AXMEDIS

Automated Production of Cross Media Content for Multichannel Distribution

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DRM EDITOR AND VIEWER

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INTRODUCTION

Dear AXMEDIS User,

Welcome to the AXMEDIS DRM Editor and Viewer *User Manual*.

With this guide, the AXMEDIS team is hoping to help users to view, edit and manage MPEG-21 REL licenses.

AXMEDIS is a very complex and complete world and it is very difficult to cover all the aspects in only one manual. For other parts of the AXMEDIS Framework please check the links and references given at the end of this manual.

Remember to not hesitate to contact the AXMEDIS team if you need additional information or to point out mistakes in this manual. Also do not hesitate to visit the AXMEDIS portal where you can find much other information regarding the AXMEDIS technology, with many real examples and objects.

OVERVIEW

This document aim is to describe the User Manual of the DRM Editor and Viewer. The main functionalities of DRM Editor and Viewer are:

- **Parse MPEG-21 REL (Rights Expression Language) Licenses.** MPEG-21 REL is a complex standard, and its full implementation has nowhere reported to be done. The following limitations apply to this tool:
  - Only these four conditions, found in the standard extension of MPEG-21 REL, have been defined: Territory, Term, Number and Fee, while all the rights in the multimedia extension can be used.
  - Distribution licenses (those with an Issue right) should not hold more grants apart of the issue grant itself at the root level. The number of issued grants can be as big as 8. AXMEDIS platform only uses one level of nesting in distribution licenses (i.e. one for distributor that allows him the distribution to final users). Nevertheless, the application allows an arbitrary nested number of levels for the distribution chain in case they are needed.
  - Up to 8 grants per license are permitted (although the standard does not limit this number)
- **Load licenses from XML files and store in files.** Licenses can be serialized in XML files.
- **Load licenses from AXMEDIS License database and Store licenses remotely.** Licenses can be stored/retrieved from the AXMEDIS License database, through the PMS Server.
- **Search of grants in the license.**

INTRODUCTION TO MPEG-21 REL

A MPEG-21 REL License is an electronic document by which one AXMEDIS user gives certain rights to other AXMEDIS user over a certain resource (usually an AXMEDIS object). These rights can be conditioned upon the satisfaction of one or more restrictions. Multimedia content conveyed in AXMEDIS objects can thus be protected and distributed safely between the AXMEDIS community.

"DRM Editor and Viewer" is the software application to view and eventually edit these MPEG-21 REL Licenses. This user manual refers to its version 2.4. "DRM Editor and Viewer", and it will describe all the needed information to install and operate the application.

KINDS OF MPEG-21 REL LICENSES

The licensing procedure is tightly bound to the concepts of Intellectual Property, and through the life-cycle of an AXMEDIS object different licenses will be in use. The three major steps have their own kind of license:

- **Potential Available Right (PAR)**. A Potential Available Right is a license addressed to no one in particular, it comes embedded in an AXMEDIS object and it allows the creator to restrict the licensing modalities over its object. The AxEditor tool, described in other manuals, is used to create, view and edit AXMEDIS objects, and one of its panels permits editing Potential Available Rights which will come within the AXMEDIS object. PARs can be either *internal* or *external*, depending on whether they are publicly exposed or not.
- **Distribution License**. Once the AXMEDIS object has been created and registered, it can be given for its distribution. To do that, a distribution license has to be issued. A distribution license is a standard license by which one user gives the other user the right to *issue* more licenses (eventually, *revoke* and *obtain*, too). Therefore, any license containing an *issue* (or *revoke*) right is called a distribution license. Distribution licenses can be arbitrarily nested, and it is possible to give the right to give the right to issue licenses. Nesting levels are unlimited, though in practice these features will very seldom be used. The creation of a distribution license should match the Potential Available Rights associated to the referred object.
- **User License**. Or end-user licenses are those MPEG-21 REL licenses holding no *issue* or *revoke* right. They are intended to be given by a distributor for the use of general users.

SOME TERMINOLOGY

For those AXMEDIS users not familiar with the MPEG-21 REL standard, we offer here some informal definitions:

- **Issuer.** The (AXMEDIS) user who yields rights to another (AXMEDIS) user.
- **Principal.** The (AXMEDIS) user who benefits from the rights given in the license.
- **Resource.** The (AXMEDIS) object over which the rights are given.
- **Right.** Set of defined actions that can be conceded to operate on an object.
- **Condition.** Logical statement that can be either true or false, and whose satisfaction is required to execute a right.
- **Grant.** Conceptual unit of concession, it comprises one right and zero or more conditions.
- **Grant group.** Group of grants.
- **Authorization.** Process by which a given user, in a given context (its location and the current time), is checked to have a certain right over a certain resource.
- **Fee.** Condition imposed about payment. AXMEDIS does not verify payments.
- **Territory.** Condition imposed about the location where a right in a grant can be executed. AXMEDIS verifies this condition before allowing a user to exercise a certain right.
- **Interval.** Condition imposed about the time when a right in a grant can be executed. AXMEDIS verifies this condition.
- **Number.** Of times that a certain right can be executed. AXMEDIS carries an account so that this condition can be verified.

DRM EDITOR AND VIEWER INSTALLATION

APPLICATION MODALITIES

The DRM Editor and Viewer can view and edit with the same interface the three kinds of licenses referred in the previous sections. However, as PAR´s are to be stored within the object, its edition is integrated in the AXMEDIS Editor application. Thus, we can access the functionalities:

- **Integrated in the AXMEDIS Editor**. To create PAR´s, the panel called "DRM Editor" will offer all the functionalities except assigning a principal and specifying the issuer.
- **Launched as a Standalone Application**. From the Start Menu of Windows (or the corresponding link in other platforms), in the *drm-tools* folder, the DRM Editor can be launched. Additionally, it can be launched from the AXMEDIS Editor, in the menu entry "Launch license editor..." which appears when the DRM panel has been selected.

"DRM Editor and Viewer" or simply "DRM Editor" allows viewing and editing the licenses. Eventually, it might be of use distributing an application merely to view the license, and having suppressed the editing functionality. Such an application, called "DRM Viewer" can come bundled with the installation package; its features are exactly those of the DRM Editor but with no possibility of modifying or storing the licenses.

PRE-REQUISITES

No special requisites are required to install DRM Editor and Viewer, except an Internet connection to retrieve and store remotely the licenses.

DRM EDITOR AND VIEWER STANDALONE SETUP

The "DRM Editor and Viewer" is distributed with the drm-tools package. To set it up, it is only required to follow the easy steps of a standard installation application, but afterwards a registration procedure has to be accomplished.

This registration procedure consists of two steps:

- **User registration**. The user of the tool has to be registered in the AXMEDIS platform. To do this, the user must obtain a User Certificate in the AXMEDIS Registration Portal[1]. The application (either the AXMEDIS Editor or the AXMEDIS DRM Editor and Viewer as standalone application) will prompt for the certificate file (it is a .p12 file, a PKCS12 file).
- **Tool certification**. Once the tool has been installed, AXMEDIS requires the warranty that the tool is running always in the same machine and associated to the user. The tool itself is certified to prevent that malicious software pretends to be AXMEDIS Software. To certificate the tool, the application will send internally AXMEDIS the user certificate, a device fingerprint and the tool certificate.

The registration can be done from the *File* menu, *Register tool*.

CONFIGURATION

The edition of PARs from the AXMEDIS Editor is subject to the same terms of configuration like in the AXMEDIS Editor.

[1] At edition time of this document, the URL was http://axcs.axmedis.org:8080/RegistrationPortal/.

The “DRM Editor and Viewer” standalone application fixes its configuration through a file called “drmev-configuration.xml”. It has to be found in the same folder of the “drmeditor.exe”, and a sample file follows:

```
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<Configuration xmlns="http://www.axmedis.org/configuration">
    <Module category="" id="DRMEV">
        <Parameter name="OnlyViewer" type="string">false</Parameter>
        <Parameter name="TreeMode" type="string">false</Parameter>
        <Parameter name="RELType" type="string">basic</Parameter>
        <Parameter name="ReducedSet" type="string">true</Parameter>
    </Module>
    <Module category="" id="PMSCLIENT">
        <Parameter name="PMSClientEndpoint" type="string">https://axpms.axmedis.org:443/PMS</Parameter>
    </Module>
    <Module category="" id="CERTINFO">
        <Parameter name="USERNAME" type="string">usercer.p12</Parameter>
        <Parameter name="USERPWD" type="string">00000000</Parameter>
    </Module>
    <Module category="" id="DATABASE" visible="true">
        <Parameter name="user" type="string">axdbuser</Parameter>
        <Parameter name="passwd" type="string">axmedis</Parameter>
        <Parameter name="LoaderWSEndPoint" type="string">http://axdbf.axmedis.org:8080/LoaderSaverF/load</Parameter>
        <Parameter name="SaverWSEndPoint" type="string">http://axdbf.axmedis.org:8080/LoaderSaverF/save</Parameter>
        <Parameter name="FTPPath" type="string">ftp://axdbf.axmedis.org</Parameter>
        <Parameter name="LockWSEndPoint" type="string">http://axdbf.axmedis.org:8080/LockUnlockWSF/lockunlock</Parameter>
    </Module>
    <Module category="" id="AXMEDIS_SELECTION">
        <Parameter name="MAIN_QUERY_SUPPORT_WSDL"
type="string">http://axdbf.axmedis.org:8080/MainQuerySupportWSF/mqs?WSDL</Parameter>
        <Parameter name="SELECTION_ARCHIVE_WSDL"/>
    </Module>
</Configuration>
```

All the elements are optional as there is a default value, but the following elements require special attention:

- **In module DRMEV**.
  - ReducedSet, if set to true, will make the DRM E&V more handy, offering a reduced set of four currencies and 15 countries (those with a bigger economical activity, measured by the official GDP published by the World Bank).
  - RELType, basic by default, decides which set of rights are considered. If selected ‘extended’, rights from the MPEG-21 REL extensions will be also considered.
  - OnlyViewer, false by default, establishes if there can be editing capabilities or not.
  - TreeMode, false by default, shows an alternative tree-based interface
- **In module PMSCLIENT**
  - PMSClientEndPoint, gives the PMS Server access point.
- **In module CERTINFO**
  - Username, points at the user X509 certificate file issued by AXMEDIS.
  - Userpwd, points at the private password to open that certificate. If this parameter is not present, the user will always be prompted to introduce such password. **It is strongly recommended not to use this element**.
- **Modules DATABASE and AXMEDIS_SELECTION**
  - They are considered for querying the AXMEDIS database etc., see other manuals for a complete reference.

THE DRM EDITOR AND VIEWER APPLICATION

INTERFACE ELEMENTS

The main window shows two areas: in the left a hierarchically structure is displayed (also called tree), which is used to navigate through the license elements; in the right side there is a panel showing information related to the element marked in the tree. Functionalities can be accessed through the menu options, the buttons in the button bar, or the buttons that appear in the panel. The buttons do not appear when editing PARs in the AXMEDIS Editor application, as well as some menu entries.

OPERATING WITH THE APPLICATION

- **Run the DRM Editor and Viewer** standalone version by clicking in the Start Menu in DRM E&V. Note that two instances of the application cannot run at the same time.
- **Register the application.** The application as it comes is useless if you are not registered. The first step, to be done only once, consists of the following steps:
  - Visit the AXMEDIS Registration Portal, fill the fields in, and you will retrieve a license, under the form of X.509 certificate, a file with extension .p12.
  - Click in "File->Register tool", and introduce the path to this file when prompted.
  - The application will also send data information about your computer and your software (Some antivirus/firewalls may complain but AXMEDIS is no malware).
  - You will be asked if you want your password to be stored permanently in your computer. This will accelerate your use of the tools, as it will not be demanded any more, but if the computer is not reliable you will be compromising your security.
  - After the process, you should get a message similar to this one:

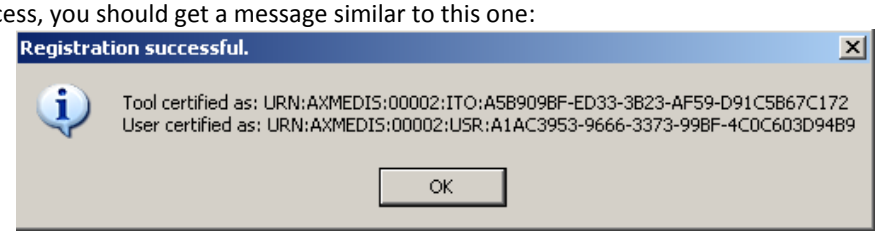

Figure 1. User and tool identifiers after registration

These long numbers are your identifiers, both of the user and the tool (of course their exact values will be different from Figure 1).

- **Open a license from a file** (see Figure 2). The panel displays the file path or an alternative description.

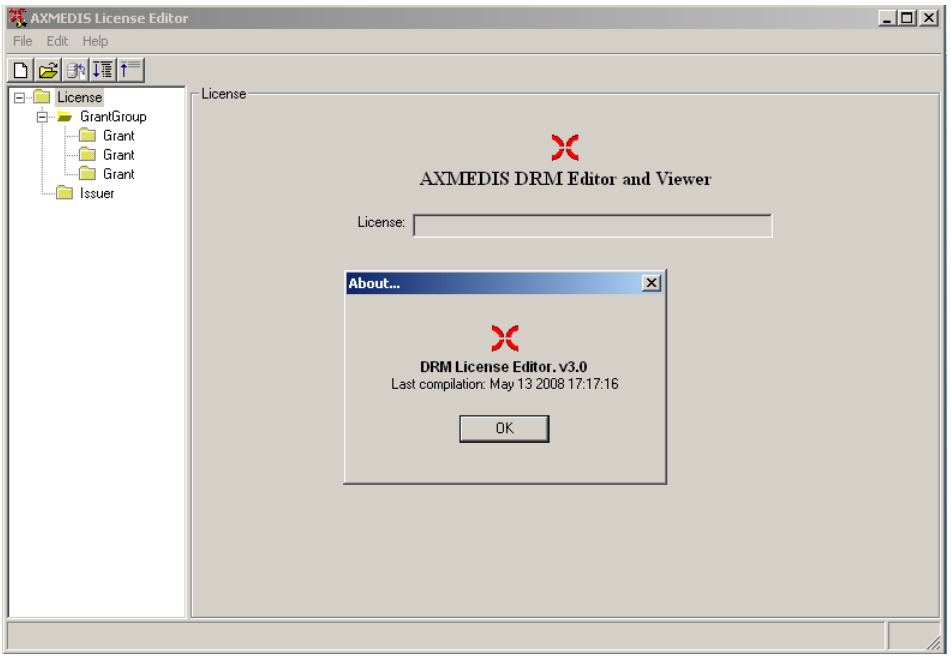

Figure 2. The AXMEDIS DRM Editor and Viewer

- **Or create a new license** . When a new license is created, it is empty. The tree appears with an "issuer" element and with a "Grant Group" element. They are initially empty.
- **Edit the license.**
  - When the tree is clicked on its "issuer element", the Editor shows the issuer panel (see Figure 3). The "issuer" can be set to an arbitrary string (clicking in the menu "Edit->Set Issuer Text…") or can be set to the default registered user ("Edit->Set yourself as the user"). The issuer date cannot be set but it is an important parameter, fixed by the AXMEDIS servers at issuance time.

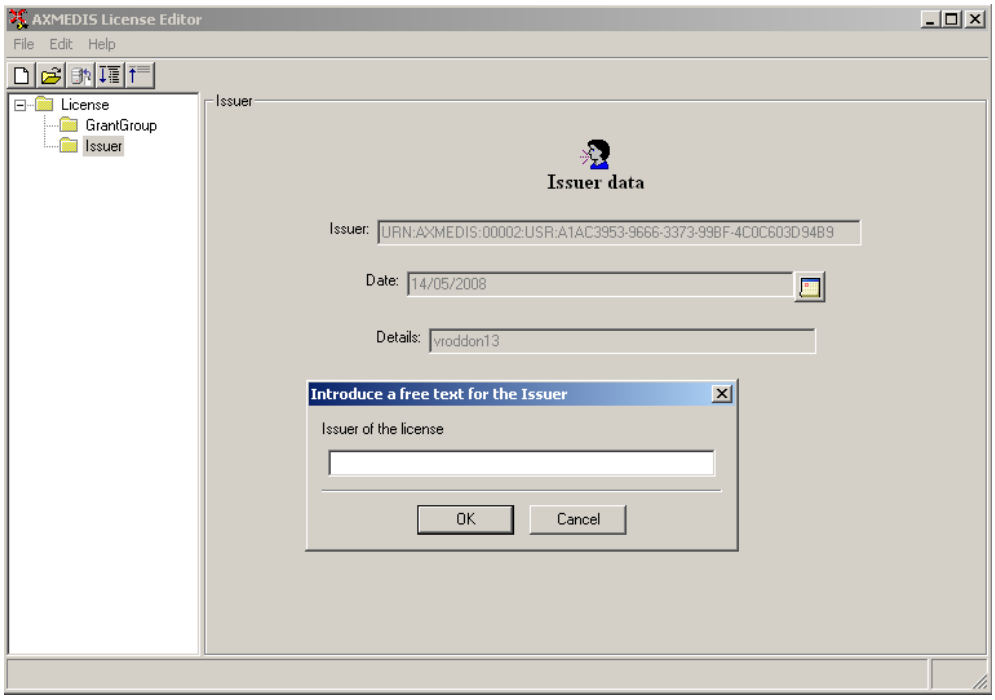

Figure 3. Issuer element

- When the tree is clicked on its "GrantGroup element", a Grant Group panel is displayed (see Figure 3). From this panel it is possible to add or delete grants. The first icon creates an empty grant, the second deletes it. Once a grant has been created, it will be displayed in the tree.
- Expand and collapse the license tree by using the buttons and .

.

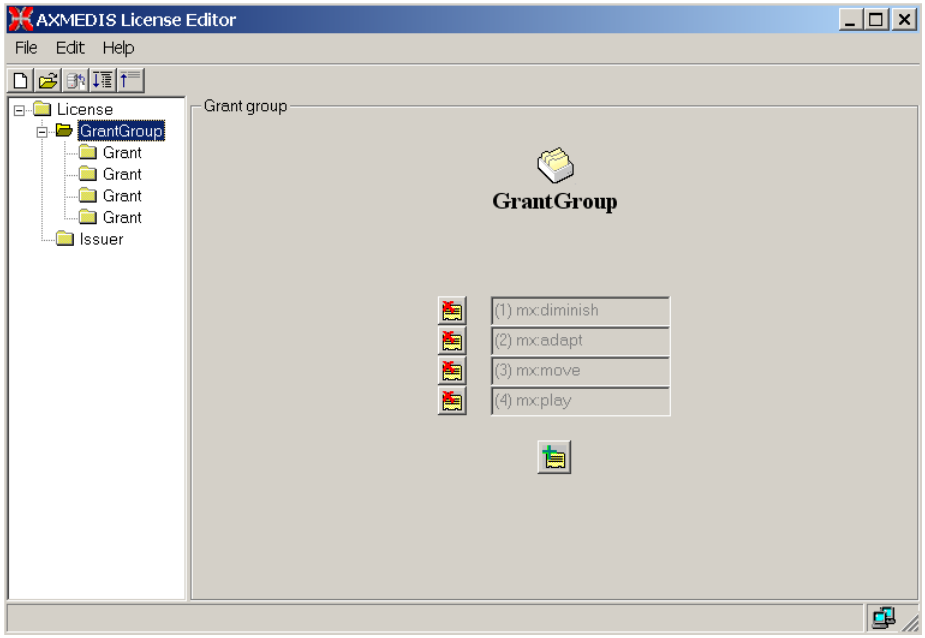

Figure 4. DRM E&V Grant group edition

- **Editing the Grant.** When the tree is clicked on its "Grant" element (see Figure 5), the Grant panel is shown. From this panel, the following actions can be performed:
  - To change the following fields: principal, right, resource.
  - To add and remove conditions. The conditions that can be set are: number, interval, territory and/or fee. Each of them can be modified.

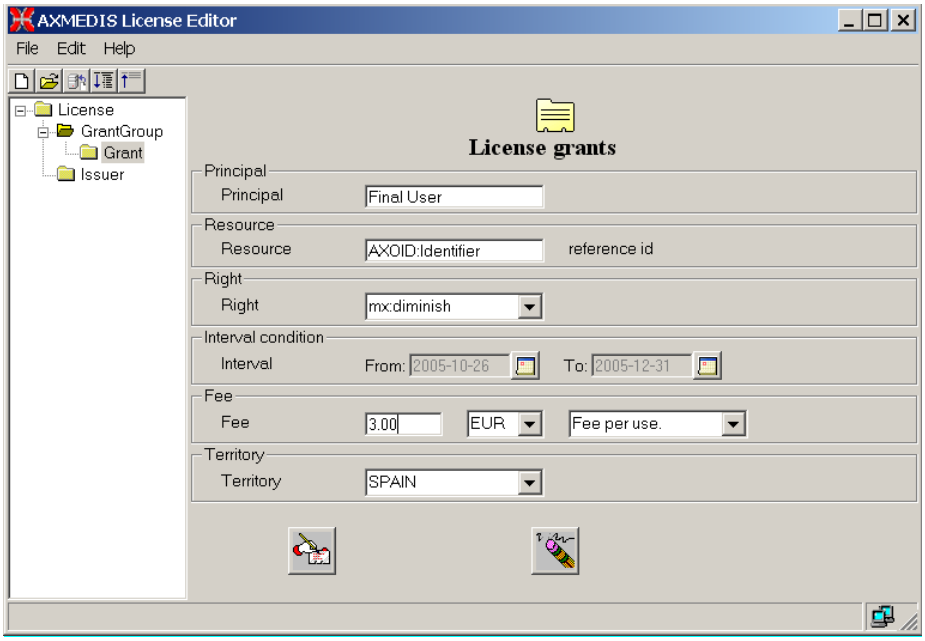

Figure 5. DRM E&V Grant view

- When the issue right is chosen, the license becomes a "distributor license", and the Grants underneath are Grants to be given by the distributor. This is reflected in the tree, where a new sublevel is displayed containing additional grants.

- **Store a license to a file.** This option is performed when selection the “File -> Save to File” option of the Editor. It is advised to store the licenses in the given folder. Or in any other directory, containing a “schemas” folder with the given XML Schemas, if we want the license to be validated.
- **Store a license into a remote server** . Sends the license to the corresponding server. The license is validated before it is stored in the server’s database.

THE DRM EDITOR AND VIEWER IN THE AXMEDIS EDITOR APPLICATION

The DRM Editor and Viewer embedded in the AXMEDIS Editor Application is used to insert PARs in the AXMEDIS objects at editing time. It lacks the menu bar and the toolbar, but has the next following features:

- Set PAR URL
- Set PAR Status

No principals can be specified (this is the defining feature of a PAR).

APPENDIX: THE CONTRACTS EXTENSION

INTRODUCTION

Essential information in narrative audiovisual contracts can be mapped into licenses. But to meet some specific needs of this sector, the specification of MPEG-21 REL to write licenses has proved not to be enough.

To repair such situation, an extension of the MPEG-21 REL has been written able to cover those spots where the standard was insufficient. The resulting application, the "Contract Manager", has been integrated with the AXMEDIS DRM Editor and Viewer. The following extensions to the MPEG-21 REL standards have been done:

NEW RIGHTS

Besides the standard rights defined in the Multimedia Extension of MPEG-21 REL, the following rights have been introduced:

- **Translate**. To render in another language
- **Dub**. To insert a new soundtrack, often a synchronized translation of the original dialogue, into (a film).
- **Reproduce**. To authorize the act of reproduction of content in any manner or form (i.e. reproduction covers all methods of reproduction for instance drawing, lithography, offset and other printing processes, photocopying, recording).
- **Perform**. A performance is considered "public" when the work is performed (presented or executed) in a place open to the public or at a place where a substantial number of persons outside of a normal circle of a family and its social acquaintances are gathered.
- **Transmit.** To send data over a communications line
- **Broadcast**. To send out or communicate, especially by radio or television.
- **Publish.** To prepare and issue for public distribution or sale.
- **Record**. To register (sound or images) in permanent form by mechanical, electrical or electronic means for reproduction
- **Remix**. To recombine (audio tracks or channels from a recording) to produce a new or modified audio recording
- **Promote**. To attempt to sell or popularize by advertising or publicity, using the image rights of the artist. Right aimed at optimizing the exploitation of the licensed content making reference to the artist and to its image.
- **Synchronize**. To cause (soundtrack and action) to match exactly in a film

The addition of these rights is as straightforward as with the rest of the MPEG-21 REL rights.

NEW CONDITIONS

Apart from the MPEG-21 REL conditions (defined in the Standard Extension), the following conditions have been added:

- **Attribution**. Through the use of the *m3x:copyrightNotice* condition (present in the Open Access Extension), it is achieved the restriction that derived works must include an acknowledgement text, defined by the creator.
- **validityPeriodRenew**. With this condition, it can be expressed that the interval of validity of a certain license can be extended for a certain period of time, upon payment of a certain amount before a certain deadline.
- **feeFlatExt**. With this condition, it is possible to specify the payment with a free text, in another medium different from money (for example stocks of the company, etc.).
- **Exclusivity**. Written here as a condition, it obliges the issuer not to redistribute a certain piece among more artists.
- **nonTerritory**. This condition will facilitate a lot the redaction of grants where the valid territory is the entire universe except the shown domains.

OASIS E-CONTRACT IN THE LICENSE

By using this software, the text of contract will be inserted in the license. Note that sometimes contracts include images, or tables, and this information may be dropped. But the rest of the contract, the textual part, will be processed, formatted in the OASIS e-Contracts format and stored in the license (in the otherInfo field).

This field can be seen with the DRM Editor and Viewer Application.

INSTALLATION

To install the Contract Manager application, just follow the installer application. Manual installation is as simple as leaving the file “MPEG21Wizard.dll” and “WordReader.dll” in the same folder where the drmeditord.exe lies.

- The AXMEDIS DRM Editor and Viewer now will be able to deal with the new rights and conditions.
- A new Wizard will appear, to facilitate the task of writing licenses from contracts. This Wizard can be called from the “Edit” Menu.

USE OF THE CONTRACTS-ENABLED DRM EDITOR AND VIEWER

Operation with these new elements is as simple as with the others. The Figure 6 shows all the possible conditions at the same time.

- The Interval is the period when the right can be exercised. On its right, there are four fields to fill up:
  - The period for which the license will be extended (number of units, units (day/month/year))
  - The payment that has to be done (amount, currency)
- The copyright notice can be added by clicking in the standard Creative Commons for attribution: Being possible the addition of a free text. Leaving it in blank, it will lead to the removal of this condition.
- Extended flat fee can be selected as one entry more in the Fee condition control.

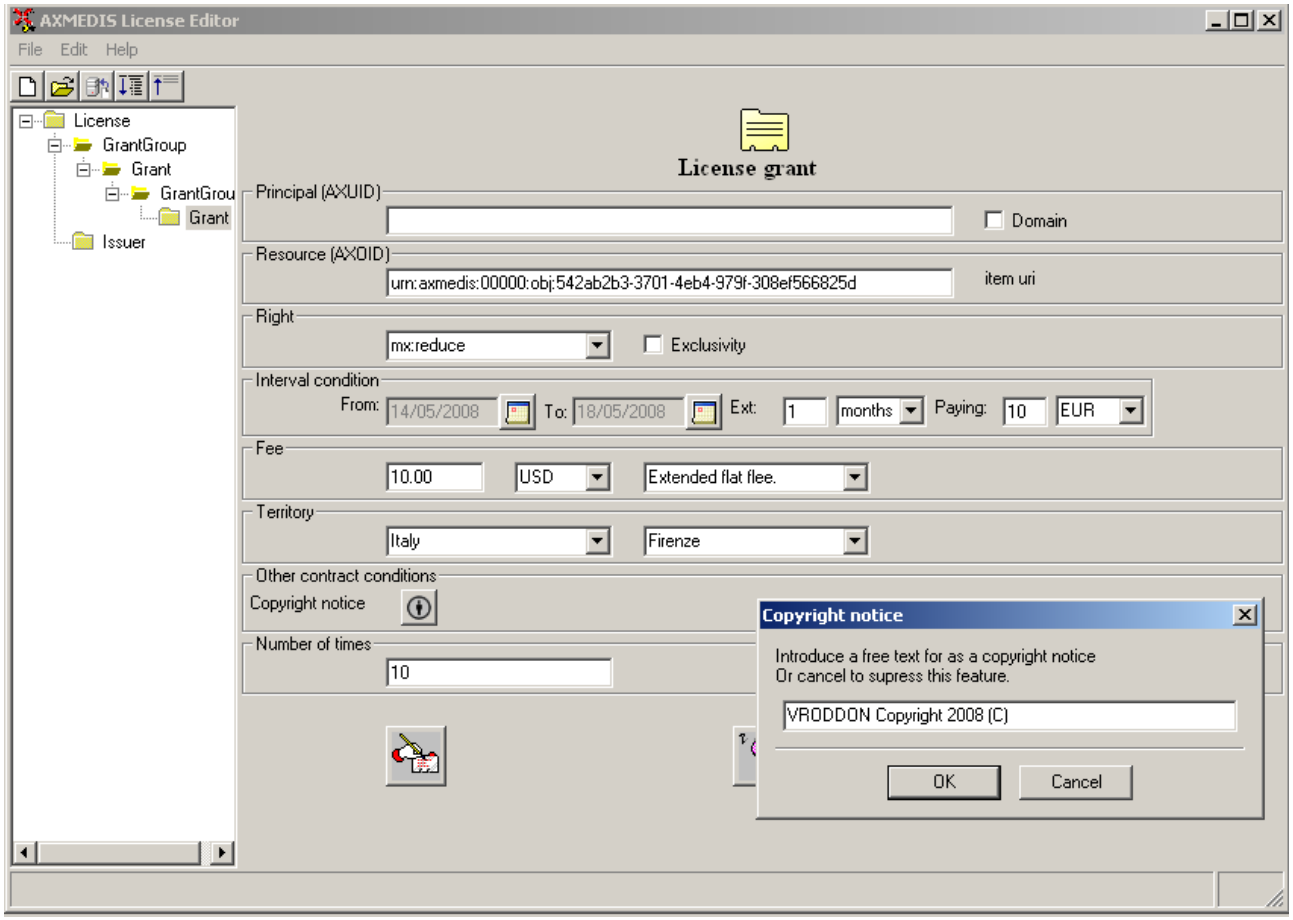

Figure 6. DRM E&V Showing a license with many conditions

USE OF THE CONTRACTS WIZARD

The contracts wizard is launched from the AXMEDIS DRM Editor and Viewer application, from the "Edit->CreateFromContract" entry. This is a wizard-like application, to facilitate the creation of licenses from contracts and whose result will be a license to be further edited in the DRM Editor.

CONTRACT SELECTION

In the first step, a contract is requested.

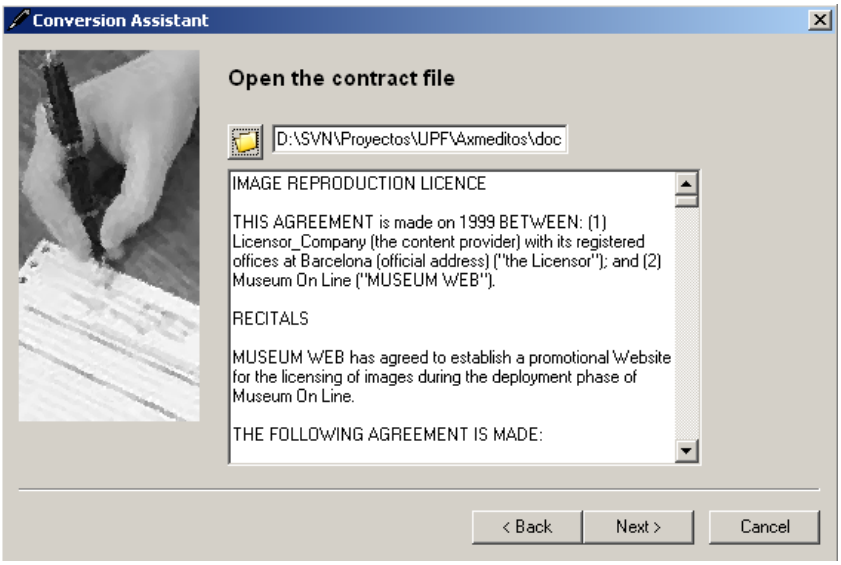

Figure 7. Opening a contract

Accepted formats are:

- Text files. Both in UNIX and MS-DOS encoding
- PDF files.
- Microsoft Word 2003 files.

Once the contract is open, it suffers some pre-processing, and the contract is then analyzed. The result of such analysis is shown in the next screen, designed to host more information but which initially dumps some results of the analysis. If the document was not recognized as a contract, the wizard will go no further.

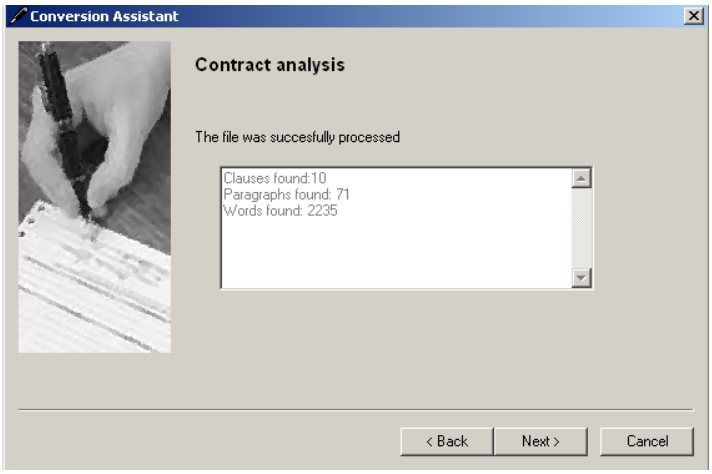

Figure 8. Analysis result

PARTIES SELECTION

Immediately after, the parties of the contract are identified as the *Issuer* and the *Principal* of the license. The upper part shows the clause that an automatic scanning has detected to be the clause with the parties. This clause is usually well recognized and helps the user acknowledging the issuer and the principal.

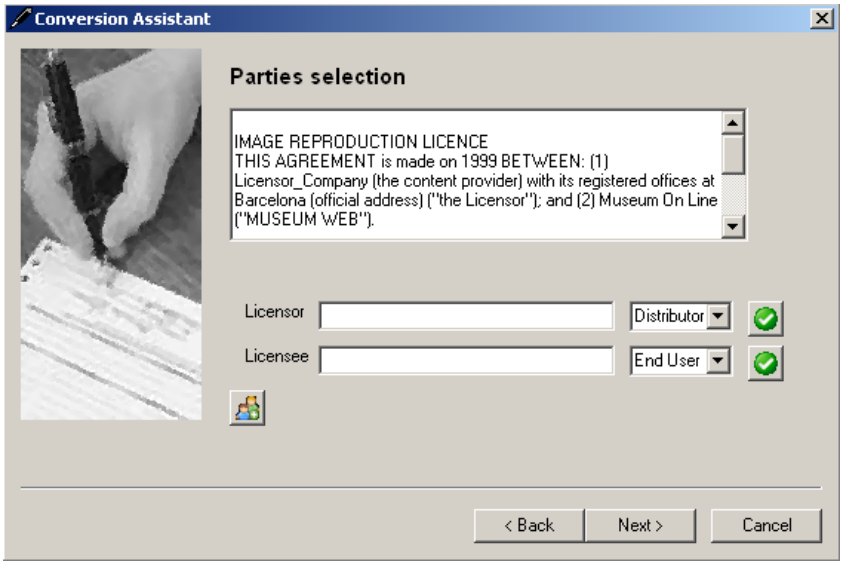

Figure 9. Parties selection

There are two empty fields, where the licensor and the licensee should go, that should contain their AXMEDIS User identifier. This information is not available for this application, so even knowing a common name from the contract, there is no possibility of automatically guessing it. Yet, what is possible, is checking that a given AXMEDIS user identifier (AXUID) exists, and thus for such checking there are two buttons provided. Each of the users may take a role of “EndUser” or “Distributor”. “Distributor” to “EndUser” generates an end user license, while a “Distributor” to “Distributor” generates a distribution license. If the application is ontology enabled, this information will be also confirmed to be true. An additional button will drive the user to the AXMEDIS Registration portal.

RESOURCE SELECTION

After this step, the resources of the license have to be chosen. There are several possibilities for this.

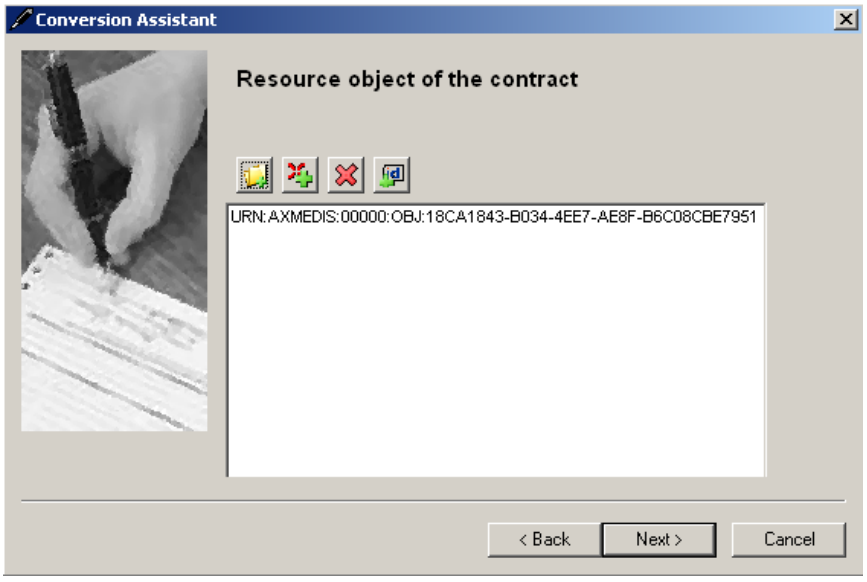

Figure 10. Resource selection

- From an AXMEDIS object file. By clicking this , a file will be able to be selected. Multiple files can be selected
- From the AXMEDIS object database.
- The resource given as a free text (representing an identifier surely)

More than one resource can be chosen, and they will be displayed in the list. Each added resource can be suppressed too later on.

TERM SELECTION

The term is the period when the rights can be exercised. Again, a hint clause is given in the upper side of the wizard. The period is given by two dates (no hours and minutes can be selected).

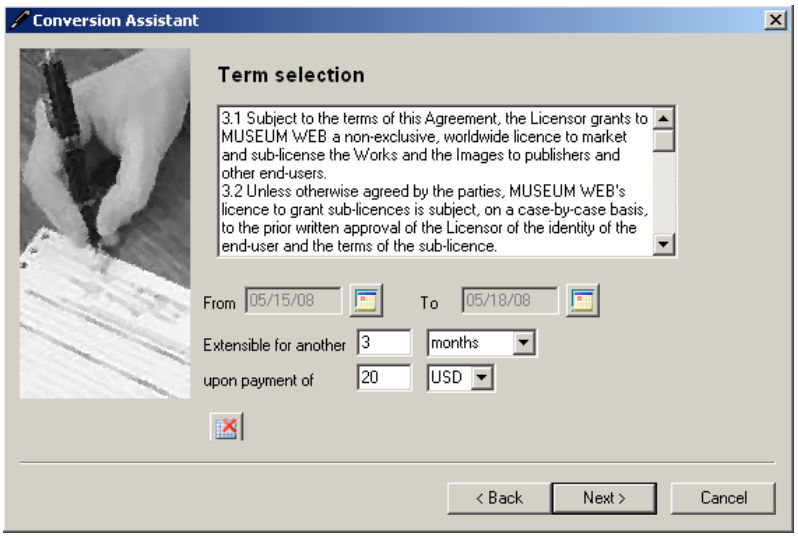

Figure 11. Term selection

Additionally, the period can be extended for a given period upon payment of a given amount. All of this can be chosen in this panel. The condition can be suppressed with the button .

TERRITORY SELECTION

Territory can be selected from the next screen. It can be chosen a country (“Italy”, for example), a region within the country (“Italy, Roma”), the universe (worldwide licensing), or the universe excepting a country.

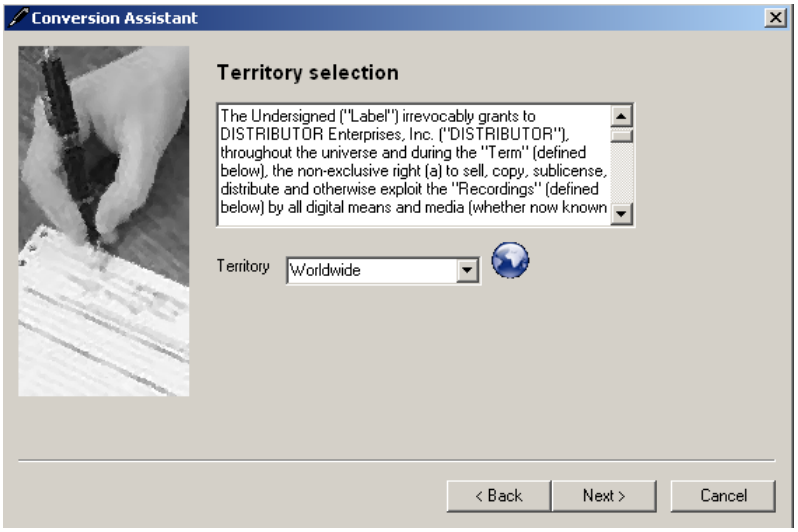

Figure 12. Territory selection

RIGHTS SELECTION

Finally, a rights selection is made. Some rights can be granted under exclusivity terms, and some can be given with an attribution condition, by which a derived work must include a certain text provided by the original creator.

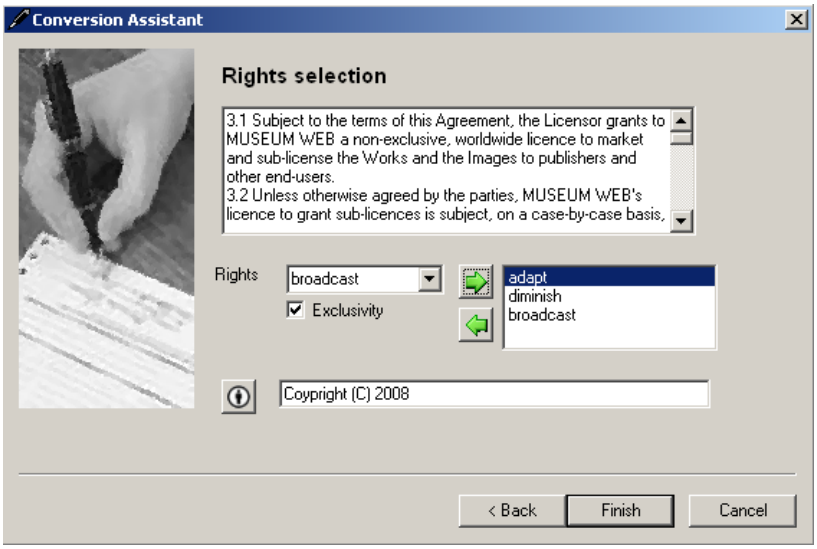

Figure 13. Rights selection

The result of this process will be loaded into the DRM Editor and Viewer, from where it will be possible to store the license or to send it to the AXMEDIS License database, etc.

REFERENCES AND LINKS

AXMEDIS TUTORIALS

- General Tutorial and Overview (November 2007, Barcelona, Spain)
  - PPT: http://www.axmedis.org/documenti/view_documenti.php?doc_id=3653
  - Video on part 1
  - Video on part 2
  - Video on part 3
  - Video on part 4
  - Video on part 5
  - Video on part 6
- Content Production Tutorial (AXMEDIS 2007 Conference)
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3869
- Content Distribution Tutorial (AXMEDIS 2006 Conference)
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2666
- Content Processing Tutorial (AXMEDIS 2006 Conference)
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3868
- Workflow Tutorial (AXMEDIS 2006 Conference)
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2652
- AXMEDIS general overview and content production tutorial, March 2008

AXMEDIS TOOLS FOR FREE DOWNLOAD

- General download page: http://www.axmedis.org/documenti/documenti.php
- AXMEDIS content production tools include:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3722
  Free Download of AXMEDIS Content Production Tools (editor and GRID AXCP tools, PnP, DRM editor, etc.), all what you need to create AXMEDIS objects and process any kind of content automatically: SMIL, HTML, MPEG-21, content adaptation,, fingerprint, crawling, indexing, cms, search, retrieval, control of P2P, etc. and much more. See documentation included
- AXMEDIS players for PC:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3715
  AXMEDIS PC player version 1.2 January 2008. Free download, AXMEDIS player, MPEG-21 player, cross media player, SMIL, HTML, MPEG-4 ,etc
- AXMEDIS multiskin player for PC:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3716
  AXMEDIS MultiSkin PC player version 1.2 january 2008. Free download, AXMEDIS player, MPEG-21 player, cross media player, SMIL, HTML, MPEG-4, with different skins available.
- AXMEDIS Active X Player for PC for Web Pages, AXMEDIS .Net Player, MPEG-21 player, SMIL, HTML, MPEG-4, cross media, more than 200 file formats:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3717
- AXMEDIS player plus EUTELSAT OPENSKY client integrated
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3767
- AXEPTools: P2P client tool for establishing connection with the AXMEDIS P2P B2B network as Business User:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3840
- AXMEDIA: P2P client tool for establishing connection with the AXMEDIS P2P B2B network as final users:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3841
- AXMEDIS PDA player for Windows Mobiles 5 and 6:
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3842
  It is capable to play AXMEDIS objects based on SMIL, HTML, video, audio, MPEG-4 files, etc. AXMEDIS PDA player for AXMEDIS MPEG-21 content including resources with presentations layer based on MPEG-4, HTML and SMIL Unzip the file, copy the CAB file and execute it on the PDA
- Collection of Objects for AXMEDIS player for PDA (Jan 2008):
  http://www.axmedis.org/documenti/view_documenti.php?doc_id=3748

AXMEDIS TECHNICAL NOTES

- AXMEDIS Content Model and Tools, Authoring Tools, Players for MPEG-21, PC, PDA, Mobile, STB, PVR, HDR, etc. (in English)
- AXMEDIS Content Model and Tools, Authoring Tools, Players for MPEG-21, PC, PDA, Mobile, STB, PVR, HDR, etc. (in Italian)
- AXMEDIS Content Processing GRID all features listed (in English)
- AXMEDIS Content Processing GRID Tutte le caratteristiche descritte (in Italian)
- AXMEDIS P2P Controlled network all features listed with cases (in English)
- AXMEDIS P2P Controlled network tutte le caratteristiche, con alcune casistiche (in Italian)
- AXMEDIS DRM, MPEG-21 DRM, Interoperable DRM (in English)
- AXMEDIS DRM, MPEG-21 DRM, DRM interoperabile (in Italian)
- Technical note on how to integrate the AXMEDIS DRM into an e-commerce portal and content distribution solution for content on demand and subscription
- Come integrare AXMEDIS DRM in un portale per la distribuzione di contenuti digitali (in Italian)
- AXMEDIS Show Case, AXMEDIS Mpeg-21 Content distribution via datellite dta broadcast, EUTELSAT OPENSKY
- Technical note on the ELION AXMEDIS content on demand trial and solution, how to exploit AXMEDIS framework to create an cross media content distribution with DRM and automated production, and connection with P2P
- Technical note on the TEO IPTV AXMEDIS trial and solution, how to exploit AXMEDIS framework to create an IPTV with DRM and automated production, and connection with P2P.

AXMEDIS SOLUTIONS

- Content Management Automation, AXCP: http://www.axmedis.org/com/index.php?option=com_content&task=view&id=94&Itemid=33
- AXMEDIS controlled P2P: http://www.axmedis.org/com/index.php?option=com_content&task=view&id=97&Itemid=34
- AXMEDIS production tools and players: http://www.axmedis.org/com/index.php?option=com_content&task=view&id=101&Itemid=35
- AXMEDIS DRM, MPEG-21 DRM: http://www.axmedis.org/com/index.php?option=com_content&task=view&id=99&Itemid=36
- FAQs: http://www.axmedis.org/com/index.php?option=com_content&task=blogcategory&id=7&Itemid=73

AXMEDIS SHOWCASES

- Content Distribution to Licensed Domains via DVB-T and P2P (BBC)
- Protected Video on Demand Distribution via P2P toward PC (Tiscali)
- Protected Video on Demand (VOD) Distribution to PC (ELION)
- Content Distribution via Satellite Data Broadcast (DVB-S) to PC and STB (EUTELSAT)
- Content Distribution to Kiosks (ILABS)
- Video on Demand (VOD) Distribution to Set Top Box (TEO)
- Content Posting Tool, for Final User content production/publication/DRM (SIAE)
- Variazioni: Enrichment of Cultural Content
- AXMEDIS Content and Tools: Automatic Production
- AXMEDIS Controlled P2P Network

AXMEDIS FRAMEWORK SPECIFICATION

- AXMEDIS Framework General aspects, Editor and Model http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1891
- AXMEDIS Command Manager http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2686
- AXMEDIS Object Manager and Protection Processor: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1972
- AXMEDIS Editor and Viewers: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2213
- AXMEDIS External Editors, Viewers and Players: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2211
- AXMEDIS Content Processing Area: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1958

- AXMEDIS External Processing Algorithms: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2017
- AXMEDIS CMS Crawling capabilities: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1907
- AXMEDIS Database and query support: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1932
- AXMEDIS AXEPTool and AXMedia Tools: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2718
- AXMEDIS Programme and Publication Tools: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1885
- AXMEDIS Workflow Tools: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1883
- AXMEDIS Certifier and Supervisor and networks of AXCS http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1952
- AXMEDIS Protection Support http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1882
- AXMEDIS Accounting and Reporting : http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1887
- Definitions Terms tables links http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1388

AXMEDIS reports on basic enabling technologies

- Content Model and Managing, MPEG-21, authoring, etc. http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2324
- Content indexing and querying: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2436
- Content processing, Composition and Formatting http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2374
- Content sharing and Production on P2P: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2454
- Content Protection and Supervision http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2371
- Content Distribution via Internet http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2451
- Content Distribution via Mobile http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2442
- Content Distribution via Satellite data broadcast http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2313
- Usability issues http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2339
- AXMEDIS vs DMP MPEG21 Analysis http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1063
- AXMEDIS Framework Infrastructure, guidelines and some tools http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1391
- AXMEDIS Framework Validation and integration http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2445

Basic knowledge reports

- User requirements http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1712
- Use Cases http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1824
- Test Case http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2023

Content Modeling and Test Cases

- Content Aspect Specification http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1389
- Content Aspect Specification Appendix http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1670
- Content for Test Cases and Validation http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1393
- Content Selection Guidelines http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1390
- Multilingual Guidelines and Technical Solutions http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1427

- AXMEDIS Editorial Format Guidelines and basic examples
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1394

AXMEDIS FRAMEWORK DEMONSTRATORS, CASES, TRIALS, FOR DISTRIBUTION ETC.

- requirements and use cases of AXMEDIS ELTEO of the content distribution for DVB-T to STB of Telecom Lithuania, and content distribution of Telecom Estonia
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2978
- requirements and use cases of the 4HOME take up, demonstrators of BBC, TI, SDAE, including domains, AXMEDIS for broadcasting, and OMA integration and distribution
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2976
- Specification final version of Take up AXMEDIS ELTEO for Video on demand, STB, IPTV solutions based on AXMEDIS technology: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=3096
- Integrated CMS integration aspects: http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2853
- Integrated prototype: automated content production and formatting:
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2939
- Integrated Distribution on demand via Internet
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2951
- Integrated distribution via satellite data broadcast:
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2954
- Integrated distribution towards mobiles:
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2945
- Integrated Distribution towards PDA via Kiosks:
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2944
- Content Posting Portal, Content Posting for Final User publication, SIAE Trial presentation:
  - http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2922
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- VARIAZIONI project portal: http://www.variazioniproject.org/

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- AXMEDIS Project Brochure
  http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2712
- Annual Public Report (2007): http://www.axmedis.org/documenti/view_documenti.php?doc_id=3621
- Annual Public Report (2006) http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2471
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- OMA DRM Rights Expression Language version 2 (OMA DRM REL v.2), http://www.openmobilealliance.com/
- ISO/IEC, Study of ISO/IEC FCD 21000-4 IPMP Components. ISO/IEC JTC 1/SC 29/WG 11/N7426. July 2005.