

AXMEDIS

Automated Production of Cross Media
Content for Multichannel Distribution



AXMEDIS CONTENT PROCESSING EDITOR USER MANUAL

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INTRODUCTION

Dear AXMEDIS user,

Welcome to *AXCP Rule Editor User Manual*, the official training workbook for the program that has as main aim to create rules for AXMEDIS content processing.

With this guide, the AXMEDIS team is hoping to help users to create AXMEDIS rules to show how simple and powerful this tool is.

AXMEDIS is a very complex and complete world and it is very difficult to cover all the aspects in only one manual.

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

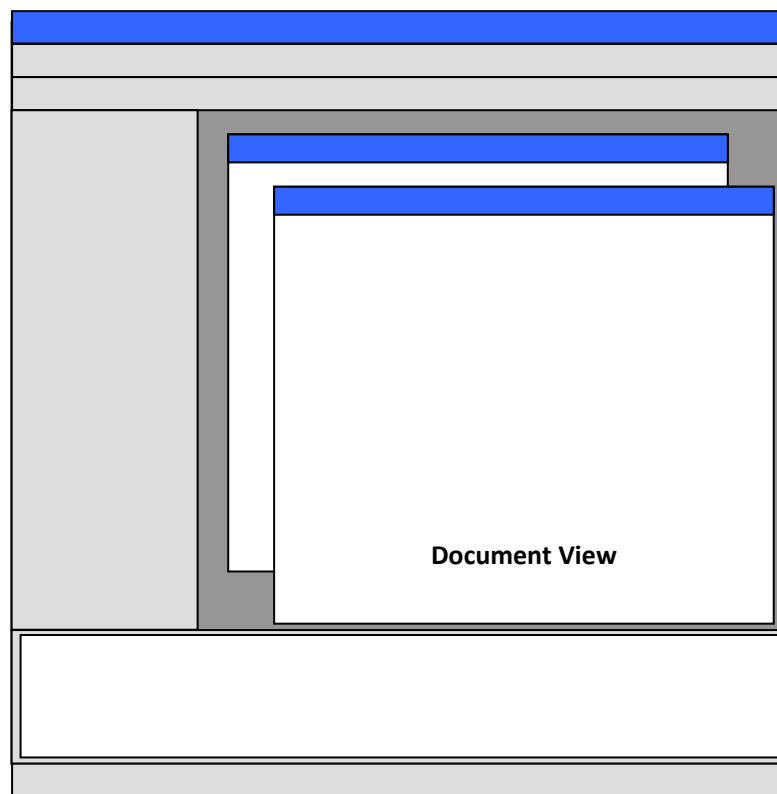
OVERVIEW

This document aim is to describe the User Manuals of AXMEDIS Content Processing (AXCP) Rule Editor.

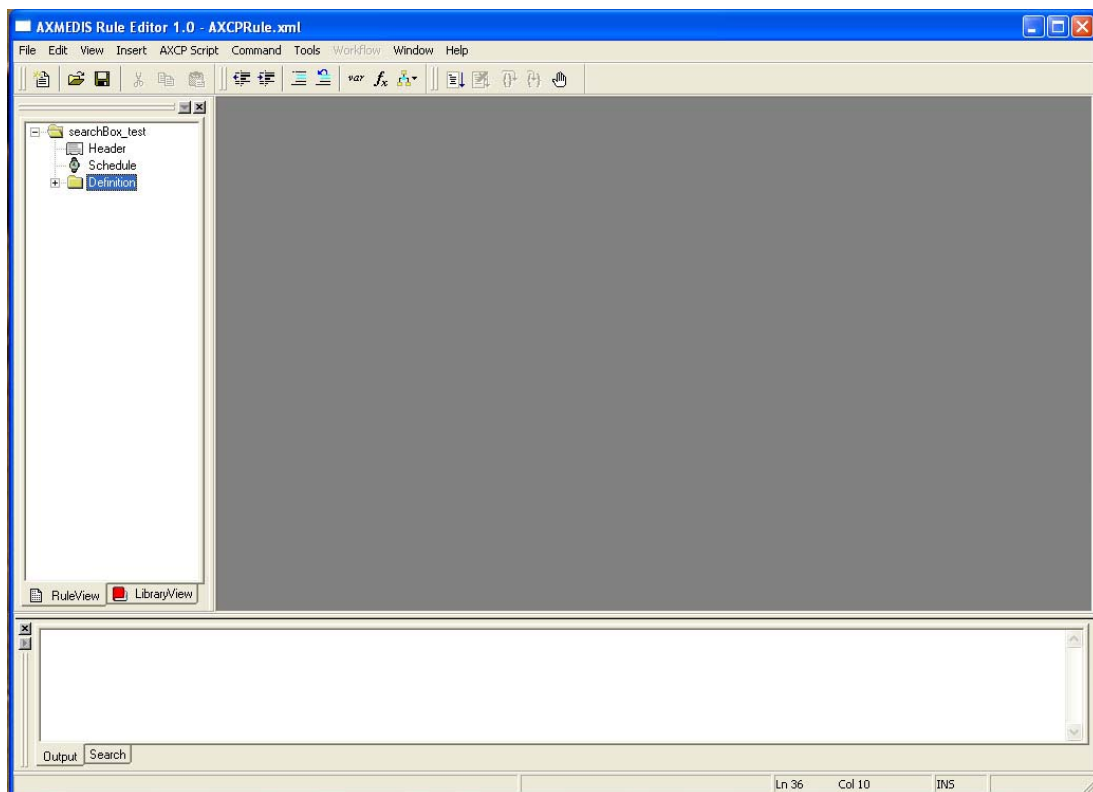
AXMEDIS RULE EDITOR

MAIN FUNCTIONALITIES

The AXCP Rule Editor GUI is a MDI window that manages an AXCP rule document. It provides a set of tools and views to help the user during the editing and building of rule. It hosts an instance of the AXCP rule executor in order to provide functionalities for debugging, testing and validating the script code associated with a rule. To help the user in writing rule, the editor is equipped with a Help on line and area where the user can access to a library of script



functions. The GUI is structured as:



Main view of the AXMEDIS Rule Editor GUI

THE MENU BAR

The menu bar is constituted of the following entries:

File

- **New** – create a new rule document
- **Open** – Open a AXCP rule in the Rule Editor
- **Close** – Close the current rule document
- **Save** – save the current rule using the current file name
- **Save as** – save the current rule by name
- **Import JScript** – import a script in the rule
- **Export JScript** – export the script on file system
- **Properties** – it shows a report on the
- **Page setup** – allow preparing the page for printing document
- **Print preview** – open the print preview dialog
- **Print** – send the document to the printer
- **Recent Files** – History of files
- **Exit** – Quit the editor

Edit

- **Undo** – to revoke the last performed actions
- **Redo** – Once something has been undone this button permits to redo that step
- **Cut** – delete and copy a selection in the clipboard
- **Copy** – copy a selection in the clipboard
- **Paste** – paste a selection available in the clipboard

- **Delete** – delete a selection
- **Find...** – Search a word in the text
- **Find next** – search again for a new location of the current text
- **Replace...** – replace a word with another
- **Replace again** – replace again the word with a new entry
- **Match brace** – match the brace
- **Go to...** – go to a specific line text
- **Advanced menu:**
 - **Indent increase**
 - **Indent reduce**
 - **Overwrite mode**
 - **Wrap mode**
 - **Show line endings**
 - **Show indent guides**
 - **Show line numbers**
 - **Show long line markers**
 - **Show whitespace**
- **Select All** – select all content
- **Select line** – select the line where cursor is blinking

View

- **Workspace** – It opens the Workspace area
- **Output** – It opens the Output area
- **Debug Monitor**
- **Preferences**

Insert

- **Selection** – Adds a selection item in the rule
- **Parameter** – Adds a parameter item in the rule
- **Script** - Adds a script item in the rule
- **Dependency** - Adds a dependency item in the rule
 - **Tool**
 - **Script**

AXCP Script

- **Var**
- **Function**
- **Statement**
 - **if**
 - **if...else**
 - **switch**
 - **do...while**
 - **while**
 - **for**
 - **for in**
 - **try...catch**

Commands

- **AXCP Engine**
 - **Activate Rule** – It is the activate rule command and will allow sending the current rule to the scheduler and the notification to the AXMEDIS Workflow Manager. A connection with the Rule Engine Scheduler will be open in order to perform the installation of rule in the Scheduler.
 - **Install**

- **Get rules**
- **Run rule**
- **Find Rule...** – Allows making queries to the rules repository of the Rule Editor
- **Rules List...** – Shows the list of rules inside the repository of the Rule Editor
- **Check** – Tests the feasibility of the rule (like a compiler plus some tests on AXMEDIS objects and estimation of some parameters such as the files complexity and required workload)

Debug

- **Start** – Enter in the debug mode or if the script is stopped, continue execution until the script is finished, or a breakpoint is reached.
- **Stop** – Stop the script execution and close the debug mode
- **Step Over** - Executes the current line of the script, then pauses. This differs from the "Trace" command in that it will not step into functions and scripts that are called by the current line.
- **Trace Into** – Executes the current line of the script, then pauses. This differs from the "Step" command in that if the current line calls a function, or another script, the debugger will trace into the called function or script.
- **Insert/Remove Breakpoint** – Set a breakpoint on the currently selected line of the script code. Every time the selected line is reached, the debugger will stop. Clear a breakpoint from the currently selected line of the script code.
- **View Breakpoints list** – Open the debug window showing all breakpoints in the script code.

Tools

- **Quick Starter**
- **Metadata Mapper**

Workflow

- **Pending Rules list...**
- **Notify activity completion...**

Window (provided automatically by the MDI GUI)

- **Cascade**
- **Tile Horizontal**
- **Tile Vertical**
- **Arrange Icons** – Arrange the all minimized document views
- **Next** – Activate the next document view
- **Previous** - Activate the previous document view
- **Close All** – Close all document views

Help

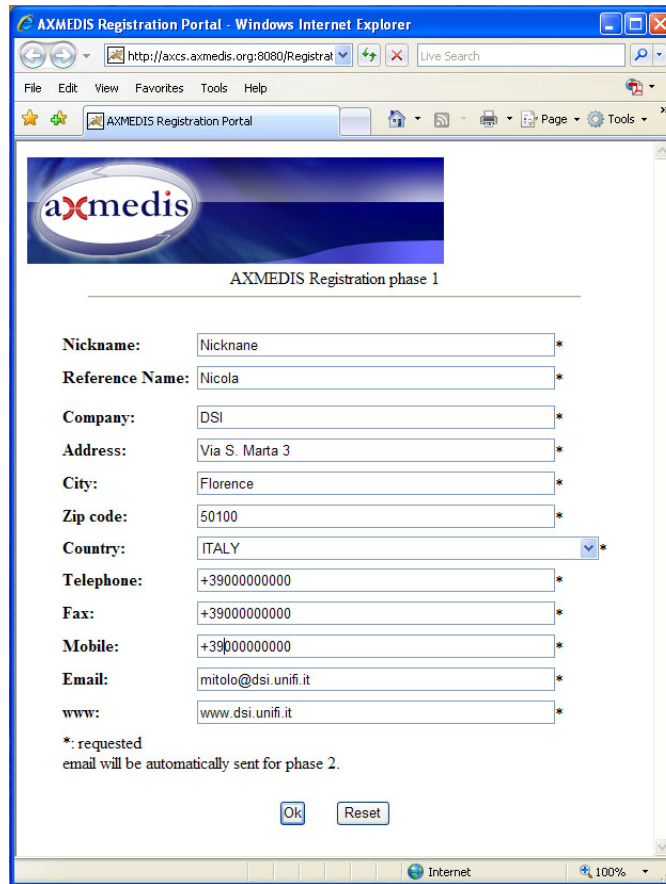
- **Help...**
- **Registration...**
- **Import User Certificate...**
- **Tools certification...**
- **About** – Information about the authors, version, etc

REGISTER THE USER AND CERTIFY THE TOOL

When the AXMEDIS Rule Editor is opened for the first time, the user has to start the registration process and to certificate the tool.

By selecting the menu **Help\Registration...** the certification procedure will start and a web page will be opened asking mandatory information to be filled in for the correct user registration. By clicking the "OK" button this

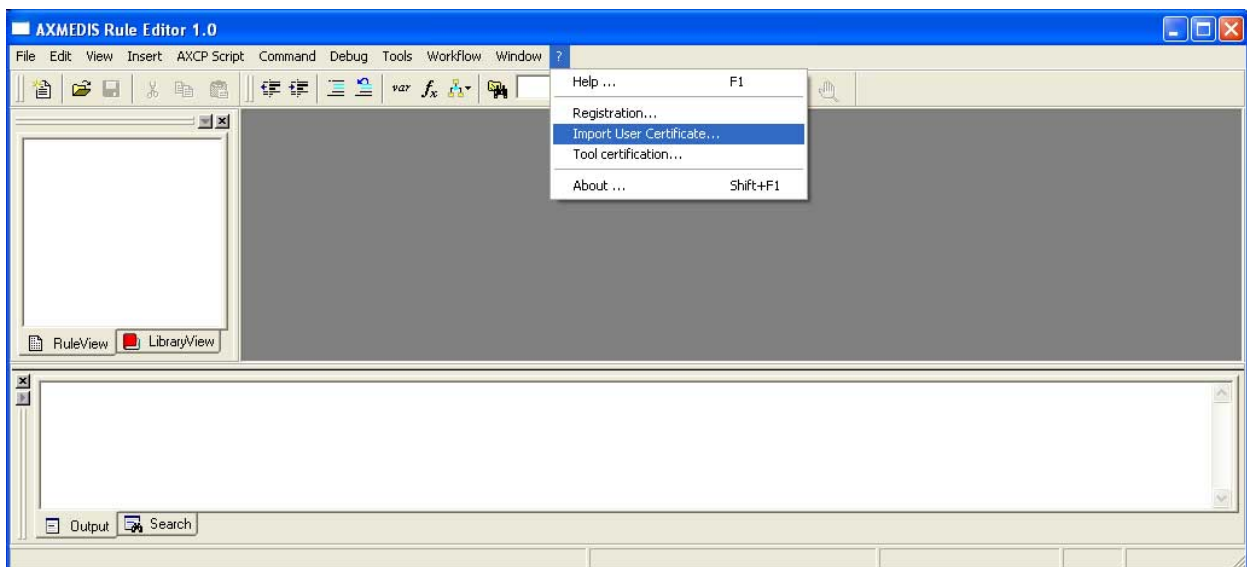
information will be sent and collected by the AXCS and a confirmation email will be sent to the user at the email address specified in the field “Email”.



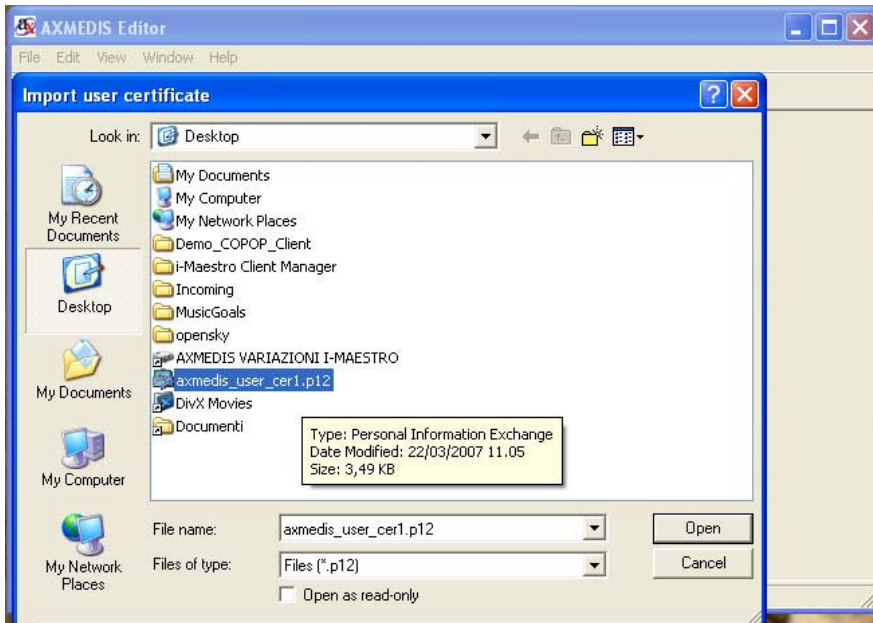
The email received contains an URL to be clicked for the confirmation of the procedure: this is necessary to control the correctness of the specified email address. After the confirmation, another email will be received containing the user certificate (a .p12 file) and a password necessary to import the certificate.

The User Certificate has to be saved on the hard disk before starting the importation procedure.

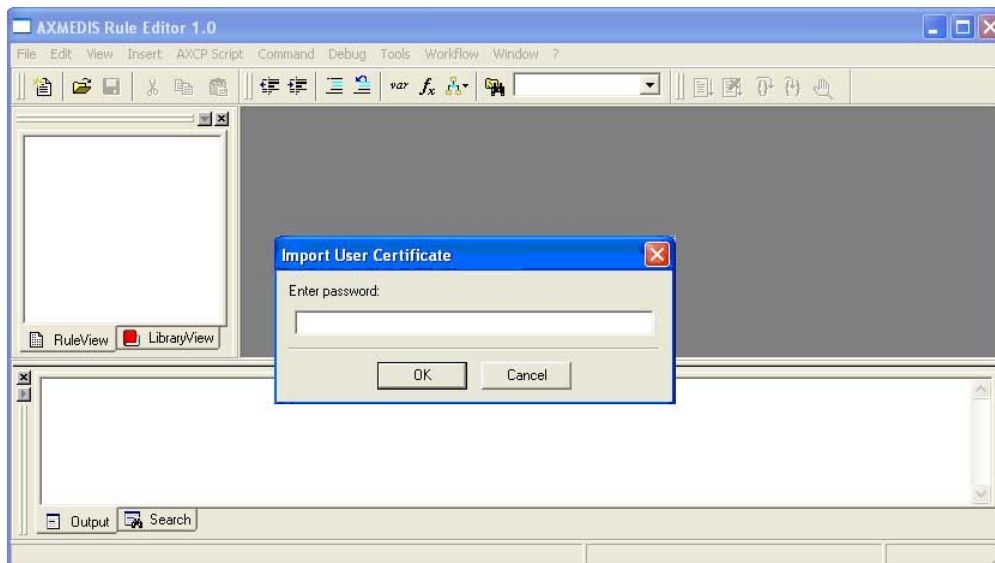
To import the certificate select in the AXMEDIS Editor the menu **Help/Import User Certificate...**



Select the .p12 file received and press the **Open** button.



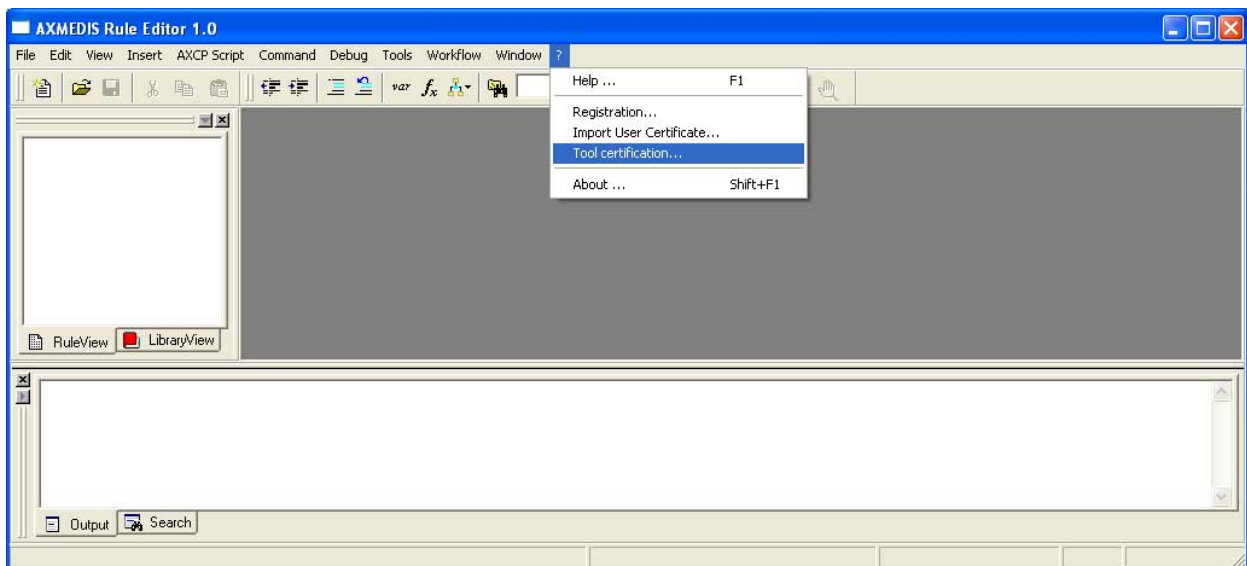
Insert the password received by email to continue the registration procedure and press the **OK** button.



A message confirming the correctness of the registration procedure will be showed. Press the **OK** button to continue.



After the user registration it is necessary to certificate the tool. Open the menu **Help\Tool certification...**



Immediately a message will be showed confirming the correctness of the tool certification.

TOOLBAR AREA

The toolbar area will host a set of icon buttons that will allow calling functions without accessing to the menu bar. The toolbar area will be based on dockable toolbars and will allow the dynamic customisation by adding or removing sub-toolbars. For this end the editor will provide sub-toolbars for:

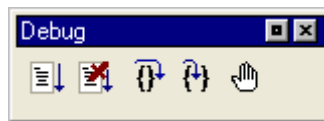
- *Standard* – it will provide main functionalities for managing rule files and editing (new, open, save, etc...) for:
 - *New rule document*
 - *Open from disk*
 - *Save*
 - *Cut*
 - *Copy*
 - *Paste*



- *AXCP Script* – it will provide controls for:
 - *Reduce indent*
 - *Increase indent*
 - *Set selected rows as comments*
 - *Remove comment from selected rows*
 - *Var*
 - *Function*
 - *Code*
 - *Search in Script*, to search a string in the document



- *Debug* – it will provide main controls for:
 - *Start Debug*
 - *Stop Debug*
 - *Step Over*
 - *Trace Into*
 - *Add/Remove Breakpoint*



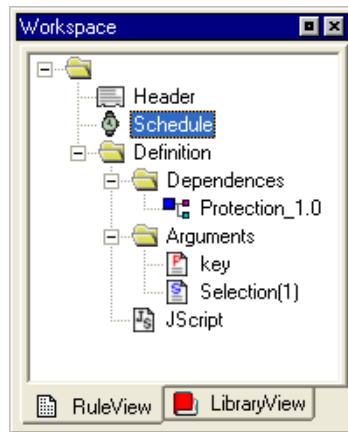
- *AXCP Engine* – it will provide controls for:
 - *Install and activate the rule on AXCP Engine*
 - *Install the rule without activation on AXCP Engine*
 - *Get the rules installed on AXCP Engine*



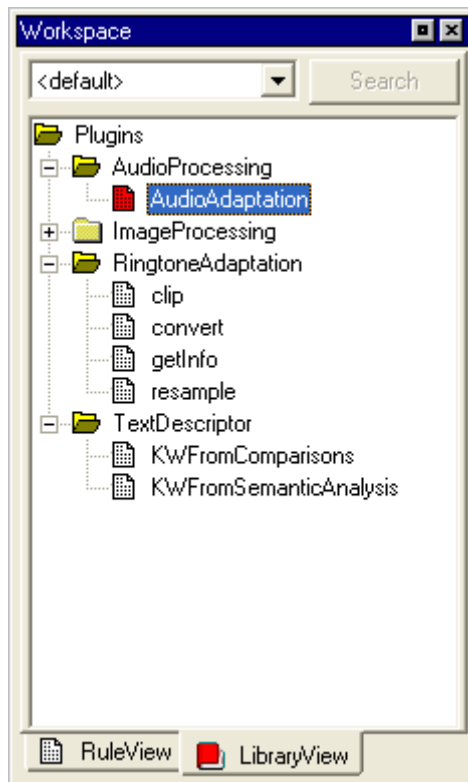
WORKSPACE AREA

It is a resizable docking panel and includes a notebook control where the rule view and the library view are shown.

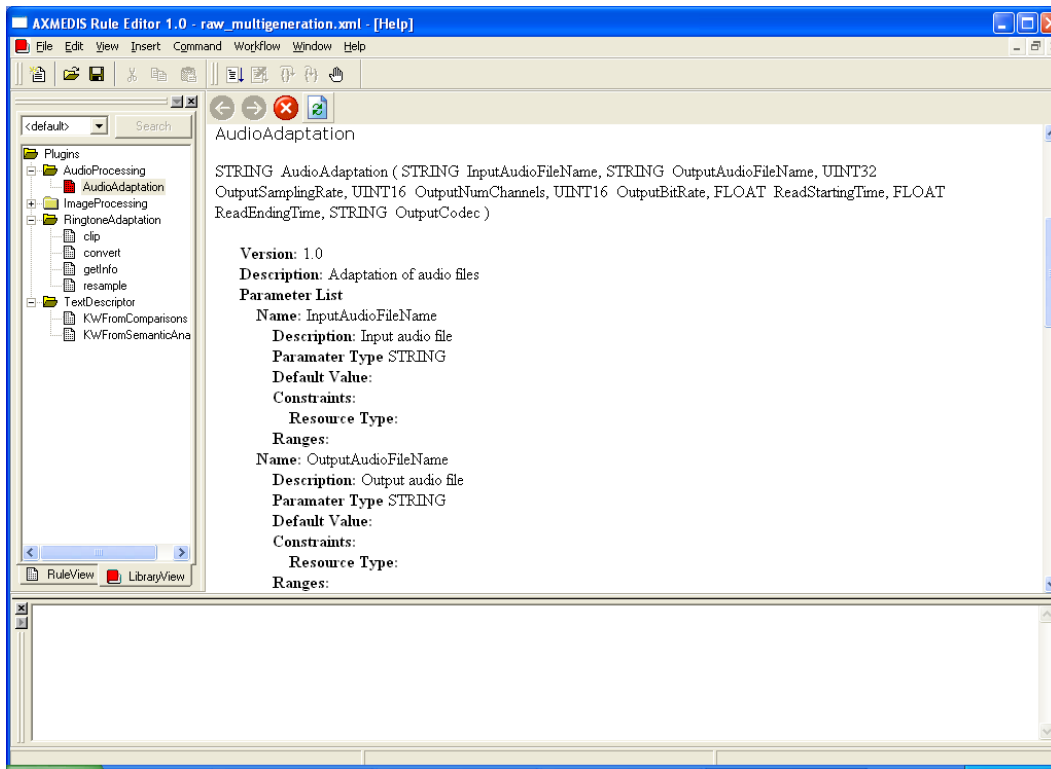
Rule Tree View - Such view is a tree view that display the structure of the rule. A dynamic popup menu is available for a quick access to functions that allows the quick management of items (edit and view metadata, delete, Insert, Cancel, Move up/Down, Rename, Open/Edit, ...). Appropriate icons allow identifying intuitively components of rule in view. In the following picture the actual structure of the Rule View area is depicted:



Library view – It is an on-line book that could be used as help by the user. It displays the set of functionalities provided by the Plug-ins installed and automatically detected by the editor. It is a tree control that permits to show and browse plug-ins module and the functionalities that they provide according to their profile.

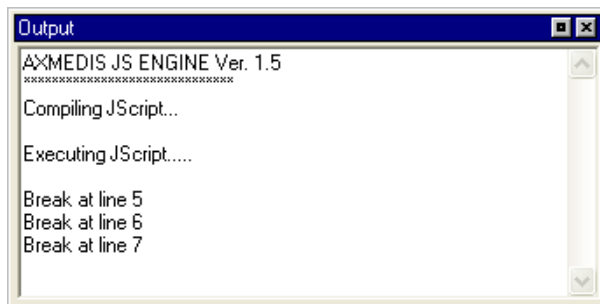


The user can see the documentation associated with each selected function by interacting with each item of the tree by double clicking or accessing to a contextual popup menu. The selected documentation is displayed in the **Text/Html document view**.



OUTPUT AREA

This is a text control where messages, textual description, errors, debugging info, alert, etc... will be displayed.



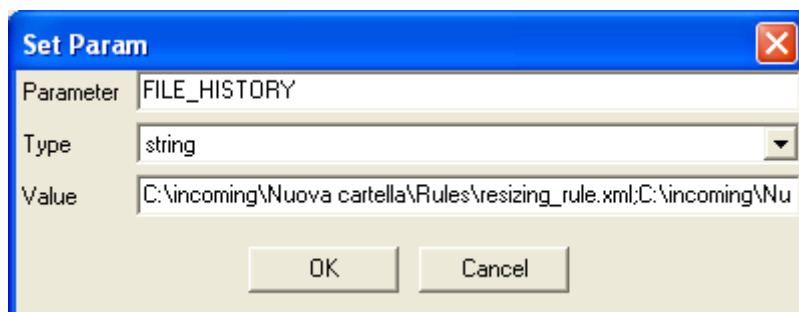
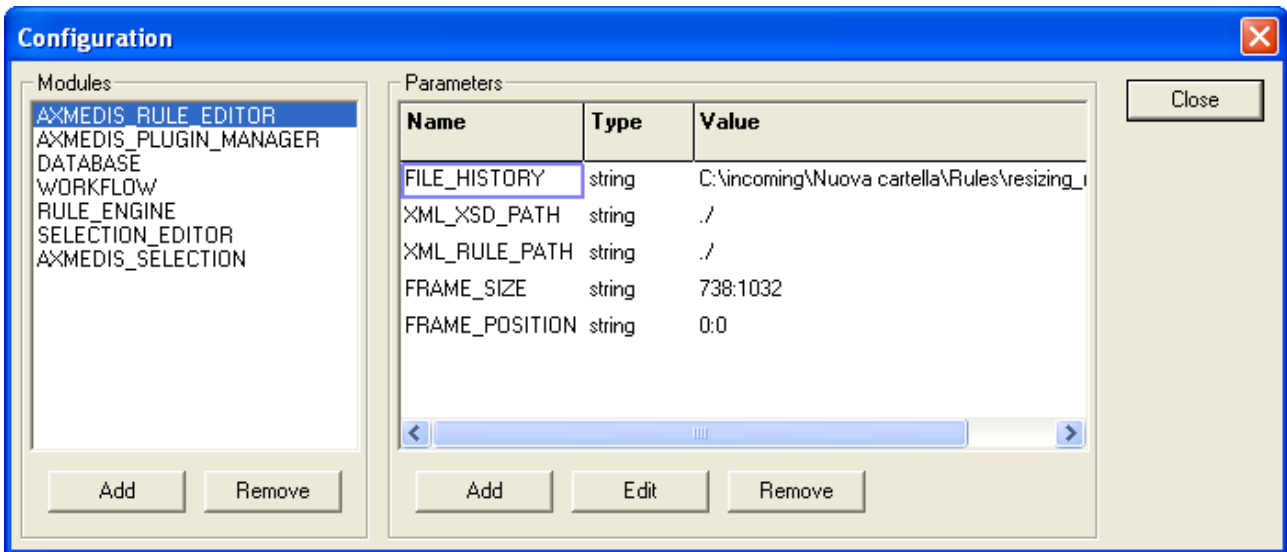
MS WINDOWS FIREWALL ALERT AT STARTUP

The picture bellow shows the Windows Security Alert Dialog. To run AXCP Tools, please unlock the application clicking on the "Unlock" button. This operation allows AXCP tools to use network services and run properly.



CONFIGURATION

The AXCP Rule Editor allows accessing to the configuration dialog when it is necessary to modify the configuration file.



In the following tables the set of parameters regarding the configuration of the editor are listed. Such parameters are grouped into modules as reported below:

AXMEDIS RULE EDITOR

Config parameter	Possible values
XML_RULE_PATH	it is the directory where the rule will be saved
XML_XSD_PATH	It is the directory where xml schema (XSD files) are stored
FRAME_SIZE	it is the information about the last width and height of the main frame
FRAME_POSITION	It is the information about the last position (x,y) of the main frame
FILE_HISTORY	It is the list of recent rule documents

WORKFLOW MANAGER

Config parameter	Possible values
workflowUrl	It is the URL for the workflow plug-in
gatewayUrl	It is the gateway URL for the workflow

AXMEDIS PLUGIN MANAGER

Config parameter	Possible values
PLUGINS_PATH	It is the directory where the DLL of plug-ins with their profiles (workflow, adaptation, descriptor and fingerprint estimators) are stored.

AXMEDIS DATABASE

Config parameter	Possible values
user	The user name for logging into Database
passwd	The password for logging into Database
LoaderWSEndPoint	It is the URL for the loader

HTTPPath	It the HTTP path
UploadPath	It is the Upload path
SaverWSEndPoint	It is the URL for the saver

AXMEDIS RULE ENGINE

Config parameter	Possible values
gatewayUrl	it is the URL of the AXCP Rule Scheduler/GRID

AXMEDIS SELECTION

Config parameter	Possible values
MAIN_QUERY_SUPPORT_WSDL	It is the URL of the WSDL for using the Main Query Support
SELECTION_ARCHIVE_WSDL	It is the URL of the WSDL for using the Selection Archive

AXMEDIS PLUGIN MANAGER

Config parameter	Possible values
PLUGINS_PATH	It is the directory where the DLL of plug-ins with their profiles (workflow, adaptation, descriptor and fingerprint estimators) are stored.

AXMEDIS DATABASE

Config parameter	Possible values
user	The user name for logging into Database
passwd	The password for logging into Database
LoaderWSEndPoint	It is the URL for the loader

HTTPPath	It the HTTP path
UploadPath	It is the Upload path
SaverWSEndPoint	It is the URL for the saver

AXMEDIS RULE ENGINE

Config parameter	Possible values
gatewayUrl	it is the URL of the AXCP Rule Scheduler/GRID

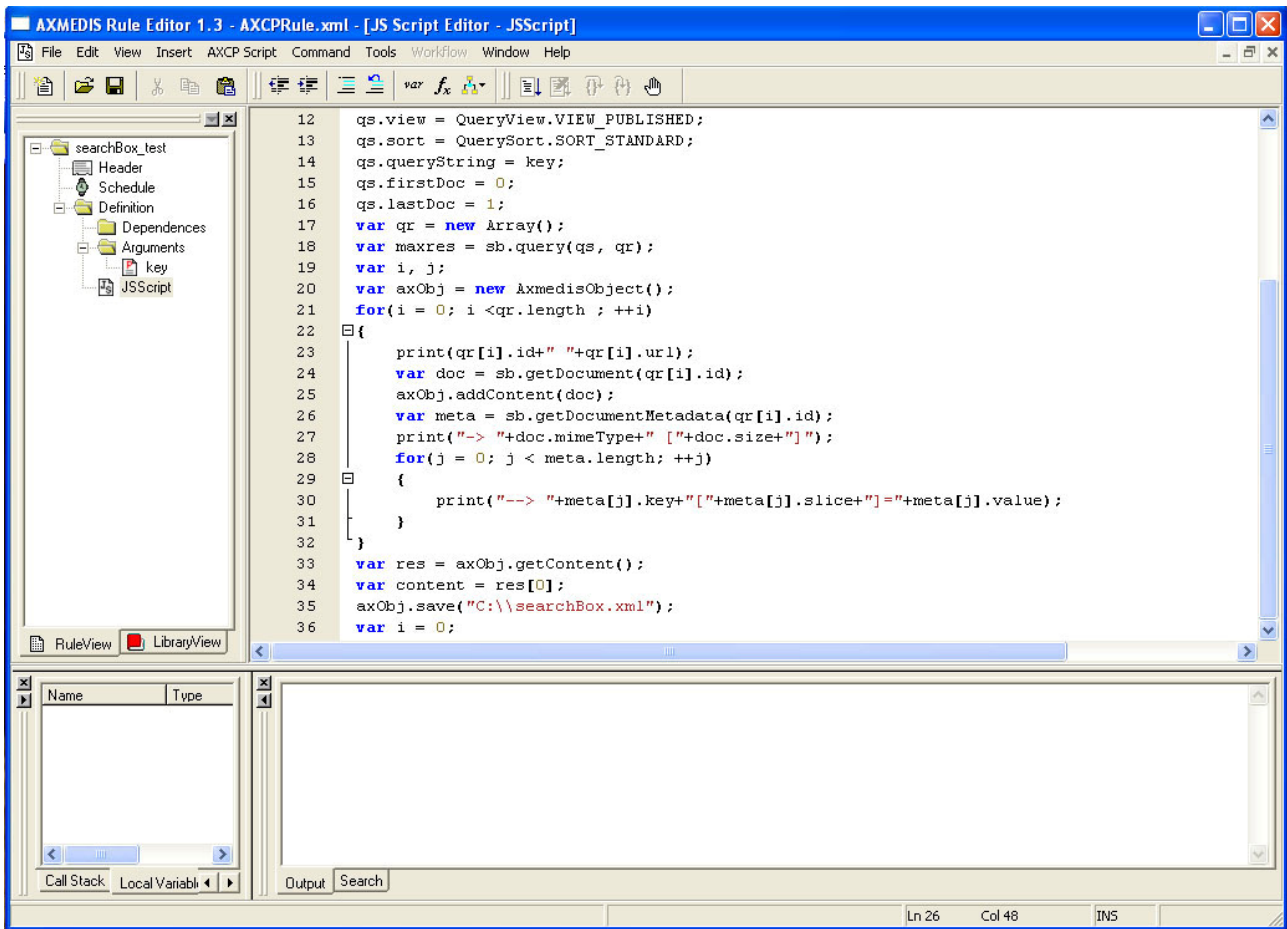
AXMEDIS SELECTION

Config parameter	Possible values
MAIN_QUERY_SUPPORT_WSDL	It is the URL of the WSDL for using the Main Query Support
SELECTION_ARCHIVE_WSDL	It is the URL of the WSDL for using the Selection Archive

TOOLS, VIEWERS AND EDITORS

Some different types of tools and editor were designed for visualizing and/or editing different type of documents.

1. **Javascript editing window** – This is the window client where the user can use to write the script code. It is a multiline text control where it is possible to edit the script. The textual editor supports some facilities such as:
 - Auto completion of words - a window listing possible completions for strings the user has typed
 - Syntax highlighting – keywords will be coloured
 - Brace highlighting
 - Folding/Hiding - making lines invisible or visible. It shows or hides a range of lines.
 - Multiple views - to have multiple views of the same Document. (Split view)
 - Breakpoint insertion/removal – to control the code in the debugging session
 - Visualisation of line numbers



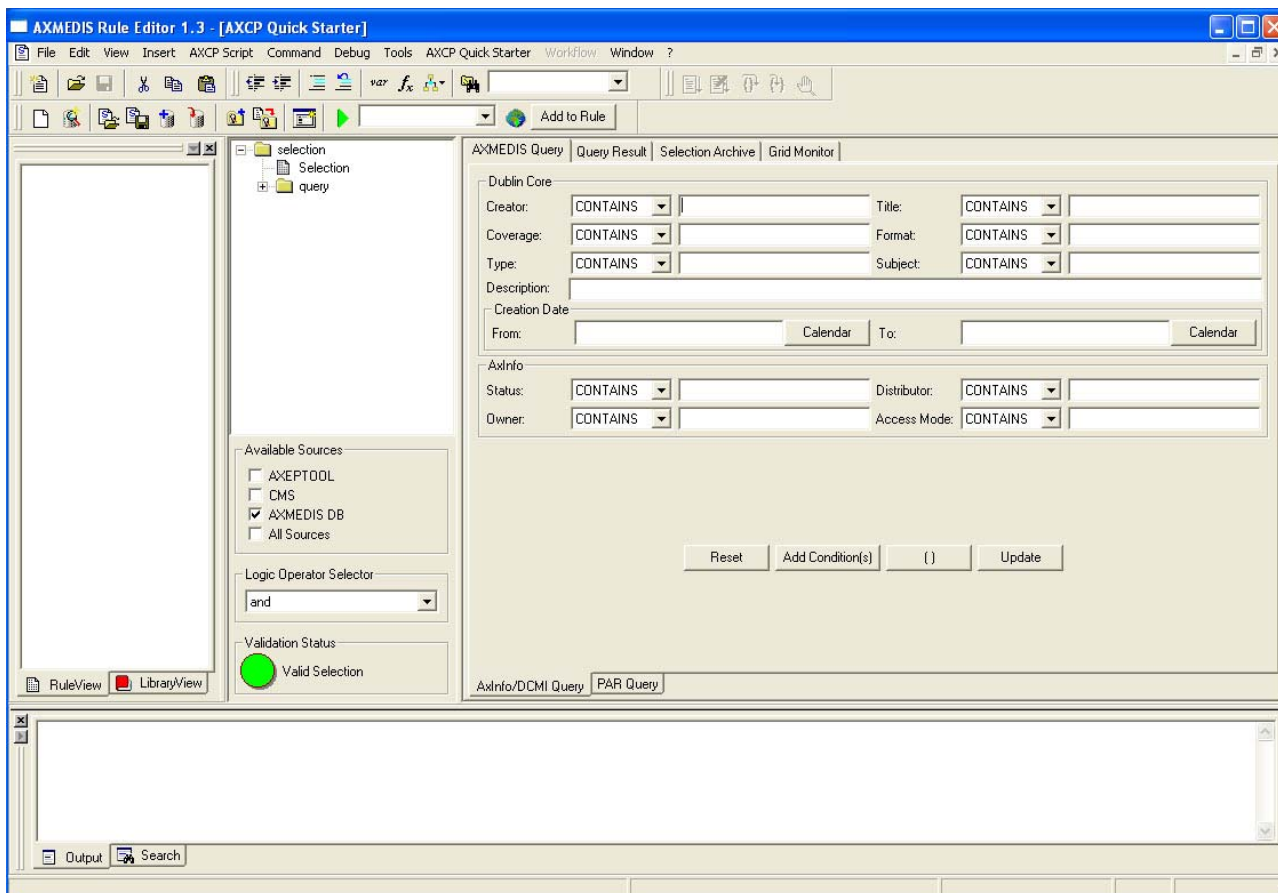
2. **Text/Html document view** – This is the window for the visualisation of the documentation provided by the help on line. It is opened when the user double clicks on a voice of the index in the *Library view* or when the internal help is called. It provides functionalities for browsing TXT or HTML pages. For example, all the information related to the description of a function selected from the *Library view* is shown in such window.
3. **Quick Starter** - It is be an interactive html page that will be displayed by means the HTML document viewer. It will provide functionality for:
 - a. Edit a selection
 - b. Save/Load a selection
 - c. Actualise the selection

QUICK STARTER TOOLBAR

The Quick Starter provides a quick access to functions by means the following toolbar for:

1. Create a new selection
2. Insert a New Query
3. Open a Selection from disk
4. Save a Selection on disk
5. Import Selection from DB
6. Export Selection into DB
7. Import Query from Disk
8. Export Query to disk
9. Customize Query Panels
10. Run query
11. Selected query

- 12. Run selection
- 13. Add to Rule



Title	Description	Version	Object Id	Source Cha...	St
Il tesoro del santo	In un bordello italiano una ...	1	08180e7b-...	AXDB	
Follie di Jazz (Second Ch...	Mentre combattono strenu...	1	0944c363-...	AXDB	
McLintock!	Classica Western/Comedy ...	1	18054fe6-2...	AXDB	
La mia brunetta preferita	Nel braccio della morte dell...	1	2397bc2d-...	AXDB	
L'Erba di Grace	Il marito di Grace si è suicid...	1	3dc0e5e3-...	AXDB	
Love Laughs at Andy Ha...	Tornado dalla seconda Guer...	1	4142e15e-...	AXDB	
The Inspector General	Un venditore ambulante di ...	1	45810070-...	AXDB	
Il cameraman	Essendosi innamorato della ...	1	5f10d2d0-1...	AXDB	
La palla numero 13	Sherlock Jr e Ward tentano...	1	76e10529-...	AXDB	
I ragazzi del Marais	Regione del Marais, lungo l...	1	91e9165c-...	AXDB	
Il Navigatore	Rollo decide di sposare la s...	1	950ef7ed-2...	AXDB	
The perils of Pauline	Siamo agli inizi del secolo, q...	1	abdd95fe-d...	AXDB	
The sin of Harold Diddle...	Vent'anni dopo il suo trionf...	1	bcafec3f-7...	AXDB	
			did5	AXEPTOOL	
			did9	AXEPTOOL	
			did1	AXEPTOOL	

Query Result Panel

RELATIONSHIP WITH OTHER TOOLS

The AXCP Rule Editor is related to Workflow tools and AXCP Rule Scheduler. The former for monitoring the rule creation and editing activity, the latter for posting and installing rules into the AXCP Grid Environment.

Finally, the current version of the Rule Editor embeds the Quick starter for creating, testing and simulating complex queries onto the AXMEDIS Query Support.

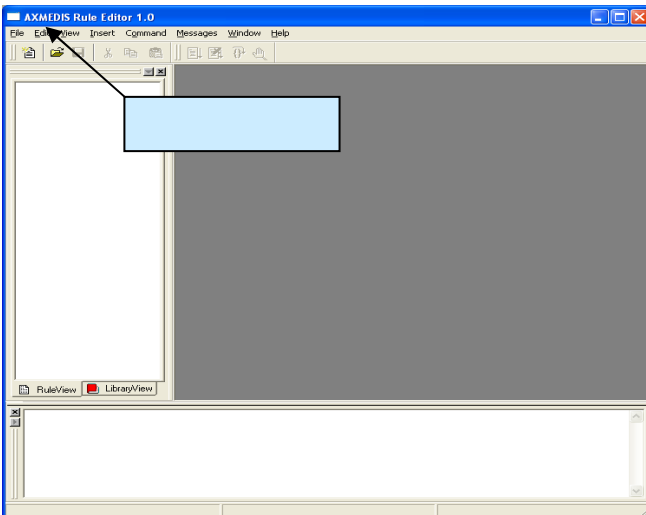
DETAILED DESCRIPTION OF THE FUNCTIONALITIES AND SCREENSHOTS

EDITING ON AXCP RULE

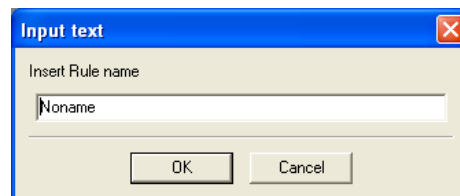
A content producer or manager wishes to create a content processing rule called AXCP Rule for manipulating/creating AXMEDIS multimedia objects. The AXCP Rule Editor is the editor for writing AXCP Rule. The AXCP Rule Editor GUI is a MDI window that manages a rule document at a time. The editor provides a set of tools and views to help the user during the editing and building of rule, writing JavaScript code. By opening the AXCP Rule Editor the user can create a rule to specify the time of firing. Once a rule has been created, the user can save it for re-editing at a future time or test the rule. Testing the rule enables the rule to be checked and debugged for any arising problems when executing the Javascript code and allows the user within the editor to make changes to successfully activating the rule.

CREATING A NEW RULE

To create a rule, the user starts the AXCP Rule Editor and from the opening screen creates a new Rule by selecting “New” from the tool bar or using the File menu (File → New) or using the keyboard shortcut “Ctrl+N” (see Screenshot 1). On requesting a new rule, the dialog box pops up and the user enters the name of the draft AXCP Rule and selects “OK” (see Screenshot 2).

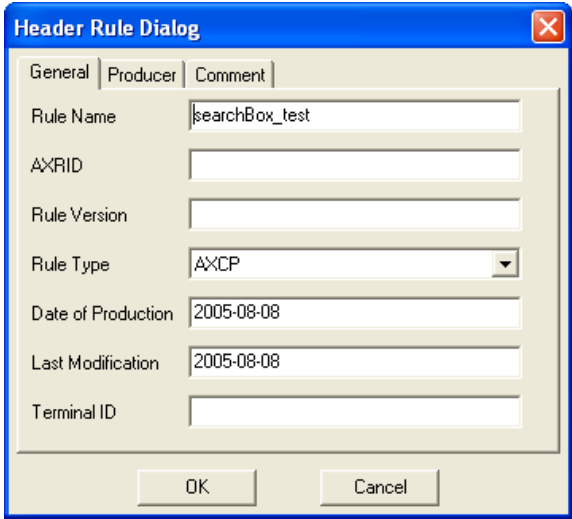
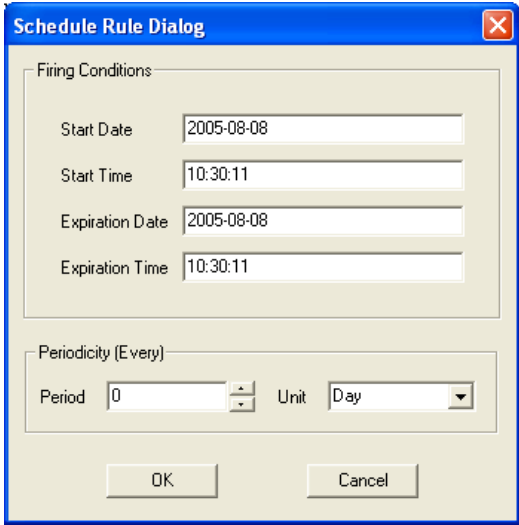
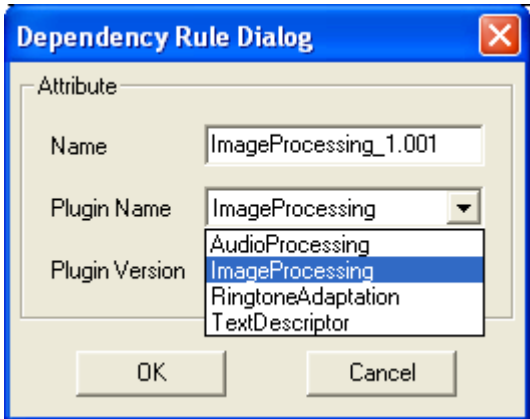


Open a new rule



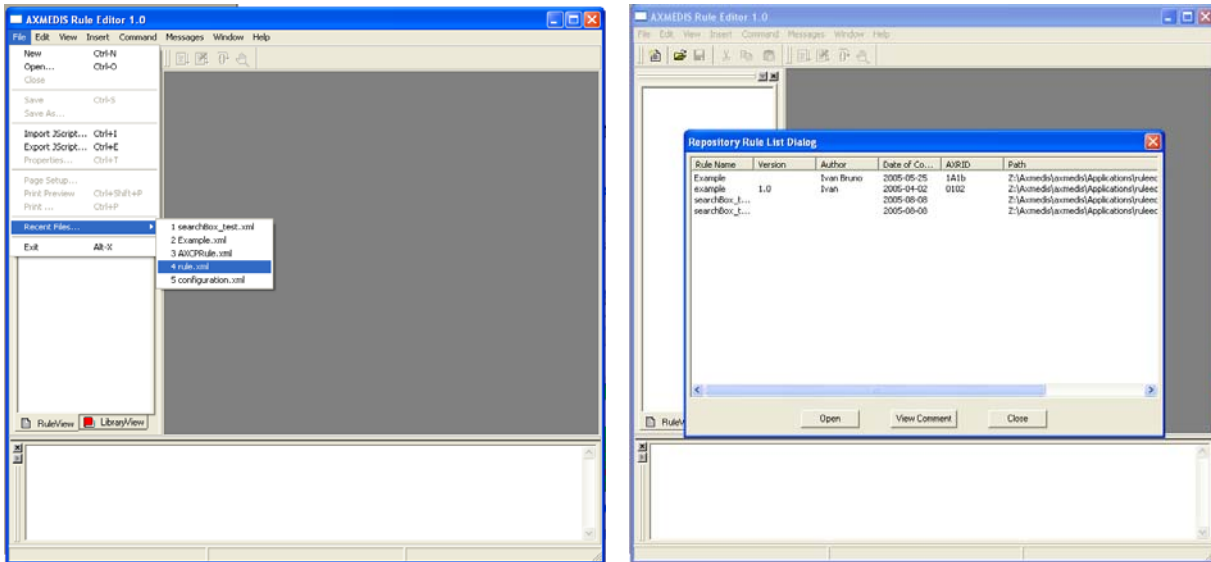
Input rule name dialog

After the rule name has been entered, the new rule is ready for editing with the ‘tree view’ used as a workspace and the editing dialogs for editing the rule details and making a rule schedule.

	<p style="text-align: center;">Header dialog</p> <p>This is the dialog that allows filling fields of the header section. The dialog is an OK/Cancel modal dialog in a notebook style with <i>General</i>, <i>Producer</i> and <i>Comment</i> tab where the list of items to edit is displayed.</p> <p>Note: The AXRID field is read only and it is pre-filled with the identification code assigned by the rule editor</p>
	<p style="text-align: center;">Schedule dialog</p> <p>This dialog allows filling/editing fields for a schedule item. The dialog is as an OK/Cancel modal dialog and displays the list of items to edit. The dialog allows setting the start date and time, the expiration date and time, and the conditions of periodicity (how many times in term of unit such as days, week, month and so on)</p>
	<p style="text-align: center;">Dependency dialog</p> <p>This dialog allows filling fields for a dependency item. The dialog is an OK/Cancel modal dialog and displays the list of available plug-ins in order to facilitate the choice.</p>

LOADING AN EXISTING RULE

Instead of creating a new rule, the user may wish to edit an existing draft rule. The user may have saved it as a file somewhere or saved it in the AXCP Rule Repository. By selecting ‘open’ or ‘Rule List’ or selecting a file in the history list (‘Recent Files...’), as seen in screenshot 4 and 5, the rule editor can load an existing draft rule from the Repository or elsewhere on the system.



Open commands shows the command Open dialog

The *Rule List* command opens a rules list modal dialog displaying all rules stored in the repository of the AXCP Rule editor. In this window, the list of rules will be organised in a table built on the following subset of metadata:

- *Rule Name*
- *Rule Version*
- *Author*
- *Date of composition*
- *Rule ID (AXRID)*

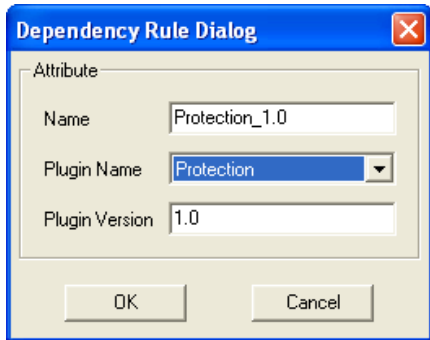
The user can select a specific rule in order to open it in the rule editor. Such operation is possible by pushing the *Open* button or double clicking on the line of the chosen rule. The user can visualize the comment associated with rule by pushing the *View Comment* button, the comment is displayed the *Output Area*. Otherwise the user can cancel the operation by closing the dialog or pushing the *Close* button.

EDITING A RULE

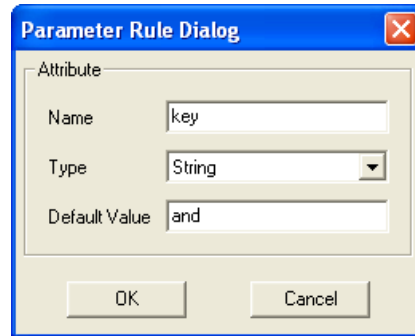
The user can use the set of dialog and text editor to edit the AXCP rule (as shown in screenshots), and edit rule data such as:

- Parameter dialog for editing the attributes of a rule parameter
- Dependency dialog for editing the attributes of a AXMEDIS Plug-In
- XML Quick starter (XML viewer/editor for the XML representation of selections) and JavaScript Editor based on Scintilla Editor for text/javascript code editing. It provides full editing capabilities (copy, cut, paste, redo, undo,

syntax highlighting, etc...), print preview, page setup and print functionalities, syntax highlighting, brace highlighting, folding/hiding of lines, breakpoint insertion/removal, visualisation of line numbers



Dependency dialog

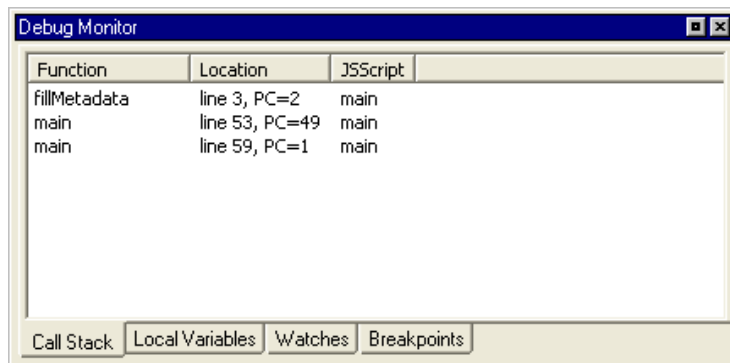


Parameter dialog

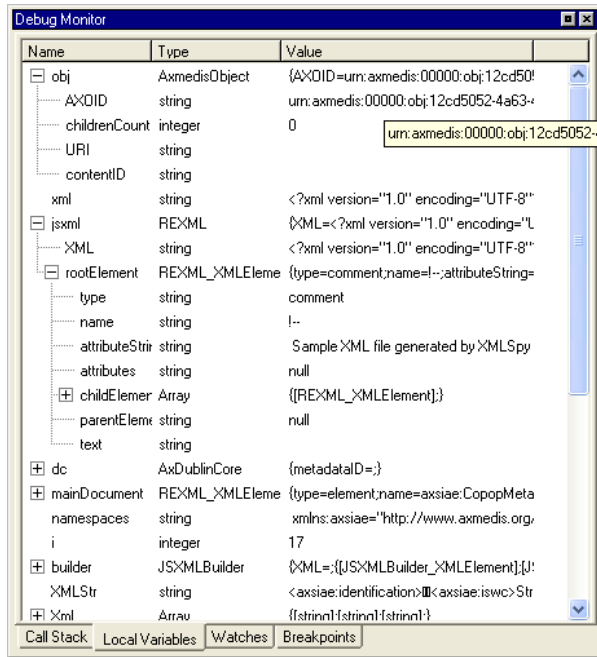
DEBUGGING RULE FUNCTIONALITIES

The editor provides functions to add/remove breakpoints (F9), start debug (F5), next breakpoint (F5), step over (F10) and step into (F11), stack calls monitoring, local variables visualization. In the output window a textual output provides internal errors or communication when script runs and during the debug session.

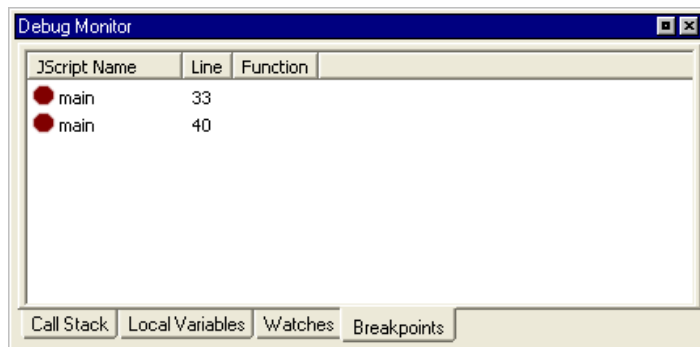
1. **Call Stack** – This a page of the Debug dockable window that displays stack of functions calls. It displays the script name and the line of the call. Double clicking on an entry level of the stack allows focusing the view of the script where the corresponding call is located.



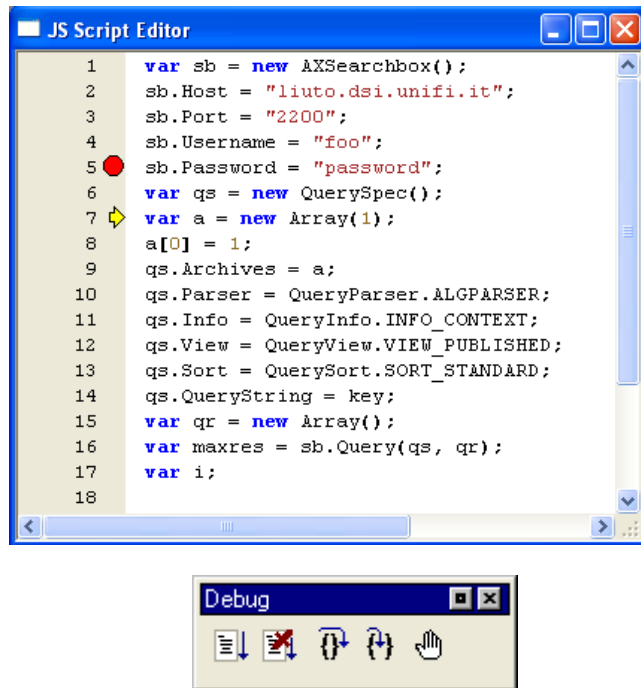
2. **Local Variables** – This is a page of the Debug dockable window that displays variables and instances of objects allocated by the script. They are displayed as tree list control with folding-unfolding capability for displaying the list of attributes of the object instance.



3. **Watches** – Not available in the current version.
4. **Breakpoints** - This a page of the Debug dockable window that displays the list of breakpoints inserted in the scripts: each breakpoint is associated with the name of the script and relative line number and status (Enabled or Disabled). Double clicking on a breakpoint allows focusing the view of the script where the breakpoint is placed.



5. **Debug markers:**
 - A red filled cURle indicates an Enabled breakpoint
 - A red empty cURle indicates a Disabled breakpoint
 - A yellow arrow indicates the line that will be executed.



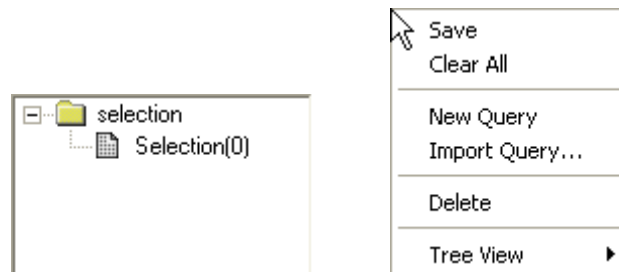
Main navigation interface of a Debug session

ACTIVATING A RULE


The current version of the prototype allows installing a rule in the rule engine and notifying the completeness of the rule to the workflow manager. The activation can be done by using the *Activate* function in the Command menu or manually as described in the scenario 2.

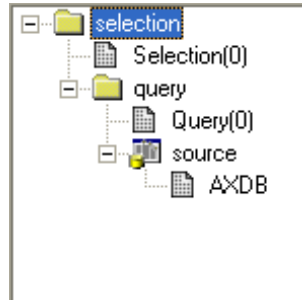
CREATING A SELECTION PARAMETER

This section describes how to create a selection document as parameter for an AXCP Rule. The user has to Insert a selection parameter in the Arguments section (Insert→ Selection), the Quick starter opens an empty Selection document.



To add a new query the user can:

- Access to the popup menu on the tree view by right clicking on the "selection" item and then selecting the "New Query" function
- Use the AddQuery  button of the toolbar



The new query becomes the current query and all operations affect it. The current query is displayed in the toolbar:

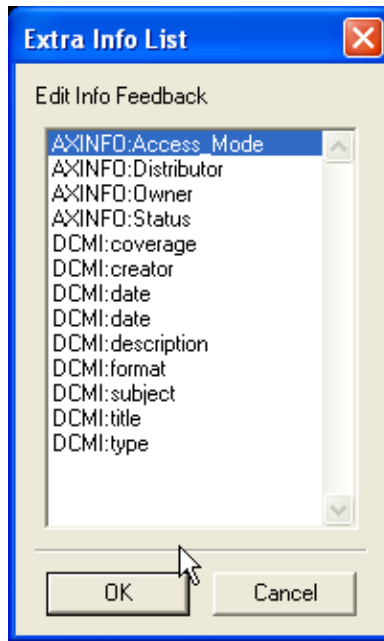


The new query is inserted and is filled with the source data choices currently set on the Available Sources.

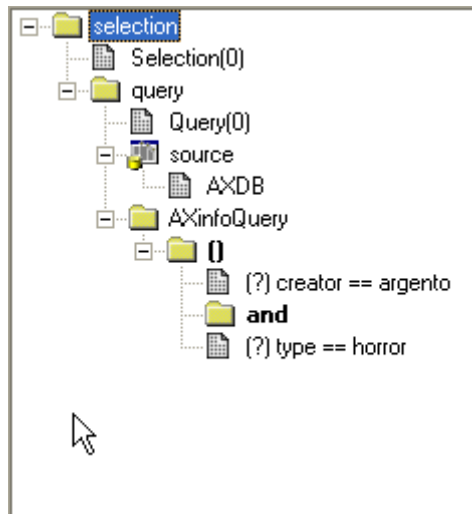
The source can be modified before adding or after the query. In both case the user has to selects sources in the corresponding panel. After the query insertion by right clicking on the new “query” item the popup menu on the tree view the user can select the “Set Query Source” function to apply the new sources.



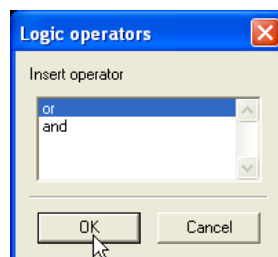
By means the Set Extra Info function on the same popup menu, the user can fill the query with the list of information to retrieve when the query is submitted to the Main Query Support. The function opens a multiple choice dialog as following:



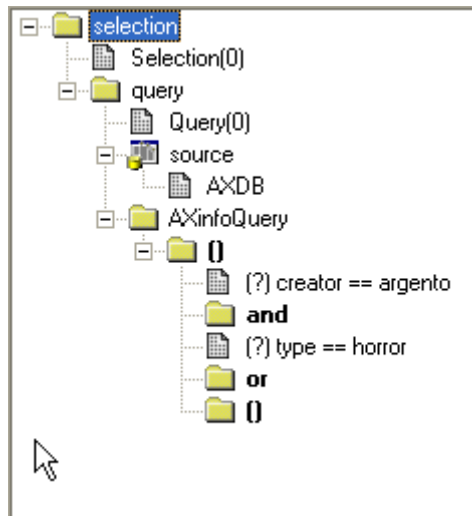
The user can start to insert conditions in the query by filling the fields in the Query Composer in a single or both panels. After filling, the user has to press the “AddCondition(s)” button to add them in the query.



To add a nesting level, the user has to press the “()” button in the Query Composer. A dialog will appear asking for the logic connector to use



The “()” will be inserted in the query and it will be the current level that can be edit. To change level the user has to select an existing nesting level.



During the editing the document is validated at runtime and the Validation Status panel provides the current status of the document:




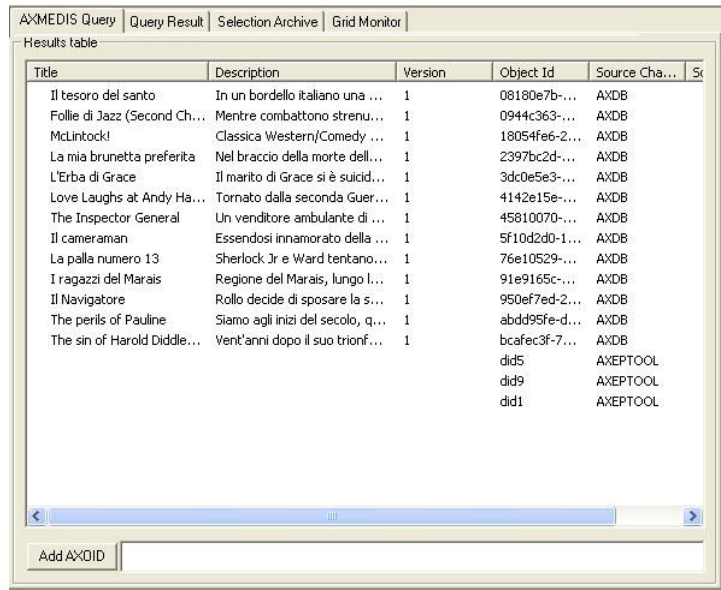
To remove an item the user can select the item on the tree and by accessing to the popup menu calls the “delete” function.

EDITING A SELECTION PARAMETER

We assume to have an existing selection parameter to edit. The user has to open the popup menu by right clicking on the selection item in the tree view.


TESTING A QUERY


The user selects the query or by clicking on the query item of the tree or by choosing it on the toolbar in the choice box. Then, the user clicks on the  button on the toolbar to send the submission to the Query Support. The result is displayed in the Query Result panel.

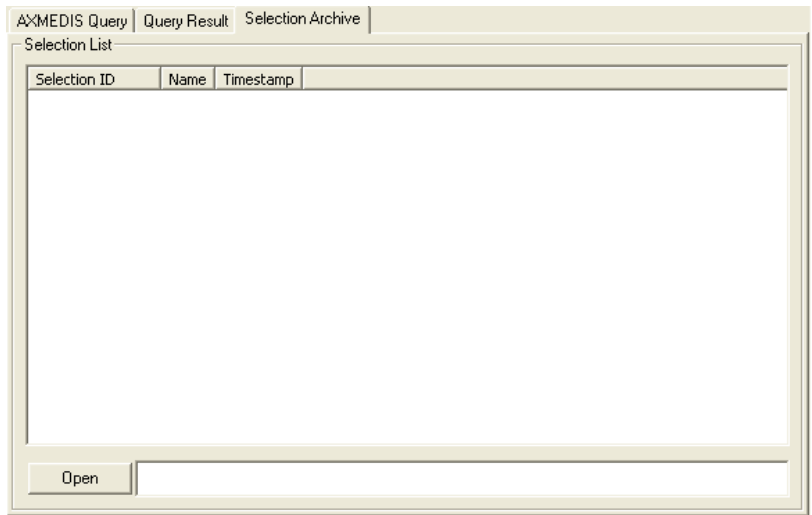


LOAD AND SAVE A SELECTION FROM/TO THE SELECTION ARCHIVE

A selection document can be loaded/saved from/to the Selection Archive.


To save a selection into the Archive, the user can clicks on the  icon.


To open an existing selection by loading from the Archive the user can click on the  icon and the list of available selection document is displayed in the Selection Archive panel. To ask for loading a document, the user selects the selection and by pressing the Open button, it will be loaded and the displayed in the editor.



LOAD AND SAVE A SELECTION FROM/TO THE FILE SYSTEM

A selection document can be loaded/saved from/to the File System.

To save a selection into the File System , the user can clicks on the  icon.

To open an existing selection by loading from the File System the user can click on the  icon

CONCLUSION


Using the AXCP Rule Editor, the user can write an AXCP Rule and edit it to set when and how the digital contents have to be processed. Once checked, the activated rule is sent to the AXCP Rule Engine which uses AXMEDIS tools to run the javascript that describes the content processing procedure.

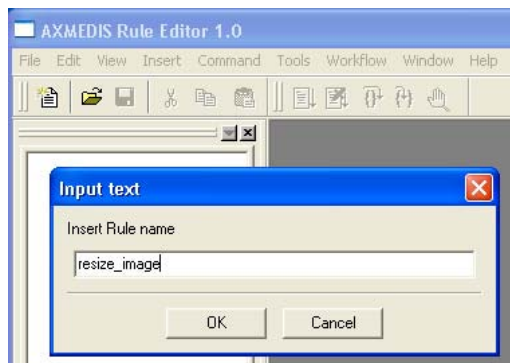
HOW TO CREATE A RULE, A SMALL TUTORIAL

In this tutorial we will show how to create a number of simple rules from scratch.

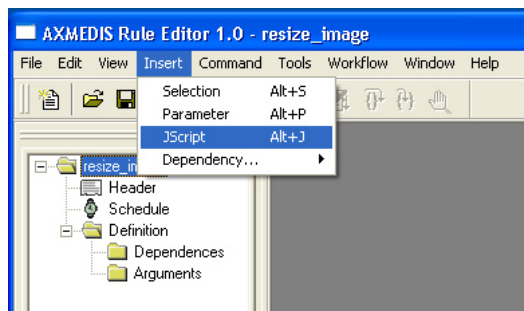
EXAMPLE 1 – RULE WITHOUT PARAMETERS (SIMPLE RULE)

The first example will show how to create a simple script for resizing an image resource named *AXMEDIS_logo.png* stored in the C:\\ path and saving the new resized image on the disk.

- Choose menu **File/New** or click on the  icon;
- Insert the name of the rule , for example *resize_image*;

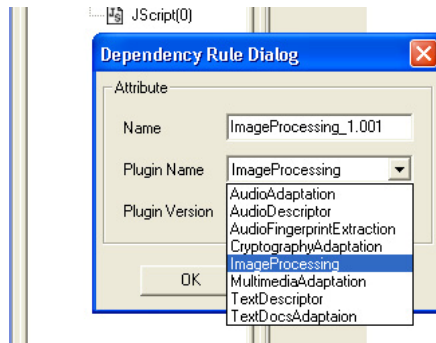


- Choose the menu **Insert/JScript**, a new window will be opened where to write the JavaScript for the rule;



- In the tree view (Rule view in the workspace panel) select “Dependencies” folder and right click on it Choose **Insert Dependencies/Tool** in the menu to use functionalities provided by the AXMEDIS plug-ins.

- In the Dependency Rule Dialog select **ImageProcessing** in the **Plugin Name** choice box



- Selecting the **JScript** element on the tree view, the JS Editor, previously opened, will be activated. Then, write the following javascript piece of code in it

```

1 // 1) create an empty resource
2 var image = new AxResource();
3
4 // 2) load the image file by the selected path
5 image.load("C:\\\\AXMEDIS_logo.png");
6
7 // 3) Use the Image Processing plugin for scaling the image
8 ImageProcessing.Resize(image,320,200,true,image);
9 // the Resize function of the Image Processing plugin scales the image at 320*200
10 // size maintaining the Aspect ratio and overwriting the new image
11
12 // 4) the scaled image is saved as "img_scaled.png
13 image.save("c:\\\\img_scaled");
    
```

Note: The line with “//” are comments and describe the meaning of javascript instruction.

In this example, the instruction to resize the image is the function in line 8 `ImageProcessing.Resize` followed by a number of parameters into parenthesis. Selecting the **LibraryView** tab it is possible to see the complete list of available processing functions. By double clicking on the **Resize** function in the **ImageProcessing** folder will appear the help window showing the needed parameters.


In this case the **Resize** function needs the following parameters:

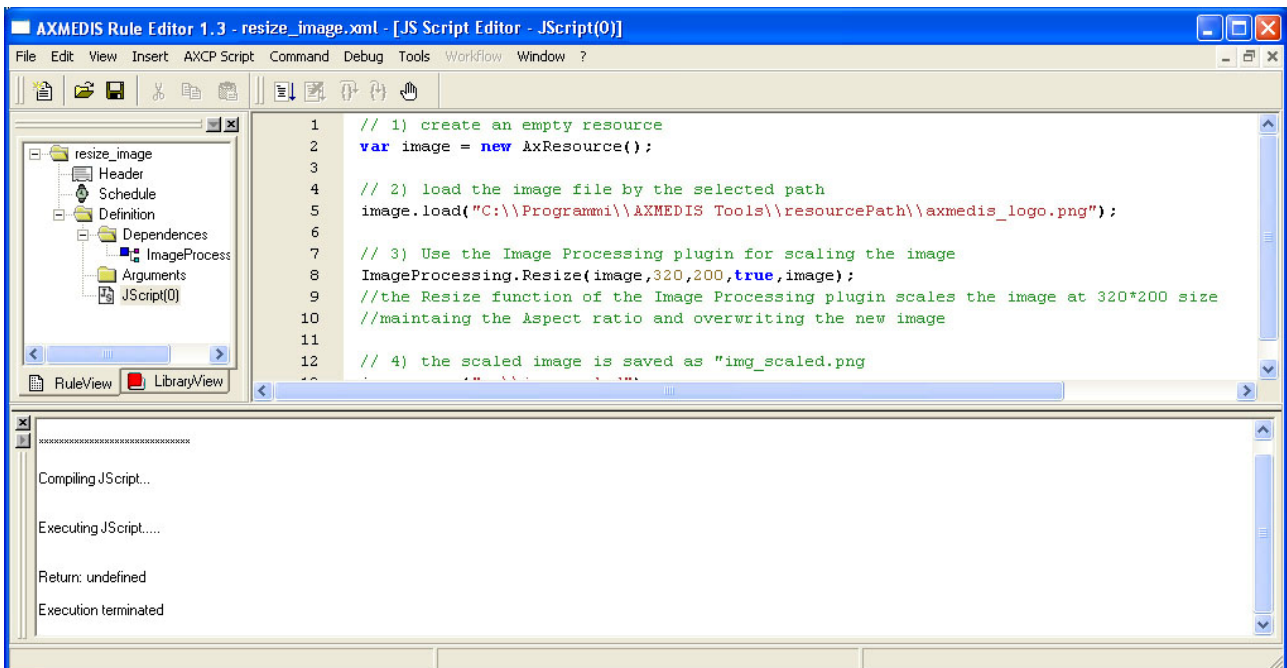
- the resource to be resized (i.e. in our script is `image`)
- the new image width (i.e. 320 in our script)
- the new image height (i.e. 200 in our script)
- an indication for preserving the image aspect ratio or not (i.e. `true` in our case will preserve the aspect ratio)

- o the output resource, (i.e. image in our case: this will replace the original image with the new resized one)

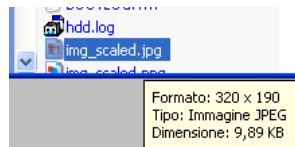
The order of parameters is important to use correctly the function and avoid possible execution errors.

Now, we can continue to produce our first rule by:

- Saving the rule in the menu **File/Save**
- Running the rule pressing the **Start Debug** button 
- The output windows, on bottom of the editor, will show if errors are present in the script, the “Execution terminated” message advises the end of run.



- After the rule execution , it is possible to open the new resource created on the disk in the C:\ path and named *img_scaled.png*.



When we save a rule initially edited as JavaScript code the Rule Editor saves it in an xml file. In the previous example, the *image_resize.xml* file is the following:

```

<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
- <Rule xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="Rule_Axmedis.xsd">
- <Header>
  <Rule_Name>resize_image</Rule_Name>
  <AXRID>axcprule:95409e53-f678-46ba-b046-841de1b727ce</AXRID>
  <Rule_Version />
  <Rule_Type>AXCP</Rule_Type>
  <Software_Name />
  <Version_of_software />
  <Date_of_production>2006-08-31</Date_of_production>
  <Author />
  <Affiliation />
  <URL />
  <Comment />
  <Last_Modifications>2006-08-31</Last_Modifications>
  <Terminal_ID />
  <Cost />
  <Work_Item_ID />
</Header>
- <Schedule>
- <Run>
  <Date>2006-08-31</Date>
  <Time>17:15:21</Time>
  <Periodicity Unit="Day">0</Periodicity>
  <Expiration_Date>2006-08-31</Expiration_Date>
  <Expiration_Time>17:15:21</Expiration_Time>
</Run>
  <Status>Inactive</Status>
</Schedule>
- <Definition>
- <AXCP_Rule>
  <Arguments />
  - <Rule_Body>
    - <JS_Script name="JScript(0)">
      - <![CDATA[
        // 1) create an empty resource
        var image = new AxResource();

        // 2) load the image file by the selected path
        image.load("C:\\Programmi\\AXMEDIS Tools\\resourcePath\\axmedis_logo.png");

        // 3) Use the Image Processing plugin for scaling the image
        ImageProcessing.Resize(image,320,200,true,image);
        //the Resize function of the Image Processing plugin scales the image at 320*200 size
        //maintaing the Aspect ratio and overwriting the new image

        // 4) the scaled image is saved as "img_scaled.png"
        image.save("c:\\img_scaled");

      ]]>
    </JS_Script>
  </Rule_Body>
  - <Dependencies>
    - <Dependency>
      <Plug_In_name>ImageProcessing</Plug_In_name>
      <Version>1.001</Version>
    </Dependency>
  </Dependencies>
</AXCP_Rule>
</Definition>
</Rule>

```

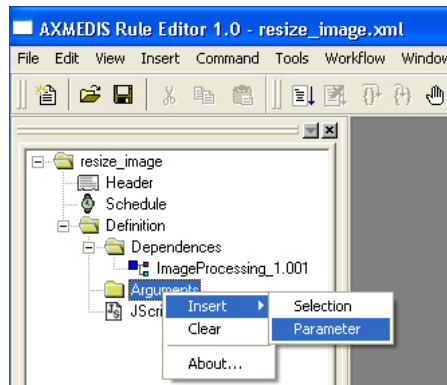
EXAMPLE 2 – RULE WITH PARAMETERS

In the following example we will generalize the previous script inserting some generic arguments in the script.

Instead to specify directly in the rule where the resource has to be loaded and saved (as specified in line 5 and 13 of the previous script), we can specify a generic argument in the script. In this manner the rule will remain valid and will be not modified in the future.

To do this we have to add a number of parameters in our rule.

- right click on the **Arguments** element in the tree view and select **Insert/Parameter** in the contextual menu;



- Add a first argument (the resource to be resized, in this case is the AXMEDIS logo in png format stored in the C:\Programmi\AXMEDISTools\resourcePath path)
 - **Name** input_path
 - **Type** String
 - **Default Value** C:\Programmi\AXMEDISTools\resourcePath\AXMEDIS_logo.png



- Add a second argument (the resized output resource will be saved in C:)
 - **Name** output_path
 - **Type** String
 - **Default Value** c:\img_scaled
- Add a second argument (the new image width is 320 pixels)
 - **Name** width
 - **Type** Integer

- **Default Value** 320
- Add a third argument (the new image height is 200 pixel)
 - **Name** height
 - **Type** Integer
 - **Default Value** 200
- Add a fourth argument for a conversion of the image in jpeg format
 - **Name** out_mime_type
 - **Type** String
 - **Default Value** image/jpeg

Now we have to change the script deleting the specific path overwriting then with the new generic arguments and adding a new line for the format conversion. The script is the following:

```

1 // 1) create an empty resource
2 var image = new AxResource();
3
4 // 2) load the image file by the "input_path" argument
5 image.load(input_path);
6
7 // 3) Use the Image Processing plugin for scaling the image
8 ImageProcessing.Resize(image,width,height,true,image);
9 // the "Resize" function of the Image Processing plugin scales the image at 320*200
10 // size maintaining the Aspect ratio and overwriting the new image
11
12 // 4) Use the Image Processing plugin for "Conversion" the image
13 ImageProcessing.Conversion(image,out_mime_type,image);
14 // the "Conversion" function of the Image Processing plugin converts the image
15 // and overwriting the new image
16
17 // 5) the scaled image is saved in the location specified by the "output_path" argument
18 image.save(output_path);

```

When the rule is executed a new image named `img_scaled.jpg` will be saved in C:

EXAMPLE 3 – RULE FOR CREATING AXMEDIS OBJECT

As third example we will see how apply the rule to an AXMEDIS object.

More in deep we will create a new AXMEDIS object with the new converted image as embedded resource.

To do this we have firstly to delete the output image path in line 18 adding only three instructions:

```
// Create an empty AXMEDIS object
var axObj = new AXMEDISObject();

// Add the image resource as a new content
axObj.addContent(image);

// Save the AXMEDIS object
axObj.save("c:\\newAXMEDISObject.axm");
```

The final script is the following:

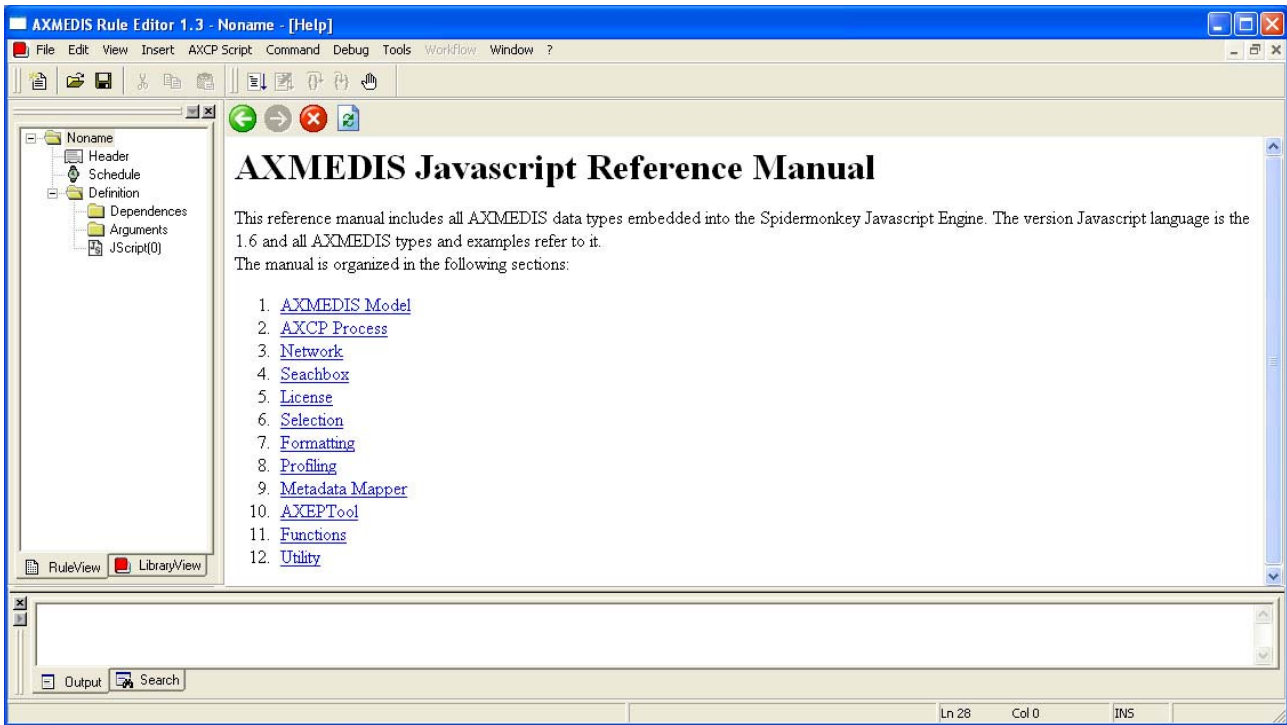
```
1 // 1) create an empty resource
2 var image = new AxResource();
3
4 // 2) load the image file by the "input_path" argument
5 image.load(input_path);
6
7 // 3) Use the Image Processing plugin for scaling the image
8 ImageProcessing.Resize(image,width,height,true,image);
9 // the "Resize" function of the Image Processing plugin scales the image at 320*200
10 // size maintaining the Aspect ratio and overwriting the new image
11
12 // 4) Use the Image Processing plugin for "Conversion" the image
13 ImageProcessing.Conversion(image,out_mime_type,image);
14 // the "Conversion" function of the Image Processing plugin converts the image
15 // and overwriting the new image
16
17 // Create an empty AXMEDIS object
18 var axObj = new AXMEDISObject();
19
20 // Add the image resource as a new content
```

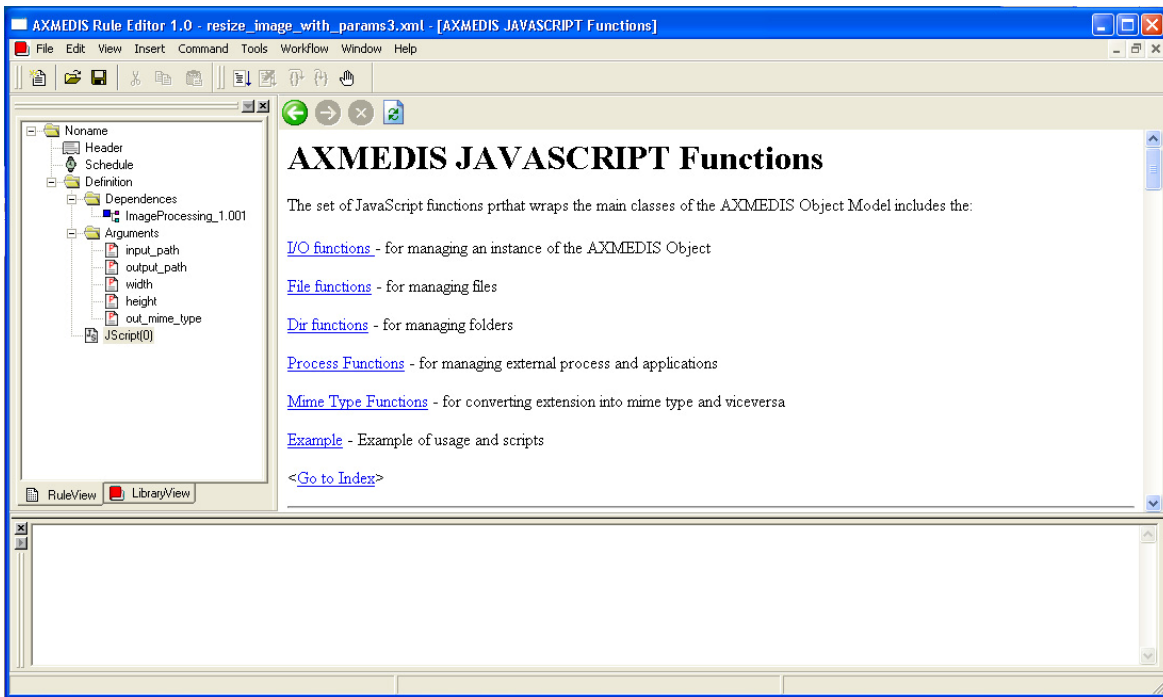
```

21  axObj.addContent( image );
22
23  // Save the AXMEDIS object
24  axObj.save( "c:\\newAXMEDISObject.axm" );

```

All the available functions interacting with the AXMEDIS Editor are listed and explained in the **AXMEDIS Javascript Reference Manual** available in the **Help/About** menu.





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 adptation,, 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_documento.php?doc_id=1891
- AXMEDIS Command Manager http://www.AXMEDIS.org/documenti/view_documento.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](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) 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) 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) 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) 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) 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) 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) 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

- http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=2923
- VARIAZIONI project portal: <http://www.variazioniproject.org/>

BROCHURES AND PRESS CUTTING (A PART)

- 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
- Annual Public Report (2005) http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1439
- AXMEDIS Project Synopsis http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1668
- Digital Media in Italy presentation http://www.AXMEDIS.org/documenti/view_documenti.php?doc_id=1669

OTHER REFERENCES

- ISO/IEC, ISO/IEC FDIS 21000-5 - Rights Expression Language. ISO/IEC JTC1/SC 29/WG 11/N5839. July 2003.
- ISO/IEC, ISO/IEC FDIS 21000-6 - Rights Data Dictionary. ISO/IEC JTC 1/SC 29/WG 11/N5842. July 2003.
- Iannella, R.: Open Digital Right Language (ODRL) Version 1.1. <http://odrl.net/1.1/ODRL-11.pdf> . August 2002.
- Open Mobile Alliance (OMA), <http://www.openmobilealliance.com/>
- 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.