

Schema Profiling Tutorial

Chris Herrmann, 25 November 2005

Introduction

This document is one of a series of tutorials to demonstrate the use of the TELCERT tools for the adoption and testing of application profiles. This tutorial shows how to create a simple application profile of the IMS Content Packaging v.1.1.4 specification.

Getting Started

Download the latest release of the schema profiling tool *SchemaProf* from the website <http://iwm.uni-koblenz.de/schemaprof/download.html>. The *Quick Start Guide* is included in every release and available on the website, giving information about the basic installation and configuration.

Download IMS Content Packaging Files

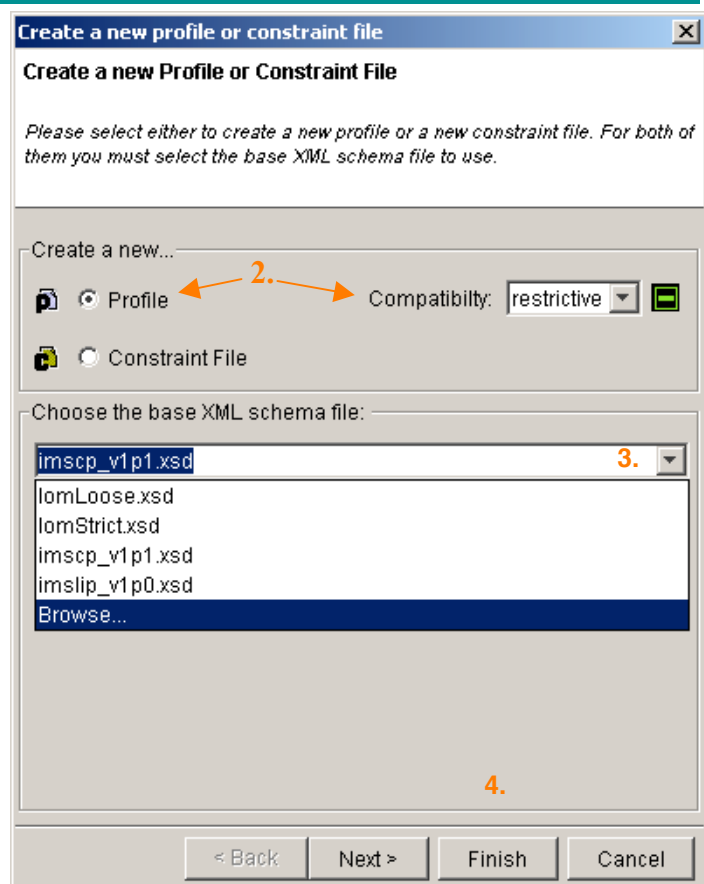
Use your web browser to download the XML schema file 'imscp_v1p1.xsd' for the IMS website <http://www.imsglobal.org/content/packaging/index.html> and save the file in your local file system, e.g. in C:\xsd\imscp_v1p1.xsd.

Create a new Profile

In the *SchemaProf* tool create a new profile based on the IMS content packaging schema file:

1. Open **File** ▢ **New...**
2. Choose **'Profile'** and **'restrictive'** compatibility.
3. Open the drop-down box for the base XML schema file and select **'Browse'** on the bottom.
4. Select the previously downloaded file **'imscp_v1p1.xsd'**.
5. Press the **'Finish'** button.

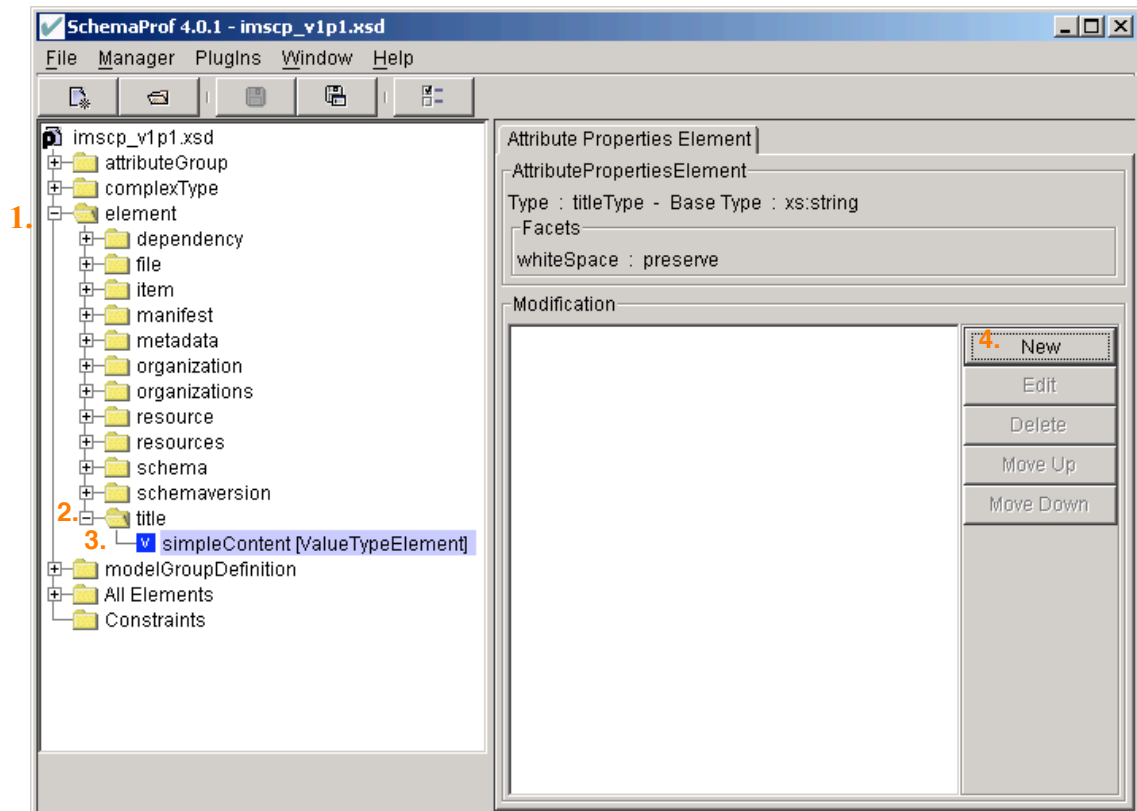
SchemaProf now opens and parses the imscp_v1p1.xsd file and displays the file content in a tree structure on the left side, called the navigation tree.



Making a Value Type Modification

The <title> element allows a string of unrestricted size. To restrict the titles to a maximum length of 255 characters in your application profile, do the following steps:

1. Open the branch **'element'** in the navigation tree by clicking on the plus sign next to it.
2. Open the subelement **'title'** of 'element' by clicking on the plus sign next to it.
3. Select the subelement **'simpleContent'** of 'title'.
4. Press the **'New'** button on the right side of the *SchemaProf* window.



5. Choose **'Restriction'** in the wizard dialog and press **'Next'**.
6. Insert the value **'255'** in the 'maxLength' input field and press **'Next'**.
7. Enter a name for the new type that will be created, e.g. **'myTitle'** and press **'Finish'**.

Now the navigation tree will display the 'simpleContent' element in red color to indicate that this element has been modified. All higher-ranking element (here: 'title' and 'element') are also highlighted in red to show the path to a modified element.

The right side now shows an entry in the 'Modification' list. This list element is the modification just made. Selecting this modification allows you to edit or delete the modification by clicking on the button on the right side.

Making a Cardinality Modification

The <resources> element allows the definition of an unlimited number of resources in the content package. To restrict the maximum number of resources allowed in your application profile, do the following steps:

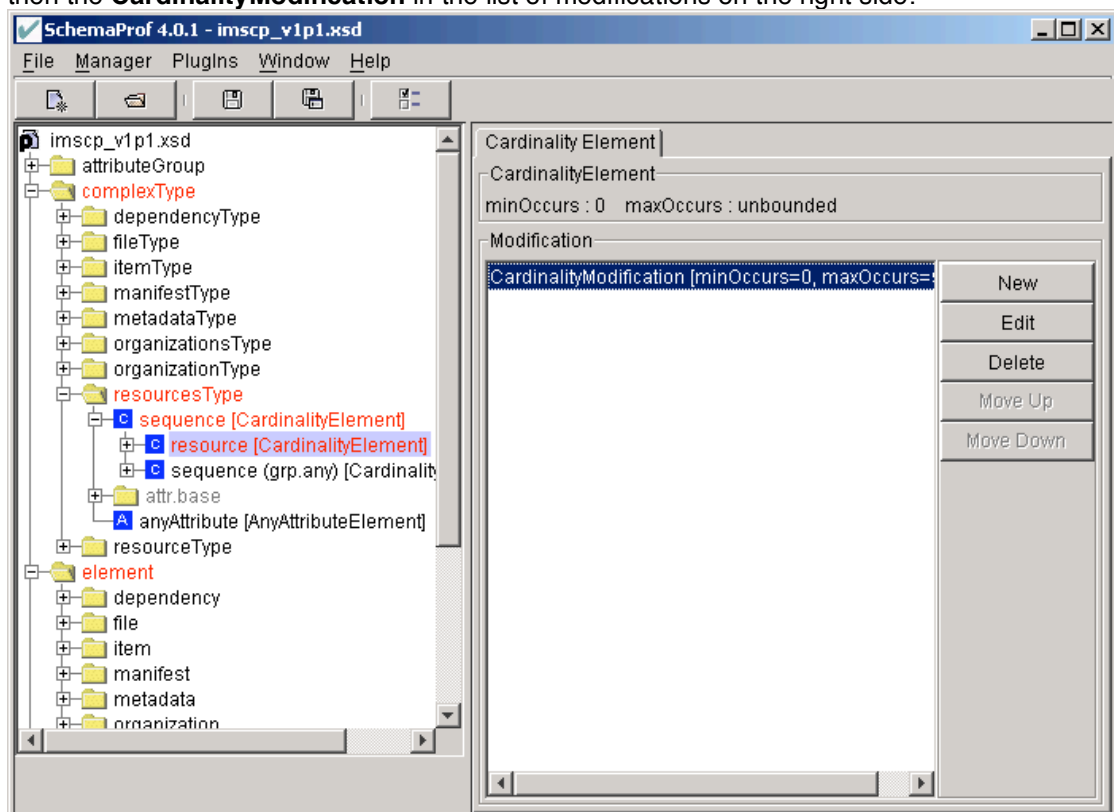
1. Open the branch '**complexType**' in the navigation tree by clicking on the plus sign next to it.
2. Open the subelement '**resourcesType**' of 'complexType' by clicking on the plus sign next to it.
3. Open the subelement '**sequence**' of 'resourcesType' by clicking on the plus sign next to it.
4. Select the subelement '**resource**' of 'title'.
5. Press the '**New**' button on the right side of the *SchemaProf* window.
6. Set the 'maxOccurs' value of the cardinality to a value from the drop-down box or type your own (integer) value, e.g. 512.
7. Click OK.

The element 'resource' is now highlighted in red to indicate that a modification has been made.

Annotating a Modification

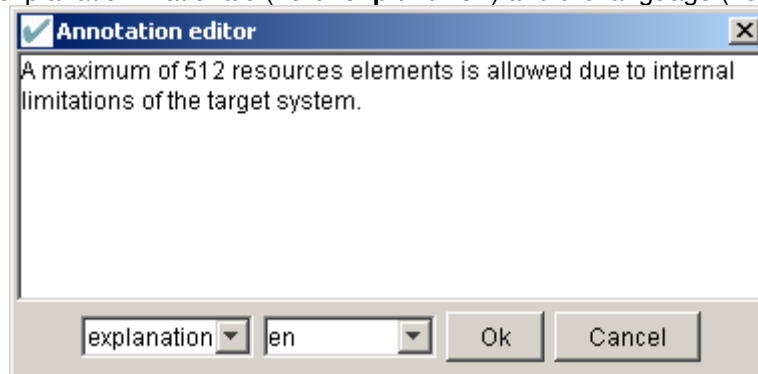
SchemaProf allows you to enter annotations for all modifications. This is very useful for documentation purposes and for maintenance. We will now use the previously made modification to add an annotation for it.

1. Select the previously made cardinality modification by first selecting from the navigation tree **complexType** **resourcesType** **sequence** **resource** then the **CardinalityModification** in the list of modifications on the right side:



2. Click the **Edit** button on the right side.
3. On top of the 'Cardinality Element Editor' dialog click the **New** button next from the 'Modification Annotations' area.

4. Enter a the annotation text, e.g. "This demonstrates how to use modification annotations." And select explanation / rationale (here: **explanation**) and the language (here: 'en'):



5. Click **OK**.

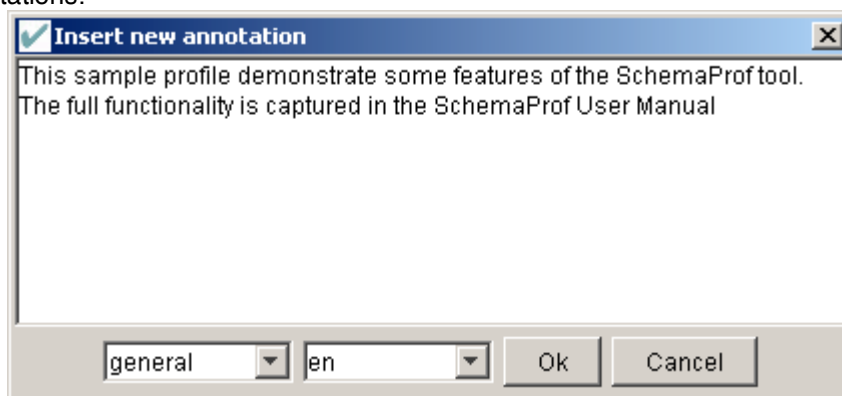
More than one annotation can be entered and the same annotation can be given in more than one language to support localization.

Annotating a profile

It is possible to make annotations for the application profile. This is recommended for inline documentation and reasonable for maintainance.

To make annotation for the application profile do these steps:

1. Selcet to **root element** of the navigation tree named like the base schema file name 'imscp_v1p1.xsd'.
2. On the right side you now see several tabs on top, select the first one '**Global Schema Annotations**'.
3. Press the **New** button on the right side.
4. Enter the **annotation text** into the windows and choose the **category** and **language**. Please note that the categories for application profile annotations are different from the modification annotations.



5. Then press **OK**.

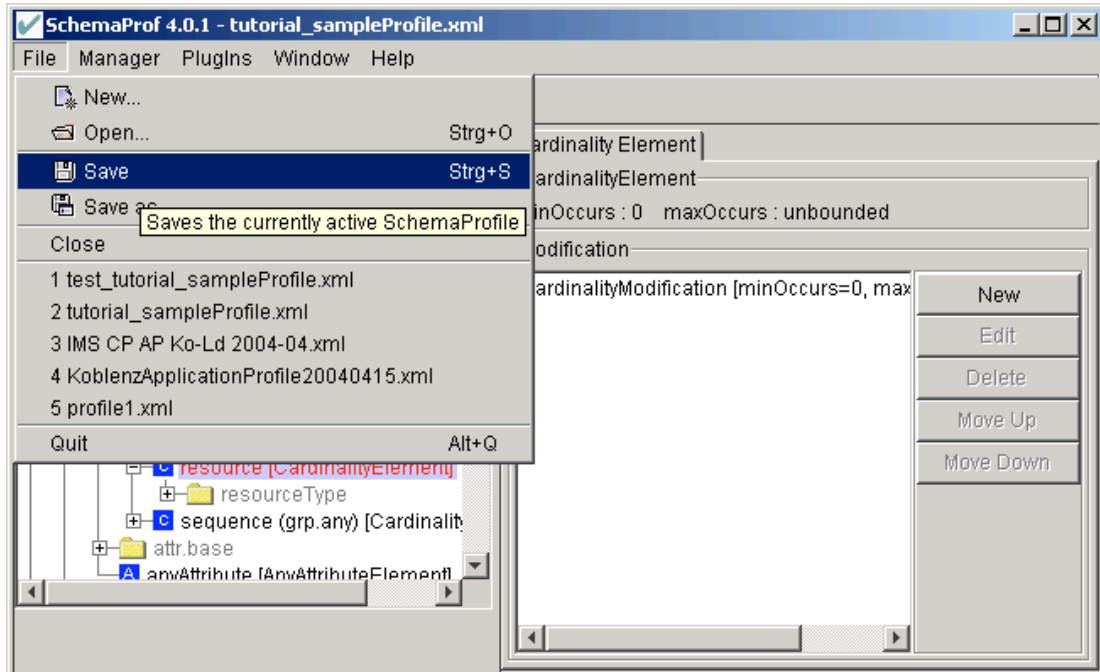
Annotations made at this position are expected to refer to the profile as a whole.

They are processed by the Schema Transform Tool and are included in the derived XML schema produced by the tool. Other tools also use the annotations for documentation and explanations.


Saving your Profile

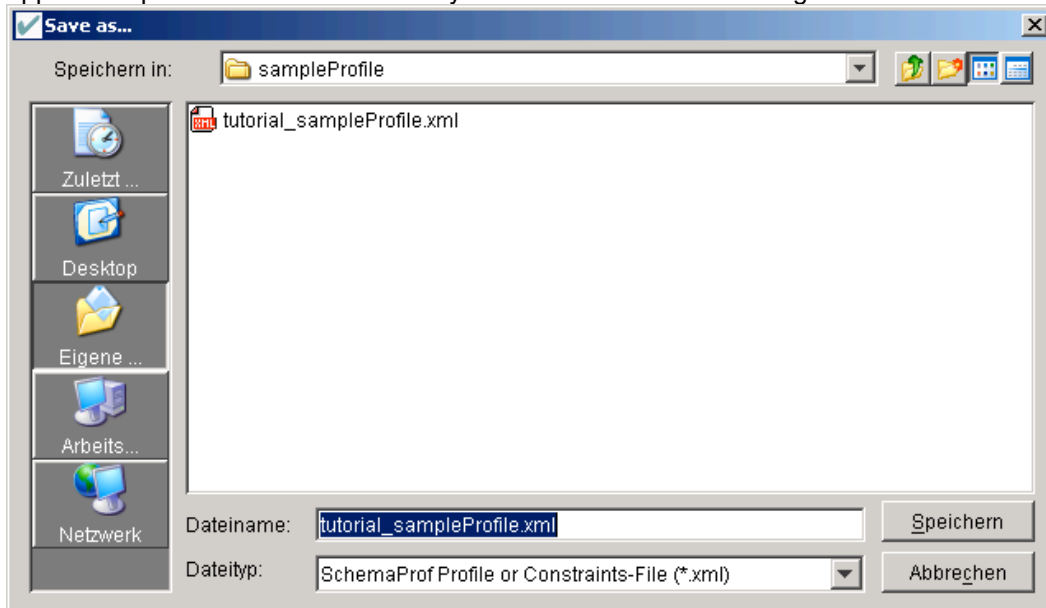
To save your profile do the following:

1. Click in the **File** menu on **Save**



2. Choose a **directory** where to save the profile.

We recommend creating a new empty directory for your profile, since SchemaProf will write at least two files into this directory, the base XML schema file `imscp_v1p1.xsd` and the actual application profile XML file. Use this symbol  in the "Save" dialog to create a new directory.



3. Enter a **filename** for the application profile. SchemaProf will automatically append the '.xml' extension to the filename for the XML file to be saved.

How to continue

This tutorial could give you only a very short introduction on SchemaProf.

To find out more about the possibilities SchemaProf offers you, please have a look at

- **SchemaProf Website:**
The latest binary release, source code, etc. [<http://iwm.uni-koblenz.de/schemaprof>]
- **Schemaprof User Manual:**
Explains in detail the full functionality of the tool. [<http://iwm.uni-koblenz.de/schemaprof/documentation.html>]
- **IMS Application Profiling Guidelines**
What is application profiling all about? [<http://www.imsglobal.org/ap/>]

TELCERT and Further Tools

The TELCERT project has produced more background and tools on application profiling and testing procedures. We recommend to have a look at:

Tools

- **Schema Transform Tool:**
Turn your application profile into modified, localized schemas. Available as a plugin for SchemaProf.
[<http://iwm.uni-koblenz.de/schemaprof/plugins.html>]
- **Content Re-Engineering Tool:**
Creating and adapting content and services to be conformant to a profile.
[<http://www.opengroup.org/telcert/downloads.htm>]
- **TELCERT Test System:**
Testing for conformance in development and for certification.
[<http://www.opengroup.org/telcert/downloads.htm>]

TELCERT Project

- **Project Homepage:**
Project goals and status, the partners, all documents and events, etc. [<http://www.opengroup.org/telcert/>]
- **Consortium Co-ordinator:**
David Rose, The Open Group, Tel. +44 20 8959 8403, [d.rose@opengroup.org]
- **Project Manager:**
Project Kevin Riley, eLoki Limited, Tel. +44 114 221 6662, [kriley@eloki.u-net.com]