validation – responsible ILABS –
This WP consists in the production of specific content for the validation test cases, a process of content identification is needed. Partners such as (as above mentioned) ILABS, ANSC, have huge amount of content that they intend to reverse in the AXMEDIS network supported by the AXEPTool when the project will be in the exploitation phases. In this task, they intend to make a selection of the content in order to identify the most significant content and content components to cope with two fundamental aspects that the content for validation has to satisfy:

(i) The technical needs (to cover a large set of possible technical combinations),

(ii) The promotional needs (be attractive for the content producers and for the content distributors to give them the evidence of the innovative functionalities of AXMEDIS solutions).

1.1 Responsibilities

ILABS is primary responsible for the completion of the present document, yet all content owning partners are responsible for providing the required contributions including content samples (in terms of aspect, description and metadata). Technical partners are responsible of document revision in terms of coherence with expected supported formats. Document sections responsible are reported in the section title within brackets. When a section, or subsection, has no explicit responsible is assumed that is in charge to the responsible of the previous one or is a general one to which all partners shall contribute. Given the nature of the deliverable DE8.1.1 (as stated in the TA it is of "other" nature), this document has to be intended as a reference to content stored and available for the sake of project development, evaluation and exploitation.

2 Main sources of contents

The present section reports basic info on the major content sources provided by consortium partners. The aim is to quickly recall what is available and thus introduce what has been produced/derived and will subsequently reported in terms of description and reference. This material involves different types of content (text, audio, video, etc.) and it will be available for demonstration activities.

2.1 ANSC

2.1.1 Content models

Contents from ANSC consist in different types of archives; they are mainly related to the ANSC history and activities namely:

- **Historical archive**: contains documents from 1650 to present day.
- **Library**: music manuscript and early editions.
- **Archive of photographs**: photographs from the end of XIX century to present day related mainly to ANSC concerts but also various artists, singers, actors, musicians, and so on.
- **Sound archive**: 3 archives: Sound archive of concerts, Archive of oral traditional music, Archive of recordings.
- **Musical instrument museum**: Documentation about ANSC collection musical instrument: Photographs, technical drawings.
- **Archive of press reviews**
- **Archive of playbills**
- **Chronology of the concerts from 1895 to present day.**

In terms of AXMEDIS objects, ANSC has provided contents related to:

- Instruments museum (photos) – **PC**, **PDA** and **MOBILE**
- sound archives (relating to instruments – mp3s): **PC** and **PDA**
- historical archives (digitizations): **PC**

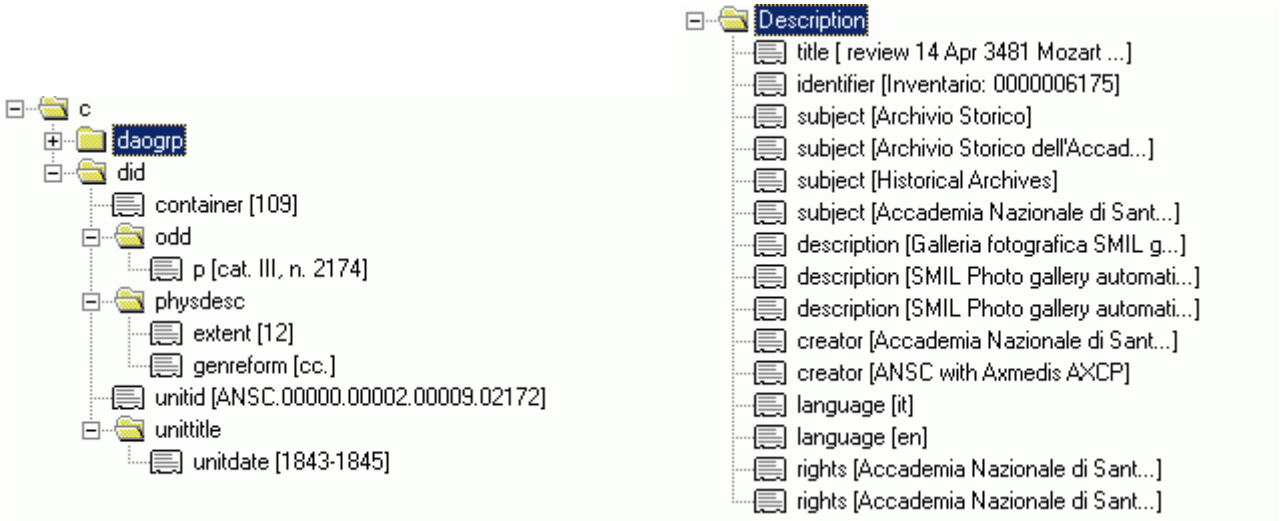
The first two have been joined into interactive SMIL-based objects used for **PDA** and **PC** audio tours. A first beta version for **MOBILE** has been developed and is under testing.
ANSC is experimenting with DIP/DIM functionalities limited to the museum scenario: ANSC is interested to have the DIP/DIM scripting managed by the single presentation formats, such as SMIL, HTML, etc.

2.1.1.1 Content metadata description

All objects produced by ANSC are provided with Dublin Core metadata. The elements are usually automatically injected into the objects: these are either custom metadata (for e.g. creator, subject etc.) related to certain sets of common objects, or automatically added for each object and usually relate to ANSC internal ar-

chival reference metadata: for example instrument inventory numbers are always kept when dealing with Musical Instruments from the collection.

In the CMS crawling applications which extracted digitised archival documents from ANSC's database part of the metadata used in these archives was extracted and automatically adapted for objects. These comply with the ISAD(G) (ISAD(General International Standard Archival Description) standard. Adaptation for AXMEDIS objects has been of two types: selection and extraction and mapping. In the first case certain elements from the original metadata were selected upon crawling and added to the object as specific metadata. In the latter, certain elements were extracted and then mapped onto Dublin Core elements.



On the left: metadata selected and directly added to the object. On the right: metadata extracted and then mapped on the Dublin Core (for e.g. inventory number was mapped to "identifier" element).

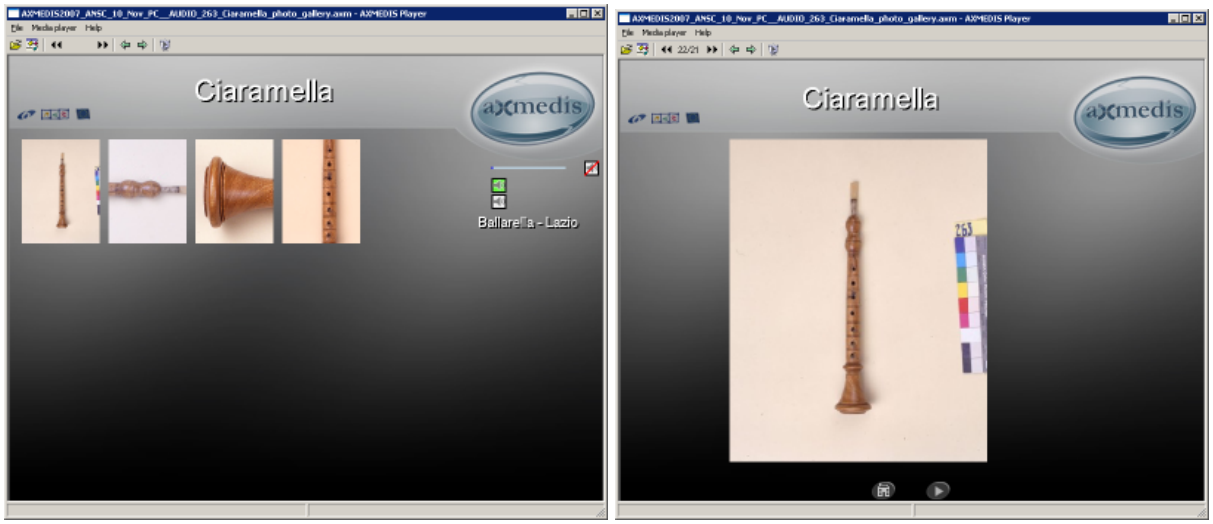
2.1.1.2 Content Types

The contents produced by ANSC are mainly SMIL objects where instrument pictures and their sounds are joined and they provide a complete overview of the pieces conserved in the ANSC museum.

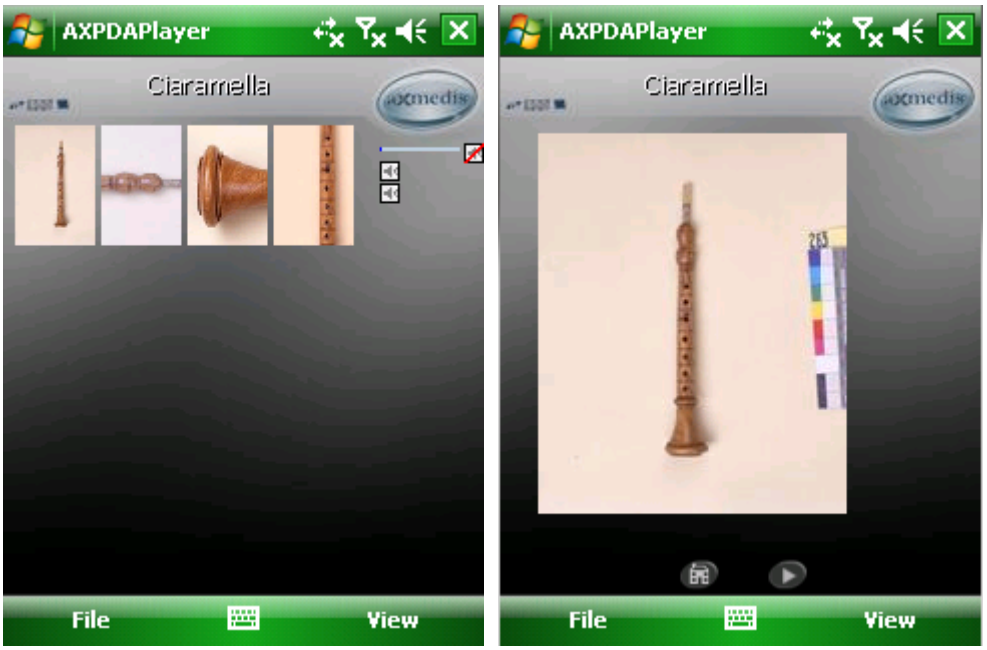
2.1.2 Content samples

Sample 1

Automatically generated SMIL-based instruments photo-gallery from the Musical Instruments Museum of ANSC. The object includes a mini-player for listening to audio samples of the instrument. The creation of this kind of multimedia object relies on a template approach and the use (through parameterization) of the AXCP Tools. This means the look and feel can easily be changed.



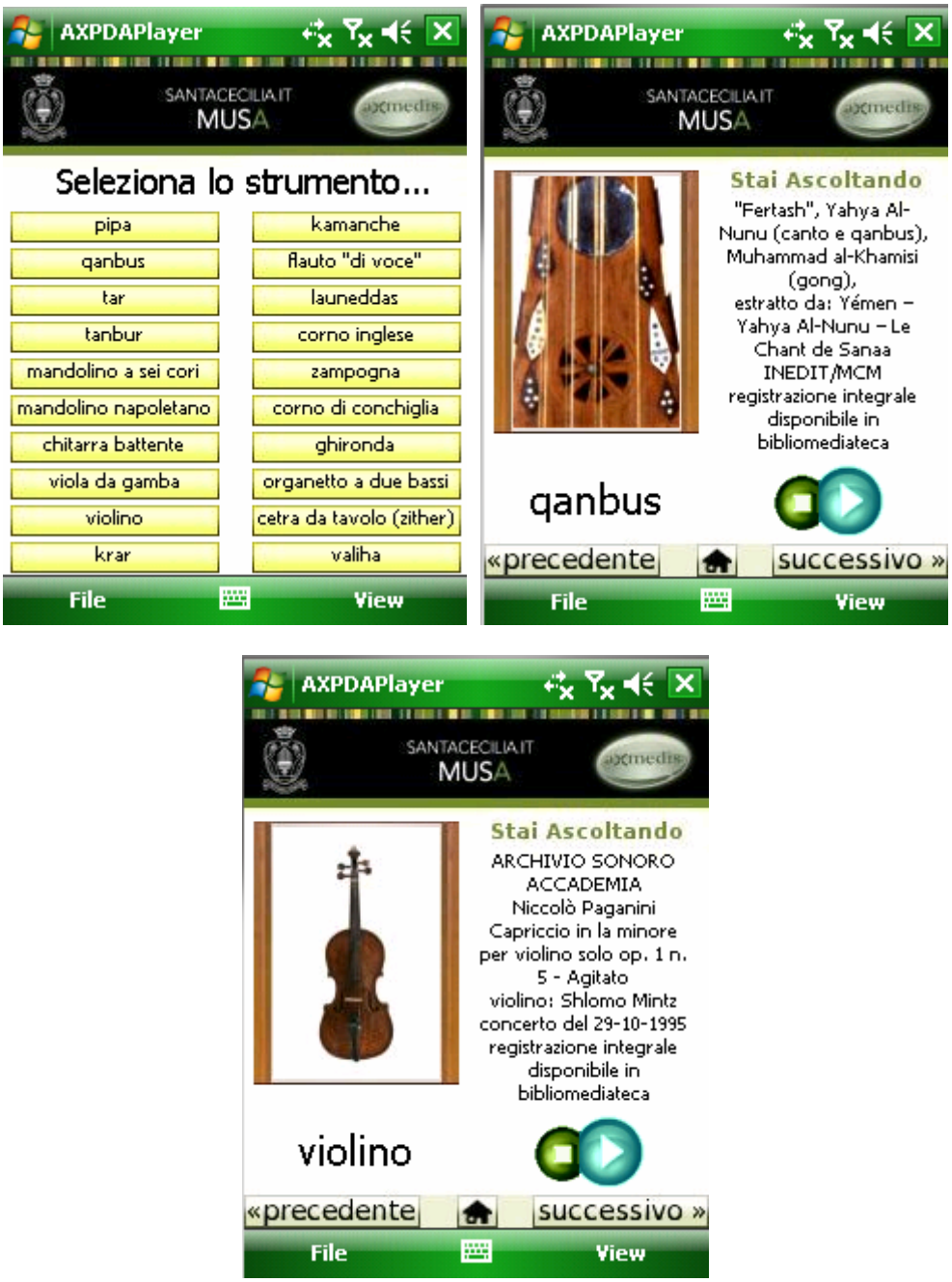
The above object automatically adapted for PDA through AXCP.



Sample 2

Screenshots of the object used for the Audio Tour of the ANSC MUSA (Museum of Musical Instruments) launched for the museum's inauguration and created for PDA through template approach and AXCP. It presents audio samples of instruments as the ones seen in the exhibition. The interactive interface is SMIL-based.

http://www.axmedis.org/documenti/view_documenti.php?doc_id=3918

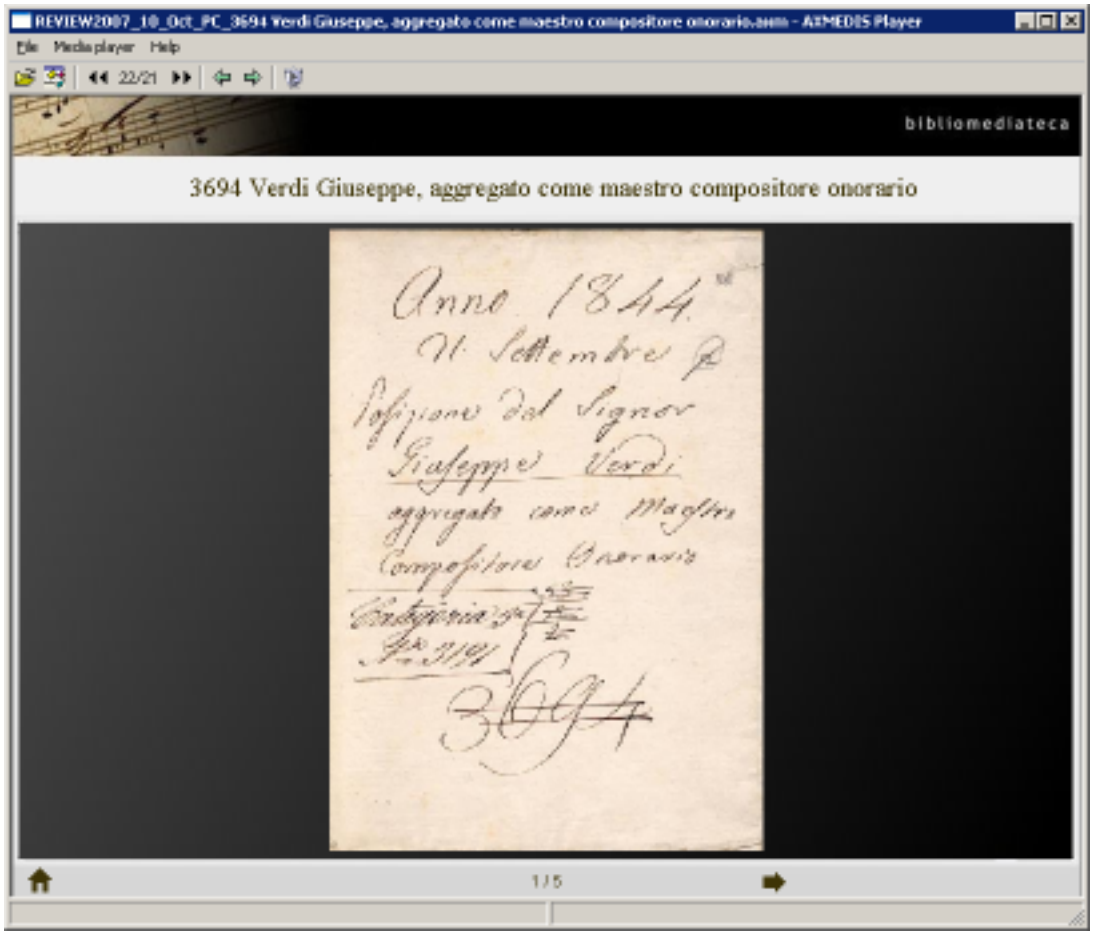


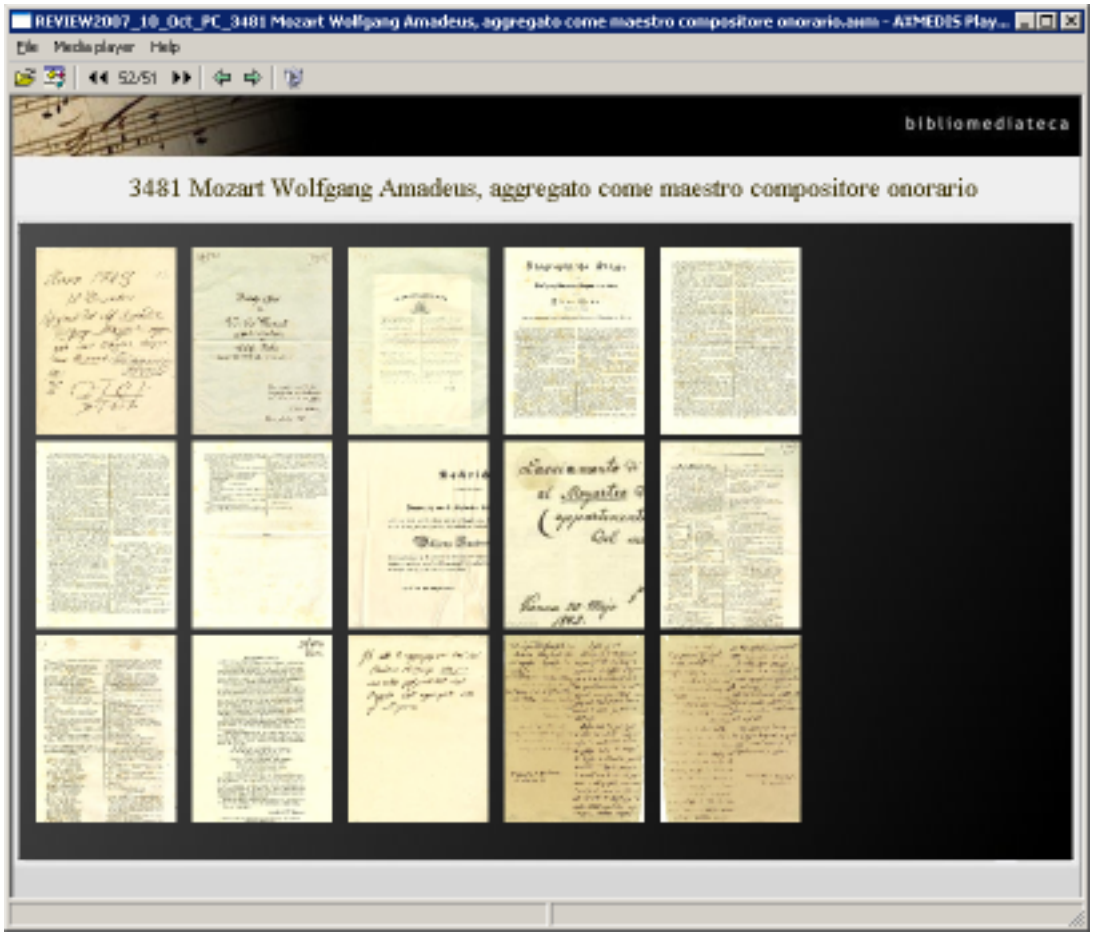
Corresponding version for PC

http://www.axmedis.org/documenti/view_documenti.php?doc_id=3906

Sample 3

The following AXMEDIS objects are “preview” galleries for Document scannings present in the ANSC Historical Archive. Again the object is an interactive photo-gallery created through AXCP and SMIL-based templates, after crawling the ANSC database. The crawling is performed with Focuseek Searchbox.


REVIEW2007_10_Oct_PC_3694 Verdi Giuseppe, aggregato come maestro compositore onorario.axm - AXMEDIS Player
File Media player Help
22/21
bibliomediateca
3694 Verdi Giuseppe, aggregato come maestro compositore onorario
1/5


REVIEW2007_10_Oct_PC_3481 Mozart Wolfgang Amadeus, aggregato come maestro compositore onorario.axm - AXMEDIS Play...
File Media player Help
52/51
bibliomediateca
3481 Mozart Wolfgang Amadeus, aggregato come maestro compositore onorario

2.2 ILABS

2.2.1 Content models

Contents from ILABS are mainly related to ILABS involvement in the educational and cultural environment. ILABS has developed a content factory to automatically produce AXMEDIS objects of art related learning objects: they concern Artists, their life and works during ages from the 13th century till the 20th. The content has been organised into sections, such as artists, masterpieces, periods, etc. Original content is HTML based packaged according to IMS/SCORM standard.

Given the origin of the content itself, its original intended usage and contract in place, at present, all content reported and provided so far is available only for testing purposes and cannot be disclosed or distributed until proper agreement have been signed with all parties related to IPR involved.

Contents for PC and PDA are structured as follows:

- Root directory.
    - **Artist**
    - **Context**
    - **Iconography**
    - **Masterpiece**.
    -

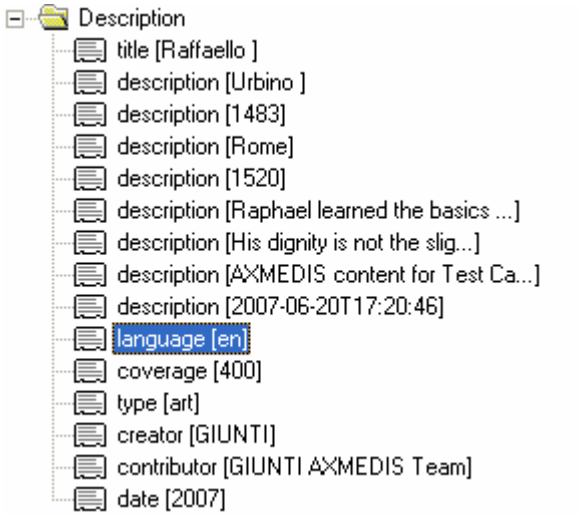
Contents for Mobile are structured as follows:

- Root directory.
    - **Artist**
    - **Context**: Child directory holding 3553 records of context info
    - **Masterpiece**: Child directory holding 1339 records of masterpieces.

ILABS has created some new contents with DIP / DIM functionality: ILABS has so far uploaded one AX-MEDIS object, which contains 20 jpeg resources, an audio and a small script that runs a slideshow.

2.2.1.1 Content metadata description

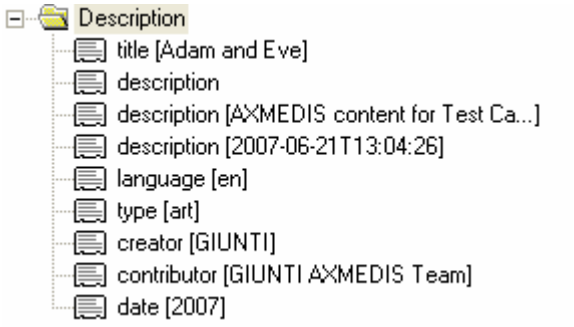
All objects produced by ILABS are provided with Dublin Core metadata extracted automatically from the Giunti artonline database.
The contents for PC and PDA have been structured for artist, context, iconography and masterpiece.
The metadata structure in the contents structured for artist for PC ad for PDA can be the following:



title (Raffaelo): name of the artist
description(Urbino): birth place
description(1483): birth date

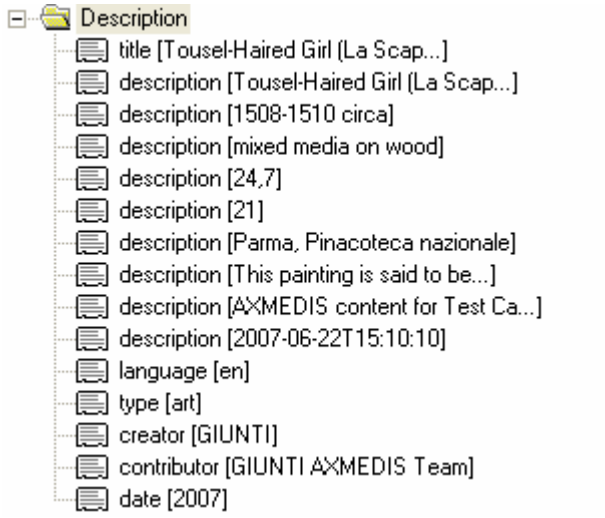
description(Rome): death place
description(1520): death date
description(Raphael…..): actual description
description(His Dignity ….): related quotes
description(AXMEDIS content for Test …): internal comment
description(2007-06-20T 17:20:46): creation date
language(en): English language
coverage(400): XVth century
type(art): the topic is art
creator(GIUNTI): Giunti produced this content
contributor(GIUNTI AXMEDIS Team): Giunti contributed to this content
date(2007): creation year.

The metadata structure in the contents structured for masterpiece for PC ad for PDA can be the following:



title (Adam and Eve): name of the artist
description(AXMEDIS content for Test …): internal comment
description(2007-06-21T 13:04:26): creation date
language(en): English language
type(art): the topic is art
creator(GIUNTI): Giunti produced this content
contributor(GIUNTI AXMEDIS Team): Giunti contributed to this content
date(2007): creation year.

The metadata structure in the contents structured for masterpiece for PC ad for PDA can be the following:



title (Tousel-Haired Girl(La Scapiliata)): name of the masterpiece
description(1580-1510 circa): birth place
description(mixed media on wood): type

description(24,7): size
description(21): internal code
description(Parma, Pinacoteca Nazionale): museum
description(AXMEDIS content for Test …): internal comment
description(2007-06-22T 15:10:10): creation date
language(en): English language
type(art): the topic is art
creator(GIUNTI): Giunti produced this content
contributor(GIUNTI AXMEDIS Team): Giunti contributed to this content
date(2007): creation year.

The other contents for mobile follow a very simple metadata structure as shown below:

Description
creator ILABS
title Works of Claude Monet - mobile version
description Sample mp21 object for mobile devices. Pills of works of Claude Monet.

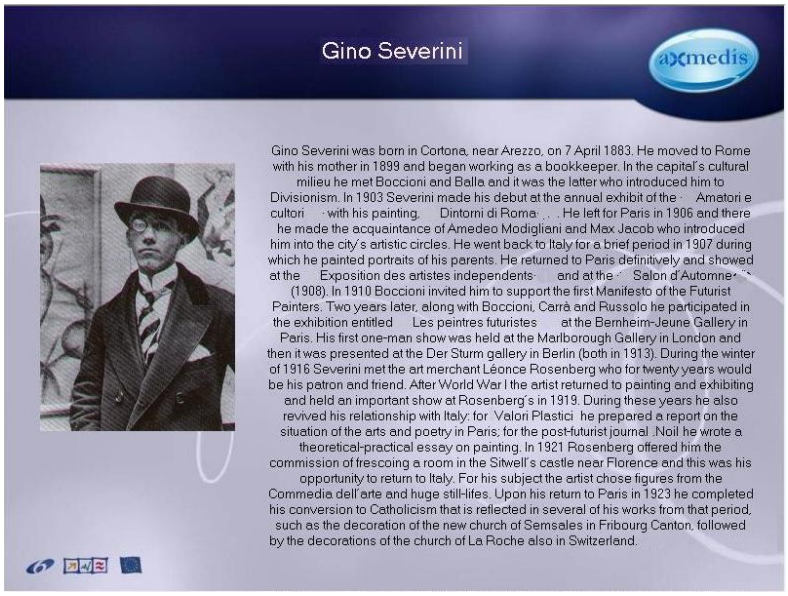
2.2.1.2 Content Types

The produced contents are AXMEDIS objects composed by HTML pages, jpeg images, mp3 audio files and SMIL files.

2.2.2 Content samples

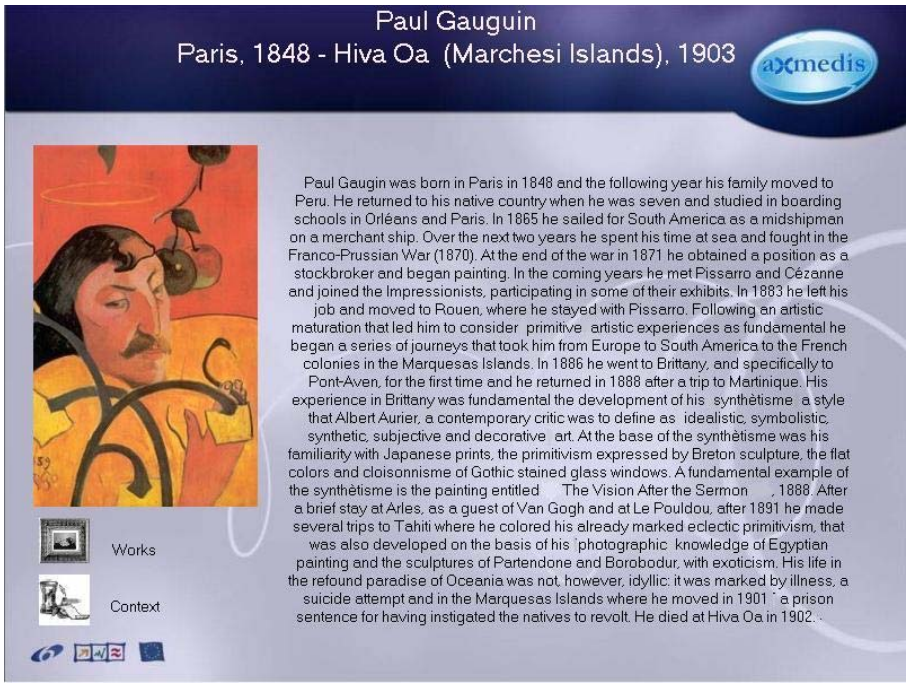
Sample 1

Automatically generated SMIL-based Museum Gallery, Artists of the 20th Century for PC: the user can select the artist of his interest, Gino Severini, and retrieve Severini's biography. The creation of this kind of AX-MEDIS object relies on a template approach and the use of the AXCP rules.



Sample 2

This is an example of artist of the 18th century, Paul Gauguin for PC. Again this AXMEDIS object relies on a template approach and the use of the AXCP rules. The user can see the list of masterpieces of this painter and then retrieve more information about a particular painting.




Works
axmedis


Femmes de Tahiti ou sur la plage
axmedis
This is one of Gauguin´s most famous paintings done when he went to Tahiti for the first time with a mission for the French Ministry of Education. He had a developed a taste for simple, massive forms through studies of French folk arts during his sojourns in Brittany and in Tahiti it merged with the attraction for exotic primitivism of which Gauguin would become one of the major standard-bearers in European culture.
Femmes de Tahiti ou sur la plage, 1891
Parigi, Musée d'Orsay

Sample 3

Here is an example of artist of the 20th century, Gino Severini for PDA. The content has been designed for the PDA resolution: images and text have to be readable and the user can always decide to go ahead and then to retrieve more details, or simply to go back.

http://www.axmedis.org/mobile/

Sample 4

Here is an example of portrait pills of the XV/XVI centuries for mobile. The content has been designed for the handset Sony Ericsson W910i resolution. This AXMEDIS object provides visitors an overview of the portraits made in those centuries.

http://www.axmedis.org/mobile/

Sample 5

Here is an example of Monet Paintings for mobile. The content has been designed for the handset Sony Ericsson W910i resolution. This "Monet Paintings" object provides visitors in the visit in the museum an overview of the paintings made by Monet.

http://www.axmedis.org/mobile/

2.3 AFI

2.3.1 Content models

Contents from AFI consist mainly in audio files and for PC. The archive contains some sample CDs produced by AFI associated. For each CD is available info about all the recordings (audio tracks) included in the CD with their own related data: title, version (original, remix…), length, artists, authors, composers, publisher, producer, ISRC code, catalogue number, label. For the testing and demonstration phases a sample of items (music tracks) have been identified and delivered. The objects created from this have been uploaded to the P2P and documented in the listings.

2.3.1.1 Content metadata description

All objects produced by AFI are provided with Dublin Core metadata extracted automatically from AFI internal database.

2.3.1.2 Content Types

AFI is producing AXMEDIS objects files containing one or more audio resources and SMIL file that provide graphical layout and permit to select and reproduce mp3 files.

2.3.2 Content samples

Sample 1

Below, there is a sample object containing several audio track taken from Cinevox soundtrack archive playable using a smil interface:

Sample 2

The following object contain only one audio track; This kind of objects could be massively produced and then used to create more complex object by aggregating them or adding images, texts, etc.

2.4 XIM

2.4.1 Content models

XIM has created a content factory to automatically produce AXM objects of photographs and video at a variety of different resolutions in a variety of formats for delivery to Mobile, PDA and HDTV. The objects created from this have been uploaded to the P2P and documented in the listings.

XIM is experimenting with DIP / DIM functionality, so far limited to the capabilities of the implemented functions. XIM has so far uploaded one example object AXEPTOOL (xim-dip-example-astonmartinDBS.axm), which contains 37 jpeg resources and a small script that runs a slideshow. Additional functionality that would be desirable in DIP/DIM processing would be:

1) auto-run should auto-run in the AXMEDIS Player (currently have to start the script manually)

2) access to a remote HTTP file / service would greatly increase the flexibility of this feature, allowing import of remote files into the AXM object etc.

3) String manipulation and some form of text output,e.g. to be able to display "5 of 30 images" etc.

2.4.1.1 Content metadata description

All XIM AXMEDIS objects use the following convention for Dublin Core metadata, derived from the Diblin Core guidelines (http://dublincore.org/documents/1999/07/02/dce):

Element: Title
Name: Title
Identifier: Title
Definition: A name given to the resource.
Comment: Typically, a Title will be a name by which the resource is formally known.

Element: Creator
Name: Creator
Identifier: Creator
Definition: An entity primarily responsible for making the content of the resource.
Comment: Examples of a Creator include a person, an organisation, or a service.
Typically, the name of a Creator should be used to indicate the entity.

XIM : For AXMEDIS use, this is the tool that created the file, and might be one of: "AXCP Rule Editor" "AXMEDIS Editor" etc.

Element: Subject
Name: Subject and Keywords
Identifier: Subject
Definition: The topic of the content of the resource.
Comment: Typically, a Subject will be expressed as keywords, key phrases or classification codes that describe a topic of the resource.
Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.

Element: Description
Name: Description
Identifier: Description
Definition: An account of the content of the resource.
Comment: Description may include but is not limited to: an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content.

Element: Publisher
Name: Publisher
Identifier: Publisher
Definition: An entity responsible for making the resource available
Comment: Examples of a Publisher include a person, an organisation, or a service.
Typically, the name of a Publisher should be used to indicate the entity.

XIM : For our purposes this will be "XIM Ltd."

Element: Contributor
Name: Contributor
Identifier: Contributor
Definition: An entity responsible for making contributions to the content of the resource.
Comment: Examples of a Contributor include a person, an organisation, or a service.
Typically, the name of a Contributor should be used to indicate the entity.

XIM : For our purposes this will be the name of the person who "Justin Watkins"

Element: Date
Name: Date
Identifier: Date
Definition: A date associated with an event in the life cycle of the resource.
Comment: Typically, Date will be associated with the creation or availability of the resource. Recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3CDTF] and follows the YYYY-MM-DD format.

XIM : Usually the creation date of the resource in the format above, e.g. "2007-06-22"

Element: Type
Name: Resource Type
Identifier: Type
Definition: The nature or genre of the content of the resource.
Comment: Type includes terms describing general categories, functions, genres, or aggregation levels for content. Recommended best practice is to select a value from a controlled vocabulary (for example, the working draft list of Dublin Core Types [DCT1]). To describe the physical or digital manifestation of the resource, use the FORMAT element.

XIM : see http://dublincore.org/documents/dcmi-type-vocabulary/ for

examples. Might be "Collection", "Dataset", "Event", "Image", "InteractiveResource", "MovingImage", "PhysicalObject", "Service", "Software", "Sound", "StillImage", "Text",

Element: Format
Name: Format
Identifier: Format
Definition: The physical or digital manifestation of the resource.
Comment: Typically, Format may include the media-type or dimensions of the resource. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource. Examples of dimensions include size and duration. Recommended best practice is to select a value from a controlled vocabulary (for example, the list of Internet Media Types [MIME] defining computer media formats).

XIM : Use the correct MIME Type for this resource. See official MIME_types for examples (http://www.iana.org/assignments/media-types/) . For collections that include a mixture of MIME types, use the following syntax:

multipart/mixed: text/html, image/gif

Element: Identifier
Name: Resource Identifier
Identifier: Identifier
Definition: An unambiguous reference to the resource within a given context.
Comment: Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system.
Example formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL)), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).

Element: Source
Name: Source
Identifier: Source
Definition: A Reference to a resource from which the present resource is derived.
Comment: The present resource may be derived from the Source resource in whole or in part. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.

Element: Language
Name: Language
Identifier: Language
Definition: A language of the intellectual content of the resource.
Comment: Recommended best practice for the values of the Language element is defined by RFC 1766 which includes a two-letter Language Code (from ISO 639), followed optionally, by a two-letter Country Code (from ISO 3166). For example, 'en' for English, 'en-uk' for English used in the United Kingdom. See Language_Tags for more detail.

Element: Relation
Name: Relation

Identifier: Relation
Definition: A reference to a related resource.
Comment: Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.

Element: Coverage
Name: Coverage
Identifier: Coverage
Definition: The extent or scope of the content of the resource.
Comment: Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity).
Recommended best practice is to select a value from a controlled vocabulary (for example, the Thesaurus of Geographic Names [TGN]) and that, where appropriate, named places or time periods be used in preference to numeric identifiers such as sets of coordinates or date ranges.

Element: Rights
Name: Rights Management
Identifier: Rights
Definition: Information about rights held in and over the resource.
Comment: Typically, a Rights element will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights.
If the Rights element is absent, no assumptions can be made about the status of these and other rights with respect to the resource.

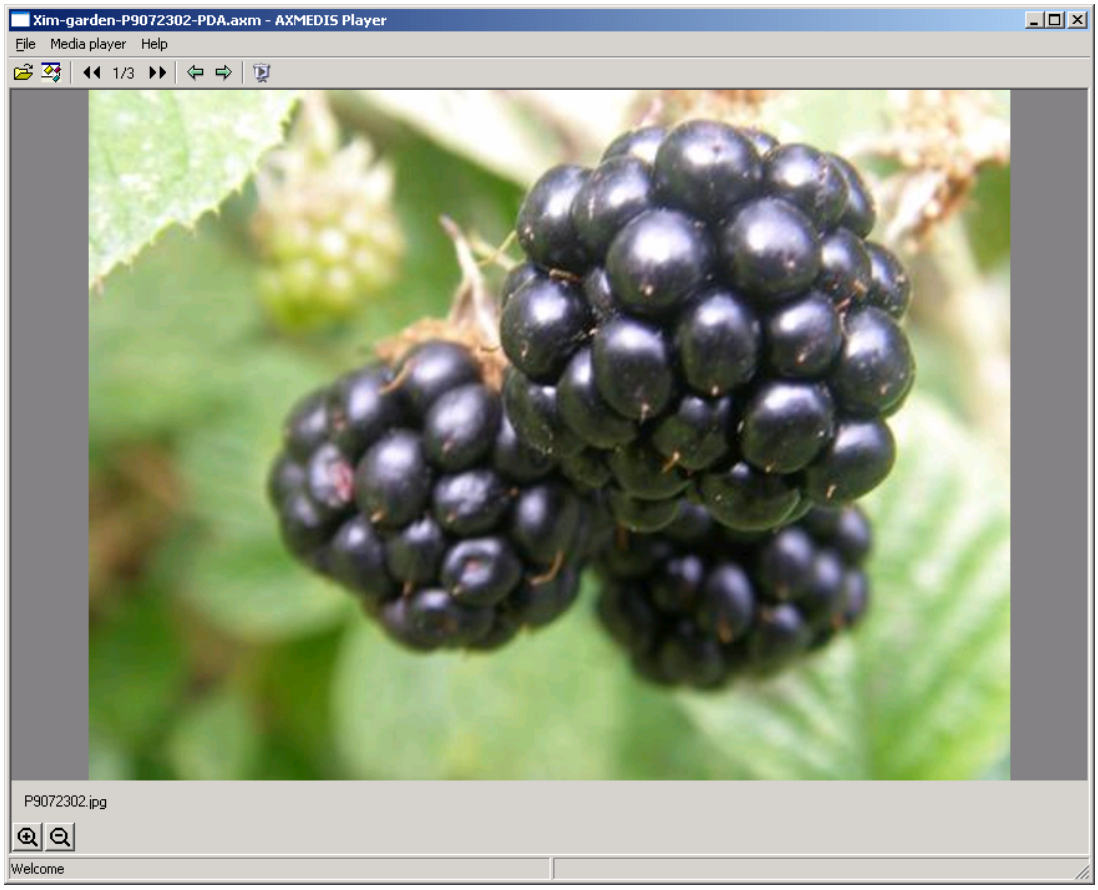
XIM : use "Copyright (c) 2007/8 XIM Ltd. " for resources with rights owned by XIM.

2.4.1.2 Content Types

XIM has created examples of audio, smil, image, image collection, video, flash, and various mixed format objects.

2.4.2 Content samples

Sample 1 -- photographic collection
Here is an example from the photographs factory. The Mobile version is 52Kb, the PDA version is 107Kb and the HDTV version is 581Kb. AXM URIs are “xim-garden*.axm” Photograph © Justin Watkins.
Xim has uploaded over 750 image objects to the P2P system, including photographs, paintings and other images, in a wide range of size formats suitable for devices from mobile to HDTV.



http://www.axmedis.org/documenti/view_documenti.php?doc_id=4065

Sample 2 – video objects

Here is an example from the video factory. Different video formats were created by means of the FFMPEG transcoder and different sizes of video were added to separate AXM objects. From an original video of 32Mb, the AXM objects ranged in size between 3.5Mb and 81Mb depending on quality and resolution of the resultant video. AXM URIs are “xim-VideoTest-candles*.axm”Video © Justin Watkins

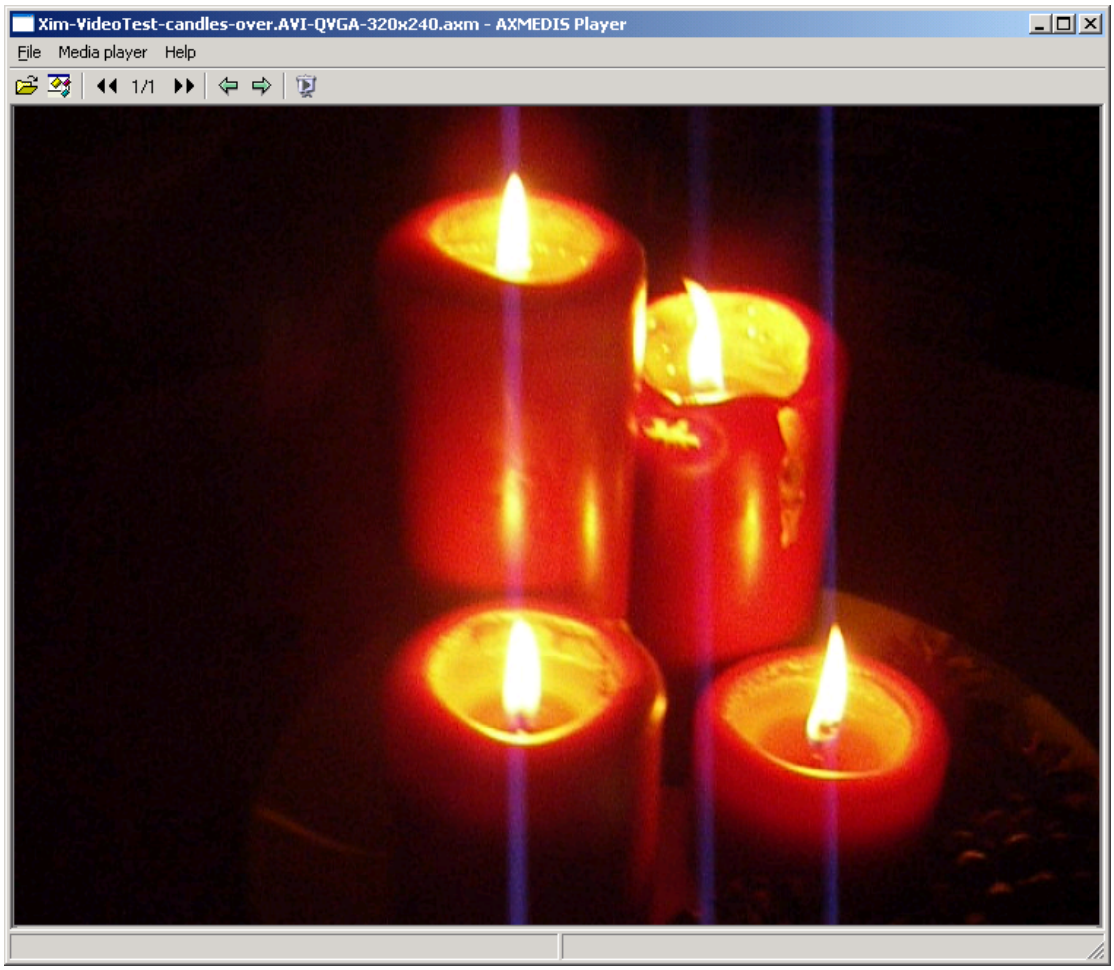
XIM has uploaded over 300 video objects to the P2P system.

Examples are available in the following size formats:

NTSC-VGA (720x480)
PAL (768x576),
QVGA (320x240),
XGA (1024x768)

a custom thumbnail format of 128x96

Examples are also available in the following wrapper formats: MOV, DV, AVI.

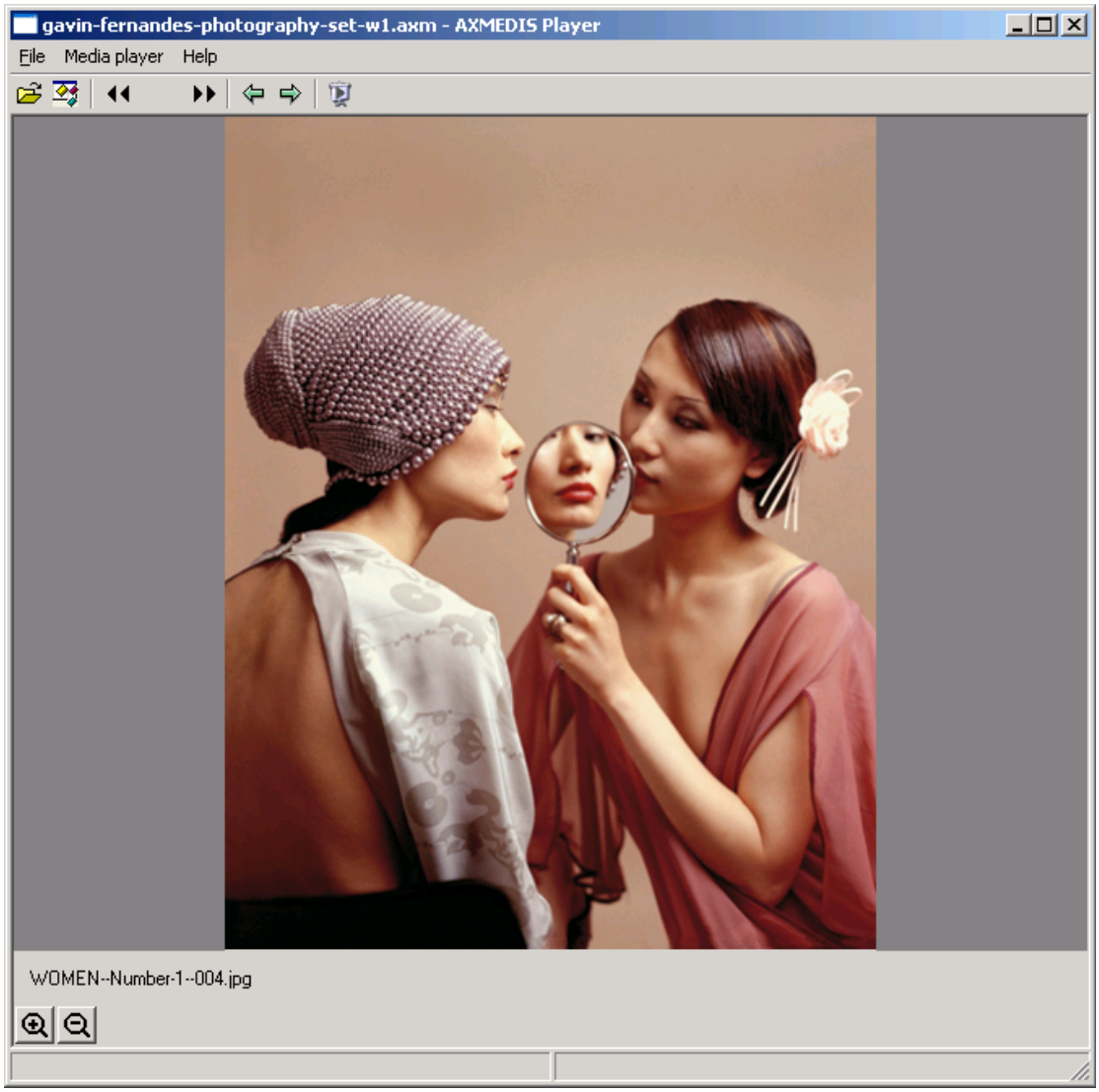


http://www.axmedis.org/documenti/view_documenti.php?doc_id=4064

Sample 3 – contemporary fine art gallery
Here is an example from the "Formatting" factory, which adds multiple images into an html template for inclusion in the AXM objects. Typical filezsize is 250Kb. AXM URIs are "joshuaWiskey*.axm". Paintings © Joshua Wiskey.

http://www.axmedis.org/documenti/view_documenti.php?doc_id=4063

Sample 4 – fashion photography image library
An example from a series of high quality fashion photos Typical filezsize is 250Kb. AXM URIs are “Gavin-fernandes*.axm”. Photographs © Gavin Fernandes.



http://www.axmedis.org/documenti/view_documenti.php?doc_id=3065

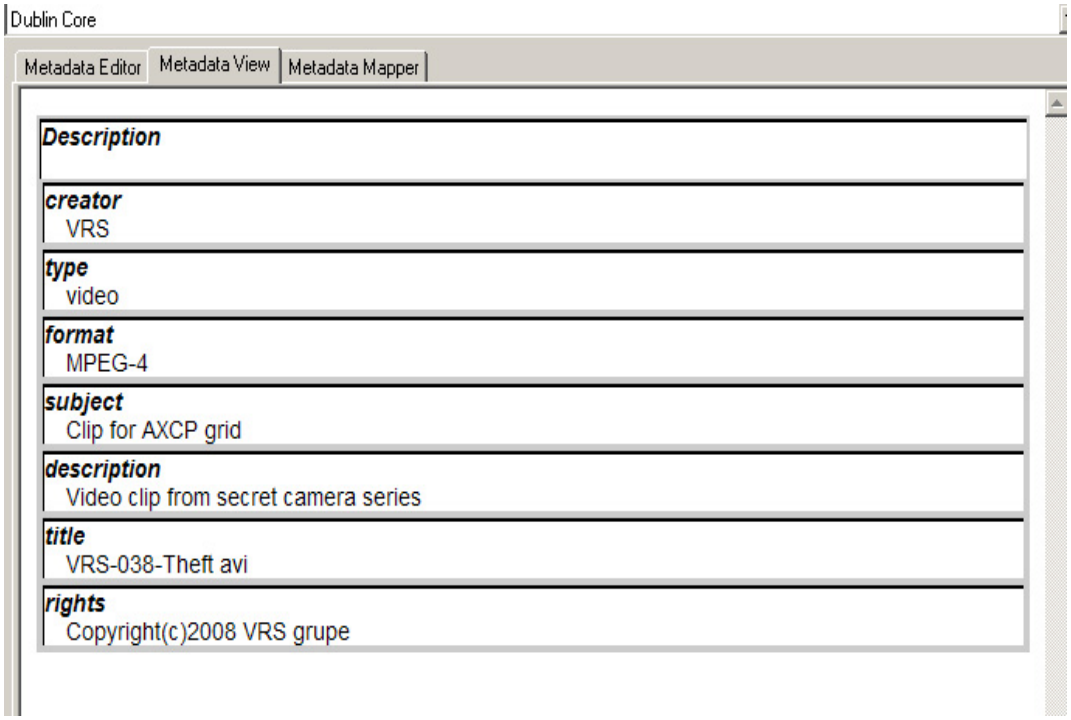
2.5 VRS

2.5.1 Content models

VRS has focused his content production on video files only for ELION and TEO demonstrators..
For TEO demonstrator the MPEG-2TS is embedded in AxObjects for streaming via STB. Content is protected. Only use is for TEO IPTV STB with some advertisements inside.
For ELION demonstrator the same content is MPEG-4, full PAL video resolution. Content is protected.
The same AXMEDIS video files in proxy resolution (350*240) unprotected are published on P2P for further use in AXCP grid.

2.5.1.1 Content metadata description

All objects produced by VRS for ELION and TEO demonstrators are provided with Dublin Core metadata structured as follows:



2.5.1.2 Content Types

All VRS factory prepared content is video only with the following formats:

1. PAL (720*576, progressive, 25fps)
2. MPEG-4 (720*576, progressive,25fps)
3. MPEG-4 (352*240, progressive, 15fps).

2.5.1.3 Content samples

Sample 1

VRS-3-2c.axm – the mix of best shots of secret camera series with 2 embedded ads for TEO IPTV STB streaming.

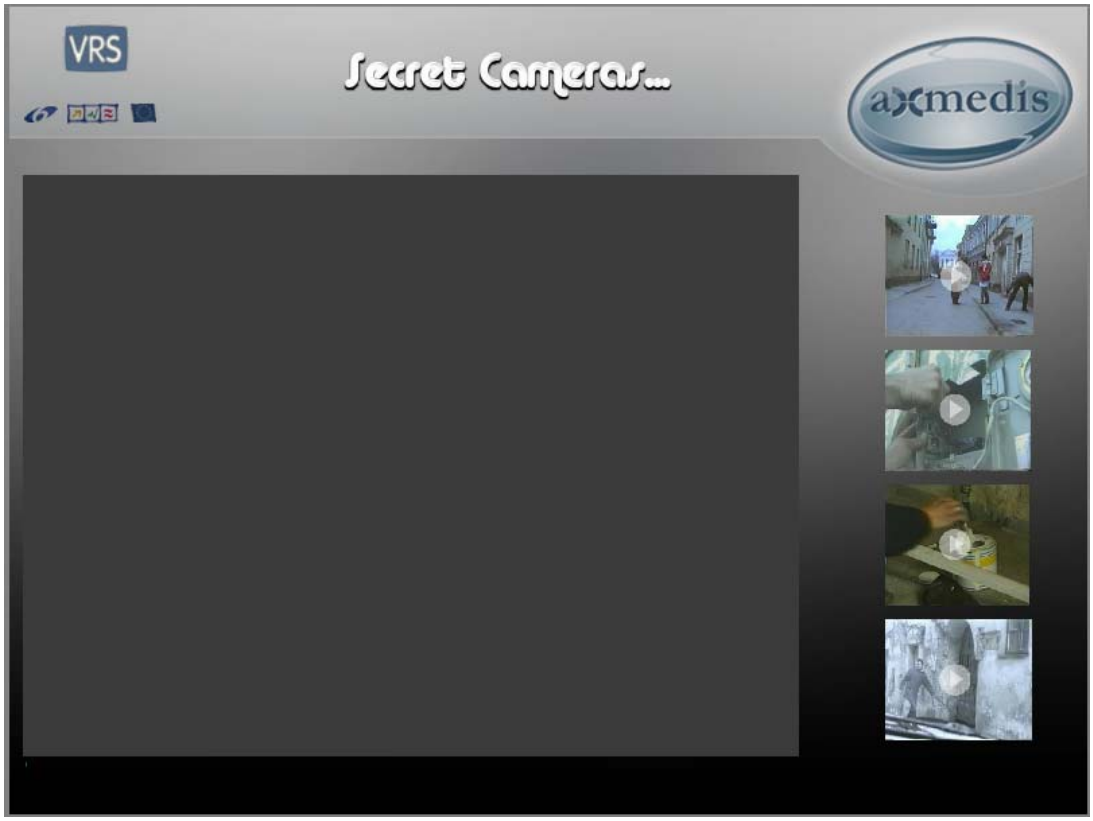
Sample 2

VRS-093-Aria.axm - video from secret camera series for ELION demonstrator.

Sample 3

VRS-050-Kiss.axm – video from secret camera series for AXCP grid.

An AXMEDIS objects produced by VRS with the support of XIM



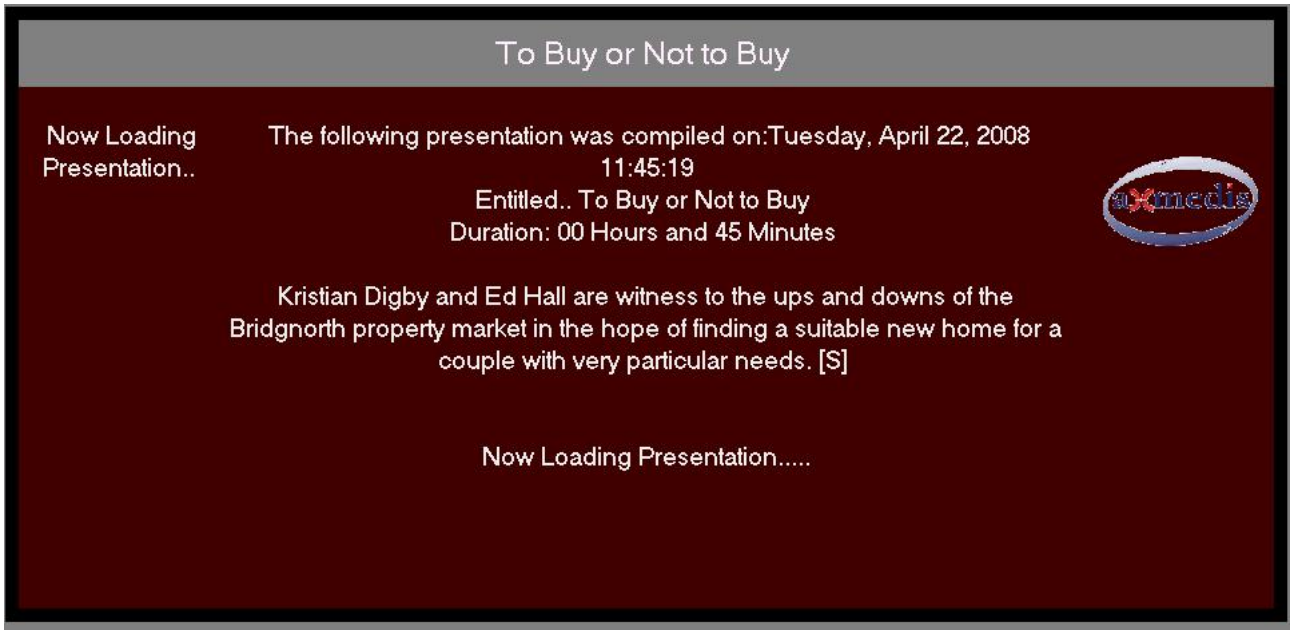
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3656

2.6 BBC

The BBC recorder demonstrator takes in broadcast content from a DVB-T broadcast MPEG-2 Transport stream and combines this with other clips delivered to the home client over the AXMEDIS P2P network as protected AXMEDIS objects.

In addition to the audio and video presentation, the demonstrator uses a live feed of TV-Anytime data to formulate textual files for the presentation within the final complex AXMEDIS object through the SMIL player.

The resulting AXMEDIS object contains the main recorded feature and other supporting trailers presented using the SMIL player.



http://www.axmedis.org/documenti/view_documenti.php?doc_id=4062

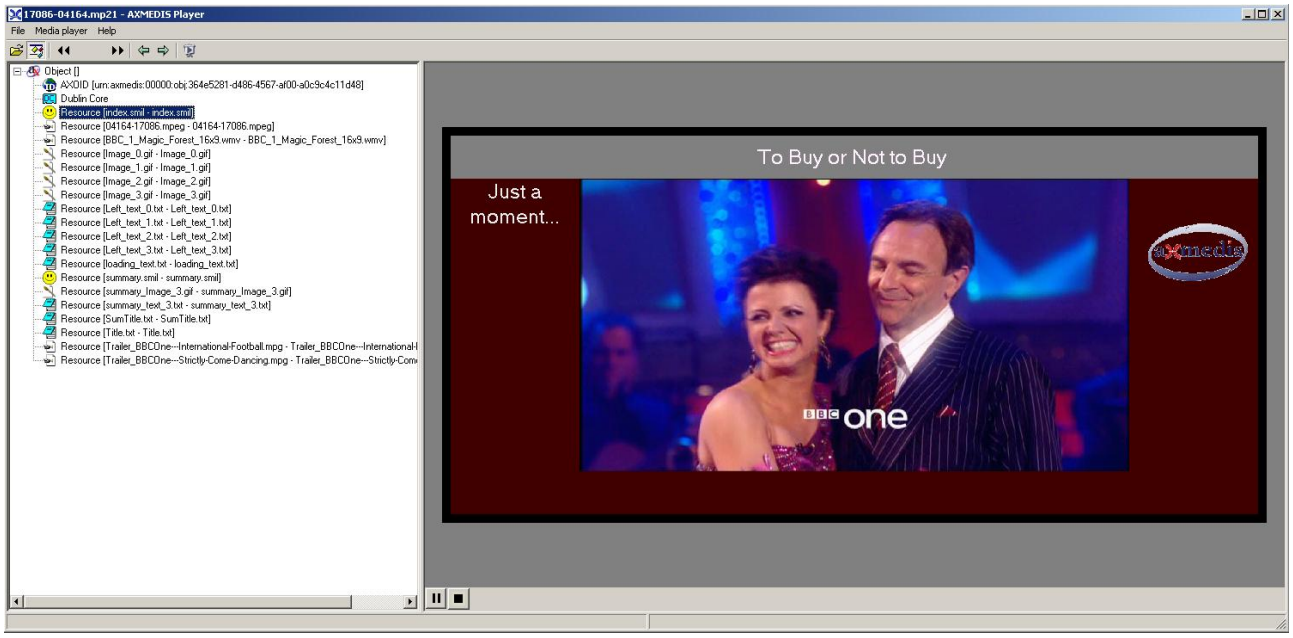
2.6.1 Content models

At the time of writing the DIP/DIM processing capability was only just being made available in some of the release tools and so this has not been fully explored. Instead the resulting AXMEDIS object uses the SMIL capability to control the presentation of the programmes to the viewer. Work is still underway to see if fur-

ther SMIL features can be exploited to enable basic play-stop-skip functionality, though this is challenging due to the manipulation of large files.

Presently a file is loaded on start up that begins with a textual synopsis of the presentation, time of record and title. Once loaded the presentation begins with a number of programme promotions and then the main feature. The service from which the feature was taken and the description of the feature are also presented when the feature begins.

The following shows the structure of the content model presented through SMIL



2.6.1.1 Content metadata description

The object produced by the demonstrator are not intended for redistribution and so the metadata added to the Dublin is added during production of the object and can simply refer to the Recorder Application. The metadata for user information describing the content is inherent in the presentation and is typically the programme title, broadcast service, brief description, time of recording and duration of the main programme.

2.6.1.2 Content Types

The content produced by the client comprises mpeg video and audio as broadcast combined with textual information formatted and presented through the SMIL player.

2.6.2 Content samples

As shown above, the content objects remaining with the home viewer are created on demand by the home viewer from the broadcast television service. Other content to be included as promotional trailers by the recorder application and published over the P2P connection will be protected and contain only the shorter clips. In our demonstration these objects will remain private through use of the AXMEDIS DRM allowing only those client devices in the user trial to access the objects.

2.7 TISCALI

2.7.1 Content models

Tiscali, in conjunction with DSI has developed a content factory to automatically produce AXMEDIS objects that will be published in the mediaclub web site. 15 video content will be provided subdivided in the following three categories: Cartoon; Cars; Movies. Contents have been created for PC only. No interactivity or DIP/DIM functionalities.

2.7.1.1 Content metadata description

For each of the content provide the following metadata structure was created in the AXMEDIS object.

```
<Description xmlns="http://www.w3.org/1999/02/22-rdf-syntax-ns#">

  <title xmlns="http://purl.org/dc/elements/1.1/" lang="">Jungle_beat_ep_1</title>

  <description xmlns="http://purl.org/dc/elements/1.1/" lang="">…… </description>

  <creator xmlns="http://purl.org/dc/elements/1.1/" lang="">..... </creator>

  <publisher xmlns="http://purl.org/dc/elements/1.1/" lang="">.....</publisher>

  <subject xmlns="http://purl.org/dc/elements/1.1/" lang="">.....</subject>

  <date xmlns="http://purl.org/dc/elements/1.1/" lang="">.....</date>

  <language xmlns="http://purl.org/dc/elements/1.1/" lang="">.....</language>

  <format xmlns="http://purl.org/dc/elements/1.1/" lang=""/>

</Description>
```

2.7.1.2 Content Types

All content are video in mpeg4 480x320 pixel audio AACa 44KHz.

2.7.2 Content samples

Sample 1

Jungle beat –a small carrtoon series 5 funny episodes.

Sample 2

<title>.mp21 **-** video presenting the new Mercedes SL.

Sample 3

<***filename*>.mp21 –** video short movies festival on the web

Al the AXMEDIS objects produced by Tiscali with the support of DSI

2.8 DSI

2.8.1 Content models

DSI provided a number of promotional objects to demonstrate the AXMEDIS tools capabilities.
Mainly they are based on public or self-made resources and consist on many different type of content.

In terms of content model, DSI provided objects for:

- usage of DIP/DIM
- content for PC, PDA, mobile
- different format (HTML, SMIL, MPEG4, documents, with high interactivity, from single resources to complex objects with embedded objects inside, etc.).

Also some specific objects to be used for the production of the promotional video have been provided by DSI.
These objects initially, have been created not with the intention to provide to the users a real object with a complete interactivity, but only to be filmed. For this reason has been decided to produce a nice interface, similar to DVD menu, to give the impression of a real interactivity, but the objects are incomplete and not ready to be distributed publicly.
The object created for the promotional videos are three: one object for PC in SMIL with the possibility to play MPEG4 video inside, two video for PDA (one in a simplified version of the previous one and one with a simple mpeg4 video).

2.8.1.1 Content metadata description

All the objects provided by DSI include at least the following metadata:

- title
- creator
- description
- type
- format

2.8.1.2 Content Types

DSI provided objects by including the following content types:

- smil

- html
- audio
- documents in different format (doc, txt, pdf, etc.)
- video (in different formats)
- interactive MPEG4
- DIP/DIM methods

2.8.2 Content samples

Sample 1
This sample shows the AXMEIDS object for PC created for the promotional video of AXMEDIS.

Sample 2

The sample 2 is a similar object but realized for PDA. It has no interactivity.

http://www.axmedis.org/documenti/view_documenti.php?doc_id=3997

Sample 3

This object contains only a video in Mpeg4 format to be player in the PDA player.

http://www.axmedis.org/mobile/

Sample 4

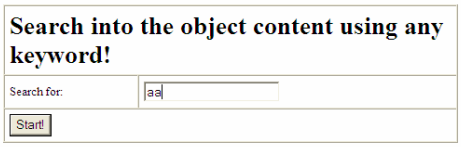
A number of objects demonstrating the DIP/DIM capabilities:

- Example of DIM with the activation of methods from SMIL, HTML and FLASH

Embedded Script Called from SMIL!

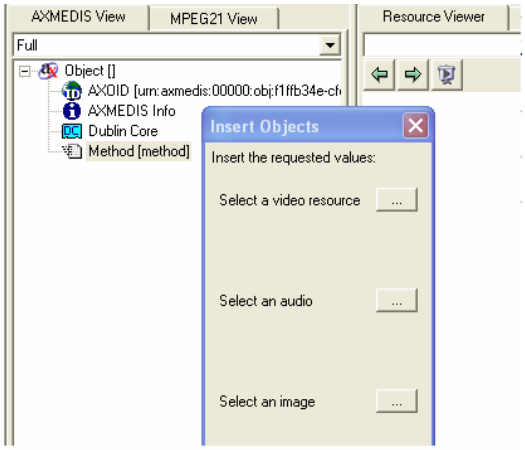
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3914

- Example with DIM query internal and production of a content



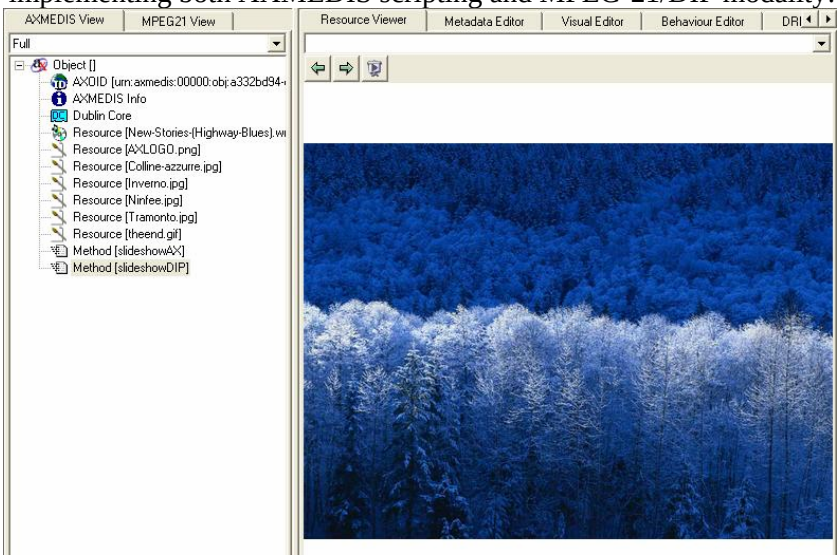
http://www.axmedis.org/documenti/view_documenti.php?doc_id=3913

- Object enabling to embed external resources into an AXMEDIS object containing a specific method



http://www.axmedis.org/documenti/view_documenti.php?doc_id=3915

- Slide show implementing both AXMEDIS scripting and MPEG-21/DIP modality:



http://www.axmedis.org/documenti/view_documenti.php?doc_id=3916

Sample 5

Object for Java based mobile created during the MIPTV 2008 exhibition. the object is based on a SMIL allowing to play a video in 3gpp format.

http://www.axmedis.org/mobile/

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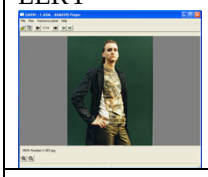
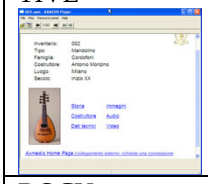
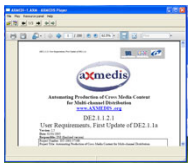
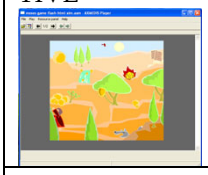
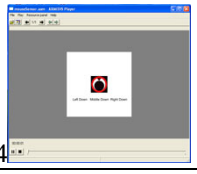
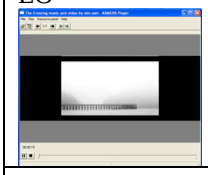
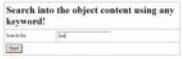
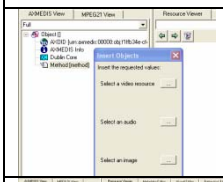
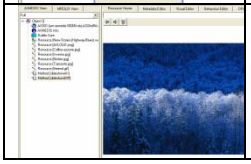
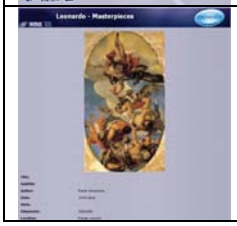
2.9 The Cross Media content examples

The table below provides examples of the main media formats supported by the AXMEDIS Players. All of these examples have been created either manually using the AXMEDIS Editor, or via scripting and AXCP.

- http://www.axmedis.org/tiki/tiki-index.php?page=AXMEDIS+Cross+Media+Content%3A+Examples

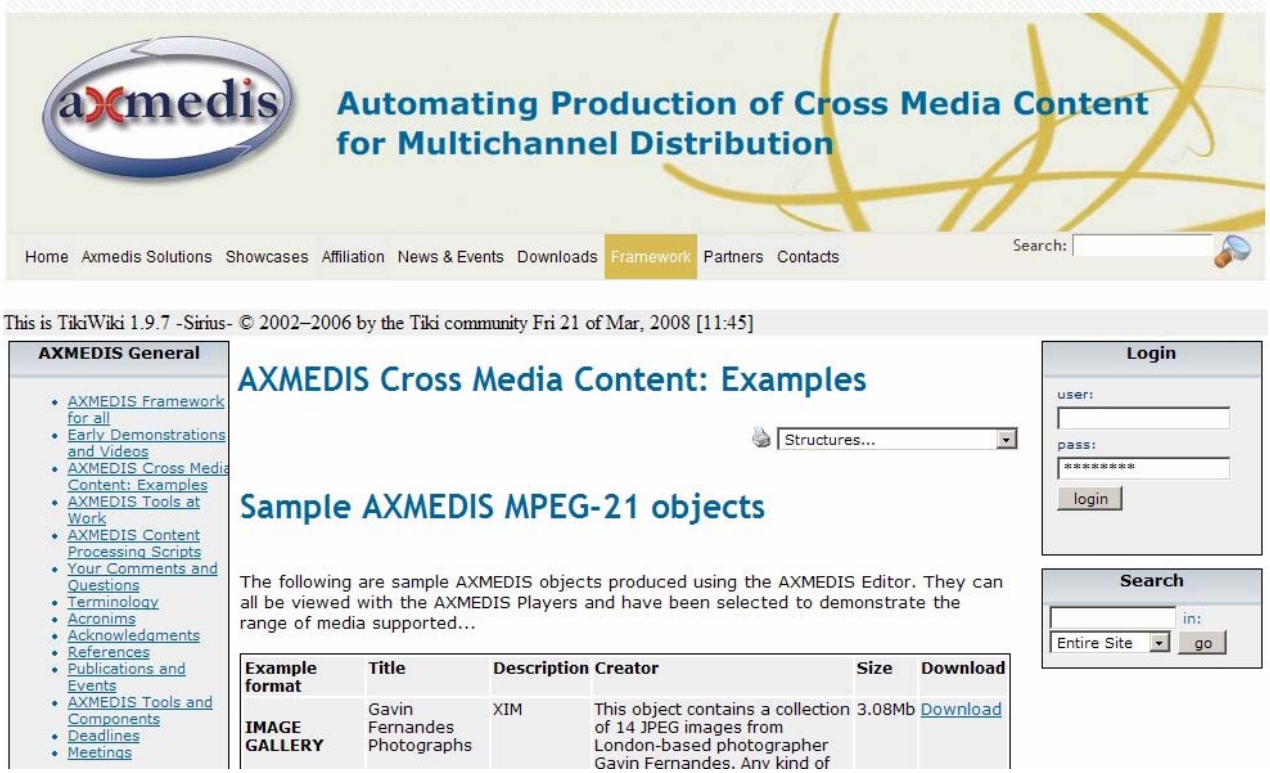
Example format	Object title	Description	Size	Filename
IMAGE GALLERY 	Gavin Fernandes Photographs	This object contains a collection of 14 JPEG images from London-based photographer Gavin Fernandes. Any kind of image format can be included into an AXMEDIS object	3.08MB	gavin-fernandes-photography-set-3.zip
HTML, INTERACTIVE 	Mandolin	This object demonstrates multiple linked html pages with integral images, audio and video encapsulated in a single object.	2.60MB	002-html-demo[1].zip
DOCUMENT 	AXMEDIS Requirements document	This object contains a large PDF file demonstrating support for documents. Please note that viewing requires the Acrobat plug-in to be installed in Internet Explorer. An AXMEDIS object may contain collection of PDFs, documents, and may contain any combination of content formats (type) presented in these examples.	7.57MB	AXMEDIS-Req-Use-Cases-Tests-2006.zip
FLASH, INTERACTIVE 	Moses game	This object contains a flash SWF game with two levels, including animation and sound	543KB	moses-game-flash-html-xim.zip
SMIL, INTERACTIVE 	Accademia	This object uses SMIL to present a slideshow guide of selected paintings from the Academia Gallery in Florence. The SMIL can be based on multiple SMIL scenarios linked together to put in execution Audio and Video files and animations.	252KB	accademia.zip
INTERACTIVE MPEG-4 	Mouse sensor	This object demonstrates MPEG4 interactive scripting, containing a single MPEG4 object that reacts to mouse movement. Any kind of MPEG-4 content can be included and player by AXMEDIS players since they include the MEPG-4 OSMO with BIFS support, audio support, image support, etc.	10KB	mouseSensor.zip
VIDEO 	The Crossing	This object contains a short video and music produced by XIM. The video is encoded in MPEG4 with AAC audio. Collection of documents and video and audio cna be created as well..	5.76 MB	The-Crossing-music-and-video-by-xim.zip
AU-	Silver Saddle	This object contains a single MP3 audio file	1.67MB	6770.silver_saddl

DIO 		of a piece of music contributed by AFI. Collection of audio fikles with eventual cover and documents and animation can be created as well.		e.zip
SMIL, AUDIO, VIDEO 	NEON SMIL	Example with 5 different SMIL objects. The Index SMIL objects contains four buttons. By pressing them the other external SMIL objects are loaded.	5.72MB	neon-objects-for-mobile.zip
SMIL, VIDEO 	VIDEO of MipTV	Example with a SMIL object playing a video recorded during the MipTV2008.	382KB	miptv-video-for-mobile.zip
SMIL, INTERACTIVE 	ANSC MUSA PC	Audio tour object for PC, ANSC MUSA	8.08MB	audiomuseo_pc.mp21
SMIL, INTERACTIVE 	ANSC MUSA PDA	Audio tour object for PDA, ANSC MUSA	7.02MB	audiomuseo.zip
	VRS secret camera	VRS candid camera	20.5MB	secret_camera_previews.axm
	Methods in formats	Example of DIM with the activation of methods from SMIL, HTML and FLASH	55KB	methods-in-formats.zip
	Actors collection DIP test	Example with DIM query internal and production of a content	107KB	actors-collection-dip-test.zip
	Get Resource	Two objects enabling to embed external resources into an AXMEDIS object containing a specific method	3KB	getresource.zip
	AXMEDIS method test	Slide show implementing both AXMEDIS scripting and MPEG-21/DIP modality	1.05MB	ax-method-test-2.zip

	ILABS Mobile contents	Example of mobile contents structured per century and artist	1.63MB	artistsbycentury_ilabs.zip
	ILABS Mobile contents	Example of mobile contents structured per artist and masterpieces	1.18MB	masterpieces-byartist_ilabs.zip
	Leonardo's masterpieces & XV century painters slide-show with DIP	Slide show implementing both AXMEDIS scripting and DIP functionalities	2.21MB	dip_samples_ilabs.zip

3 Content list & references

To allow an easier management of content references it was agreed (in April 2007 at the Rome Content Meeting) to have a wiki page[1] hosting some of the most remarkable examples of content (if needed also including templates and rules) as well as an excel file where partners should report not only data on the content produced but also on the related granted permission.



[1] http://www.axmedis.org/com/index.php?option=com_wrapper&Itemid=68?

In the current section we report info on the related Excel file and its content, so to make it usage more intuitive and faster. Furthermore we report also some data on produced objects and a simplified list of them. For a more detailed set of data it is suggested to access the related Excel file (axmedis-de8-1-1-4-content4validationanddemonstration-v3.4.xls), available in the same zip containing this document.
This Excel file is provided as part of the DE8.1.1.4 .

3.1 File structure

The Excel file is structured in different sections each characterized by a specific scope. In the following paragraph we will report synthetically a description of each table section providing also an example to clarify the structure and expected usage of provided info.

3.1.1 Object identification

The first section aims to allow object identification thus holds its file name, URI and AXOID. This section represents the first 3 columns of the sheet and is in the non side-scrollable area of the sheet.

Object identification		
Filename	URI	AXOID
miraclemaker.axm	P2P	
miraclemaker-trailer-movie-mpeg4.axm	P2P	urn:axmedis:00000:obj:a890c2b5-69e1-4031-98a8-2a3d6b46274e
littlevampire-game-flashhtml-xim.axm	P2P	urn:axmedis:00002:obj:fd280df9-716d-36e8-ae71-4985ac46d0c7
Xim-garden-P7271878C-PDA.axm	(URI unknown)	URN:AXMEDIS:00002:OBJ:2C97BBC6-EB0E-3225-A85B-89F88A920611
Xim-garden-P7271879C-HiRes.axm	(URI unknown)	URN:AXMEDIS:00002:OBJ:51F8AA5A-D06F-3008-B00A-06B4A03225D0
Xim-garden-P9062239-PDA.axm	(URI unknown)	urn:axmedis:00000:obj:5e4ae82b-7820-40a8-a37e-54a185c7cfb9
Xim-garden-P9062240-HiRes.axm	(URI unknown)	urn:axmedis:00000:obj:f23dbdd2-677f-4d28-9674-239b94556353
VRS teaser 1-mpeg4.axm	VRS teaser 1.axm	

As it apparent from the example reported above the object could have a specific URI (for example being located onto the P2P infrastructure or not). In a similar fashion the provided AXOID could be a final one (all-capital) or a non-final one (NON all-capital). After the identification area follows a section in which are reported some of the most important object metadata taken form the Dublin Core/AXInfo, namely: Title, Subject, Creator, Version, Description and Language. In the cases either the URI or the AXOID information is missing it has to be assumed that in the former case the object is stored on the file system of the content owner, while in the latter the object is very much probably either a resource (and thus not an AXMEDIS object) or a component of a collection.

3.1.2 Object basic metadata

In this section of the table are reported the basic metadata of the object. They are belonging either to the Dublin Core or to the AXInfo section of the object metadata. In more detail for each object is possible to specify the Title, a subject, the Creator, the version, a description and the available languages. In case more languages are available they are reported in sequence separated by a slash (/). Additionally, and mainly for the sake of completeness, for some content it has also been specified if it is in UK or international English (in the former case it is reported en-uk).

Dublin Core/AXInfo					
Title	Subject	Creator	Version	Description	Language
collection of jpeg objects	miracle maker	XIM	1	gallery of 60 stills from the film	en-uk
The Miracle Maker official trailer	miracle maker	XIM	1	mpeg4 movie of official trailer for The Miracle Maker	en-uk

flash game	little vampire	XIM	1	complex game, 5 levels, sounds	en-uk
garden Photo (for PDA)	garden Photo (for PDA)	XIM	1	A picture from the series: garden Photo (for PDA); P9062239.JPG	en-uk
garden Photo (High Res)	garden Photo (High Res)	XIM	1	A picture from the series: garden Photo (High Res); P9062240.JPG	en-uk
VRS teaser 1	VRS kamera teaser	VRS	1	Short clip from "themes" series No 1	LTU

It is worth recalling that for the Creator name we have adopted some conventions that are directly connected to some computation function present in the document and that are used for management purpose. In more detail, given the need to report metrics on content collection and production, it has been decided that reported objects will be counted on the basis of the contributor as well as on their nature and available language to this purpose an additional column has been inserted after the last section where have to be inserted an overall indicator of the item nature. This has been necessary as the values reported in the Format(s) column are too varied in terms of description to be profitably used by counting formulas. Adopted values are:

Acronym	Meaning
Aud	Any kind of audio
Imag	Any kind of image
Video	Any kind of video
MM	HTML, SMIL and any kind of multimedia[2]
Game	Executable non web-based games
Other	Other kind of resources

Beside these conventions for object counting there are other which we report hereafter for reference:

Acronym	Meaning	Value to insert
EN	English content (either in International English sort of in UK one)	En, en-uk, EN, en
IT	Italian content	It, IT, it
FR	French content	Fr, FR, fr
LTU	Lithuanian content	Ltu, LTU, ltu
EN-IT	Bi-lingual content either Italian-English or English-Italian	EN/IT, IT/EN,en-it, it-en
EN-LT	Bi-lingual content either Lithuanian -English or English- Lithuanian	EN/LT, LT/EN,en-lt, lt-en

Many objects have been posted both on the P2P and on the project portal, some have been handed out directly to the coordinator.
Also contributors names had to be standardized for the same computational reasons previously mentioned. What follows is both the set of adopted acronyms and the related count.

Acronym	Partner
AFI	Associazione dei Fonografici Italiani
ANSC	Fondazione Accademia Nazionale di Santa Cecilia
BBC	British Broadcasting Corporation
DSI	Department of Science and Informatics – University of Florence (Italy)
ILABS	GIUNTI Labs S.r.l.
TISCALI	Tiscali Italy S.p.a.
VRS	Video Reklamos Studija

[2] Please note that most of provided text belongs to ILABS collection and is integral part of HTML objects.

XIM	Xim Limited

3.1.3 Resource technical data

Follows a section covering resource technical data like the total number of resources, their format(s) or the set of included format in case of complex objects, the resolution and the total file size expressed in Kb.

Resource technical data			
Total no. of re-sources	Format(s) included	Resolution	Total file size Kb
60	image/jpeg (collection)	576x384	3652
1	video/mpeg4-generic	480x276	6686
1	text/html + application/x-shockwave-flash		965
3	Format: DC: multipart; image/jpeg; ; OBJ P9062239.jpg: image/jpeg; OBJ P9062239.jpg: image/jpeg; OBJ P9062239.jpg: image/jpeg	Resolution: P9062239.jpg: 480x360.P9062239.jpg: 240x180.P9062239.jpg: 160x120.	112 Kb
1	Format: DC: image/jpeg; ; OBJ P9062240.jpg: image/jpeg	Resolution: P9062240.jpg: 2816x2112.	932 Kb
1	ffdshow mpeg 4	720x576	2760

3.1.4 Potential Available Rights

Then follows a section on Potential Available Rights. The section is subdivided in three sections. The first covering ***allowed distribution***, in other terms for which demonstrators it is available (P2P AXCEPTool, TISCALI PC & P2P, ILABS ANSC PDA, ILABS mobile, ELION STB, TEO STB, BBC STB, EUTEL-SAT/UNIVLEEDS/MB, TI Mobile) and if it is possible to be inserted in the physical media distributed at conferences or fairs attended by partners. Then follows a section on ***allowed changes***, in other terms if it must-be protected using AX/OMA, which is the allowed usage duration (Unlimited/Until 2010), if it can be adapted or transcoded. Finally there is a section on object ***use***. This last section is mainly intended for the potential final user and then covers only two kinds of expected usage, namely play (which has to be intended as overall rendering on nay of the allowed demonstrator platforms depending on the kind of object and format) and printed which retains its meaning for objects that can be printed (like documents) while has to be intended as storage on a CD or other media in case of other formats.

Potential Available Rights																
Allowed distribution…										Allowed changes…				Use	
P2P via AXCEPTool?	DVD for conferences etc.?	via TISCALI PC & P2P?	via ILABS ANSC PDA?	via ILABS mobile?	via ELION STB?	via TEO STB?	via BBC STB?	via EUTELSAT/UNIVLEEDS/MBI?	via TI Mobile?	Must-be protected using AX/OMA?	Duration Unlimited/Until 2010?	Can be adapted?	Can be transcoded?	play?	printed?
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U	N	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U	N	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U	N	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	U	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	N

From the above example it is evident that the structure as well its content deserve a bit more explanation. In more detail it is necessary to understand for each column the meaning of the reported data and the range of possible values. What reported here refers mainly to availability for distribution to final user for fruition..

Allowed distribution	**Meaning**	**Possible values**			
P2P via AXCEPTool	The content will be sharable via P2P	Y	Allowed	N	Not allowed
DVD for conferences etc	The content can be used for being included in physical distribution like	Y	Allowed	N	Not allowed
via TISCALI PC & P2P	The content can be used in the distribution scenario managed by Tiscali and also on P2P	Y	Allowed	N	Not allowed
via ILABS ANSC PDA	The content can be used in the distribution scenario managed by ILABS in cooperation with ANSC and used on PDAs	Y	Allowed	N	Not allowed
via ILABS mobile	The content can be used in the distribution scenario managed by ILABS in cooperation with ANSC and used on Mobiles	Y	Allowed	N	Not allowed
via ELION STB	The content can be used in the distribution scenario managed by ELION and used on their Set Top Boxes	Y	Allowed	N	Not allowed
via TEO STB	The content can be used in the distribution scenario managed by TEO and used on their Set Top Boxes	Y	Allowed	N	Not allowed
via BBC STB	The content can be used in the distribution scenario managed by BBC and used on their Set Top Boxes	Y	Allowed	N	Not allowed
via EUTELSAT/…/MBI	The content can be used in the distribution scenario managed by Eutelsat and used on MBI Set Top Boxes	Y	Allowed	N	Not allowed
via TI Mobile	The content can be used in the distribution scenario managed by Telecom Italia and used on Mobiles	Y	Allowed	N	Not allowed

It is worth mentioning that at present it could be possible that a No value has been inserted thinking that the kind of content is not suitable or available for a given platform for many reasons, thus it is possible that this section of the table may change (even quite consistently) during the first stages of the project experimentation in live demos.

The part related to allowed changes provides info on object aspects related to distribution, but more focused on its protection and availability. It also includes info on the degree of freedom a distributor/aggregator has in using this content for distribution, thus what reported here refers mainly to availability for B2B distribution as well as constraints for distribution to final user for fruition.

Allowed changes	**Meaning**	**Possible values**			
Must-be protected…	Provided content has copyright aspects that have to be enforced	Y	It will be necessary to provide the end-user a license	N	The content will be freely accessible
Duration Unlimited / Until 2010	Provided content will be available for usage within a limited period of time after which it will be no more usable	U	Unlimited usage	L	Limited usage (the limit is either specified or 2010)
Can be adapted	Provided content can be adapted by the aggregator/distributor (a license may be needed for this depending on protection needs)	Y	Allowed	N	Not allowed
Can be transcoded	Provided content can be transcoded by the distributor (a license may be needed for this depending on protection needs)	Y	Allowed	N	Not allowed

The part related to allowed usage provides info on object aspects related to usage after distribution to the end user. It includes info on the possible usage an end-user may have of the accessed content.
Given the project nature and the characteristics of the devised demonstration scenarios the expected usage are only two, namely:

Allowed usage	**Meaning**	**Possible values**			
Play	Has to be intended as overall rendering on nay of the allowed demonstrator platforms depending on the kind of object and format	Y	Allowed	N	Not allowed
Printed	Has to be intended as the possibility to print out printable content or as storage on a CD or other media in case of other formats	Y	Allowed	N	Not allowed

This last two parts of the file has been inserted to represent the starting point for the definition of a common base of accepted potential usage grants that would then have to be translated into actual license grants for the various users. This process will have to be properly set-up and deployed for each kind of users. It is expected that the adoption of templates for the various kind of licenses could be adopted in combination with rules and AXCP to properly handle such a massive amount of work that will have to be put in place in order to associate the right license for the right set of right to the right object for each expected usage and user couplet.

4 Conclusions

So far project partners have been capable to provide a quite varied set of raw content assets that have enabled an extensive and complete set of test cases both for manual and automated production. On the basis of the initially provided set of raw content and tanks to the selection policies and guidelines derived in time, it has been also possible to generate a rather extensive set of objects that are currently available for both internal testing and demonstration. The set of produced object encompasses most of the market relevant formats and grants a successful exploitation of the planned demonstrators. Furthermore partners have also shared rules and templates thus enabling learning from each-other experience, problems and errors with a constant mutual exchange of knowledge and expertise and also accommodating improvements coming form comments received either from partners or external experts.
Future expected work is mainly related to the set-up of proper set of objects, from raw resources to the most complex AXMEDIS objects – including rules – to be associated with the various tools for dissemination and explicative / tutorial purposes.

5 References

DE3.1.2.3.1 Spec of AXMEDIS General Aspects of AXMEDIS Framework
DE3.1.2.3.2 Spec of AXMEDIS command manager
DE3.1.2.3.3 Spec of AXOM and Protection Processor
DE3.1.2.3.4 Spec of AXMEDIS Editor and Viewers
DE3.1.2.3.5 Spec of External Editor and Viewers Players
DE3.1.2.3.11 Spec of AXCS and Networks

DE4.1.1.3 Content Modelling and managing
DE4.2.1.3 Content indexing, monitoring and querying
DE4.3.1.3 Content Composition and formatting
DE4.4.1.3 Content sharing and production on P2P
DE4.5.1.3 Content Protection and Supervision

DE8.1.1 Content for Test Cases, Validation, and Demonstration
DE8.5.1.2 Collection of editorial formats and DRM rules for multi-channel
DE8.4.1.3 AXMEDIS Editorial Format Guidelines and basic examples
DE8.1.1.3 Content for Test Cases and Validation

5.1.1 AXMEDIS Content Processing

- Technical Note EN on: AXMEDIS Content Processing GRID all features listed (3903)
- Technical Note IT on: AXMEDIS Content Processing GRID Tutte le caratteristiche descritte (3903)

5.1.2 AXMEDIS P2P Network

- Technical Note EN on: AXMEDIS P2P Controlled network all features listed with cases (4001)
- Technical Note IT on: AXMEDIS P2P Controlled network tutte le caratteristiche, con alcune casistiche (4001)

5.1.3 AXMEDIS Content Model

- Technical Note EN on: AXMEDIS Content Model and Tools, Authoring Tools, Players for MPEG-21, PC, PDA, Mobile, STB, PVR, HDR, etc. (5102)
- Technical Note IT on: AXMEDIS Content Model and Tools, Authoring Tools, Players for MPEG-21, PC, PDA, Mobile, STB, PVR, HDR, etc. (5101)

5.1.4 AXMEDIS DRM

- Technical Note EN on: AXMEDIS DRM, MPEG-21 DRM, Interoperable DRM (4501)
- Technical Note IT on: AXMEDIS DRM, MPEG-21 DRM, DRM interoperabile (4501)
- Technical Note EN on: How to integrate the AXMEDIS DRM into an e-commerce portal and content distribution solution for cotnent on demand and subscription (4510)
- Technical Note IT on: Come integrare l\'AXMEDIS DRM in un portale di e-commerce per la distribuzione di contenuti digitali on demand e con sottoscrizione, abbonamento (4510)

5.1.5 Showcases Technical Notes:

- Technical note 6001: "AXMEDIS Video on demand distribution for IPTV digital set-top-box", TEO Show Case
- Technical note 6201: "AXMEDIS Kiosk Distribution towards PDA and Mobiles", GiuntiLabs Show Case
- Technical note 6301: "AX4HOME DVB-T Recorder and Broadcast Enhancer", BBC show Case
- Technical note 6401: "AXMEDIS content via Satellite Data Broadcast", EUTELSAT Show Case
- Technical note 6501: "AXMEDIS content on demand distribution for PC", ELION show Case
- Technical Note 6601: "AXMEDIS Mobile Distribution, java mobile player", GiuntiLabs Show Case
- Technical Note 6701: "AXMEDIS back office content production, multichannel distribution toward PC, Mobiles and OMA mobile", Telecom Italia Show Case
- Technical Note 6801: "AXMEDIS for Cultural heritage content modeling and distribution, toward PC, PDA and Mobiles", ANSC Show Case
- Technical Note 6901: "AXMEDIS content distribution to PC, via web server and P2P ", TISCALI ShowCase