

The Alkacon logo is a dark blue oval with the word "Alkacon" in white serif font. It is positioned on a black horizontal bar that spans the width of the slide.

Alkacon



## OpenCms Days 2008

Technical Track:

***Secrets of using the  
OpenCms CRE***

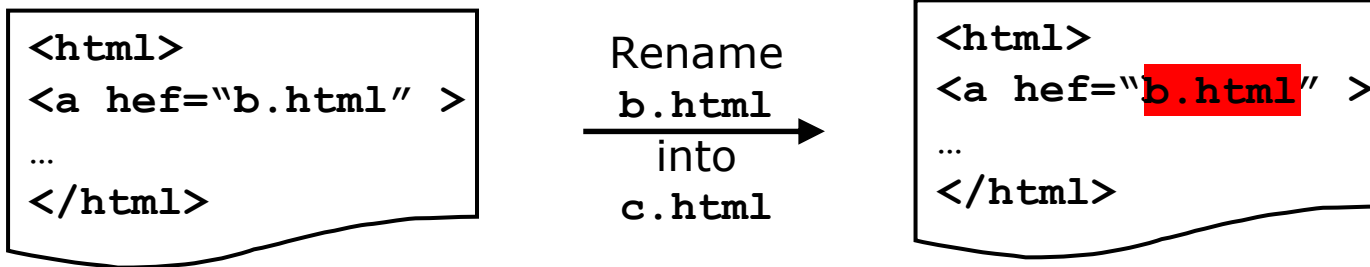
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- What is the OpenCms CRE?
- Workplace Improvements
  - Publishing
  - Deleting
  - XML Content editing
  - Categorization
- Frontend Improvements
  - Link management
  - The `%link` macro
- User defined relation types
- Implementation details



- Referencing:  
Moving files around will break links



- Reference querying:  
Where is my resource referenced?



- Referencing
  - Move Semantic
    - Copy + Delete (OpenCms 6)
  - Resource locking/publishing
- Reference querying
  - Read and parse content to get the references



- Referencing
  - Move semantic
    - Path change
  - To keep references with path and id
  - Lazy reference path update
- Reference querying
  - Specialized database tables with relation information


**This is the OpenCms  
Content Relation Engine**



- Weak

- Example: This is a [link](#).
- XML Page:
  - Html Tag `<A>`
- XML Content:
  - Default for `VfsFile` / `VarFile` types

- Strong

- Example: This is my dog: 
- XML Page:
  - Html Tags `<IMG>` and `<OBJECT>`
- XML Content:
  - Annotation option for `VfsFile` / `VarFile` types



- Improvements
  - Publish dialog
    - Publishing with related resources
    - Broken links check
  - XML Content Editor
  - Delete dialog
  - Link Validation Tool
- New features
  - Relations overview
  - Categorization



- Publishing with related resources

**Publish resource: /demo\_en/view/sausagefun.html**

**Resources to be published**

These resources will get published (2) 💡 Related resources Print

I	L	S	Name	Title
			/demo_en/images/Simplicissimus_Abgewinkt.gif Resource related to : /demo_en/view/sausagefun.html	[17]Simplicissimus
			sausagefun.html Unpublished related resource, will be published : /demo_en/images/Simplicissimus_Abgewinkt.gif	Sausage fun

Publish with related resources

Do you really want to publish the selected resource?












- Broken link check during publishing

**Publish resource: /demo\_en/view/sausagefun.html**

Title: Sausage fun  
State: changed  
Permalink: http://localhost:8080/opencms/opencms/permalink/68dedb8a-e5e1-11dc-9efc-51cb880fd12a.html

**Link check**

These links will get broken (1)  Hide broken links  Print

I	L	S	Name	Title
			sausagefun.html	Sausage fun

Broken link targets : /sites/default/demo\_en/view/a.html (Html link)

Do you really want to publish the selected resource?





- Broken link check during deletion

Delete resource: /demo\_en/images/Simplicissimus\_Abgewinkt.gif

Title: [17]Simplicissimus  
State: changed  
Permalink: http://localhost:8080/opencms/opencms/permalink/73bd2150-e549-11dc-8457-51cb880fd12a.gif

**Link check**

These links will get broken (1) Hide broken link sources Print

I	L	S	Name	Title
			Simplicissimus_Abgewinkt.gif	[17]Simplicissimus

Broken link sources : /demo\_en/view/sausagefun.html (Image link)

There are siblings pointing to this resource!

Preserve siblings  
 Delete all siblings

Really delete selected resources?

Ok Cancel



- Publish related resources
  - Default behavior
    - Related resources will be published
  - Configurable in `opencms-workplace.xml`
    - `*/default-preferences/workplace-preferences/workplace-generaloptions/publishrelatedresources`
- Broken link check (publish/delete)
  - Default behavior
    - Referenced resources can only be deleted by users having the role `VFS_MANAGER`
  - Configurable in `opencms-workplace.xml`
    - `*/default-preferences/workplace-preferences/workplace-generaloptions/allowbrokenrelations`





- Fast internal link validation

Administration View > Link Validation > Internal Link Validation > Broken Links Report

## Broken Links Report

Broken link report (3)

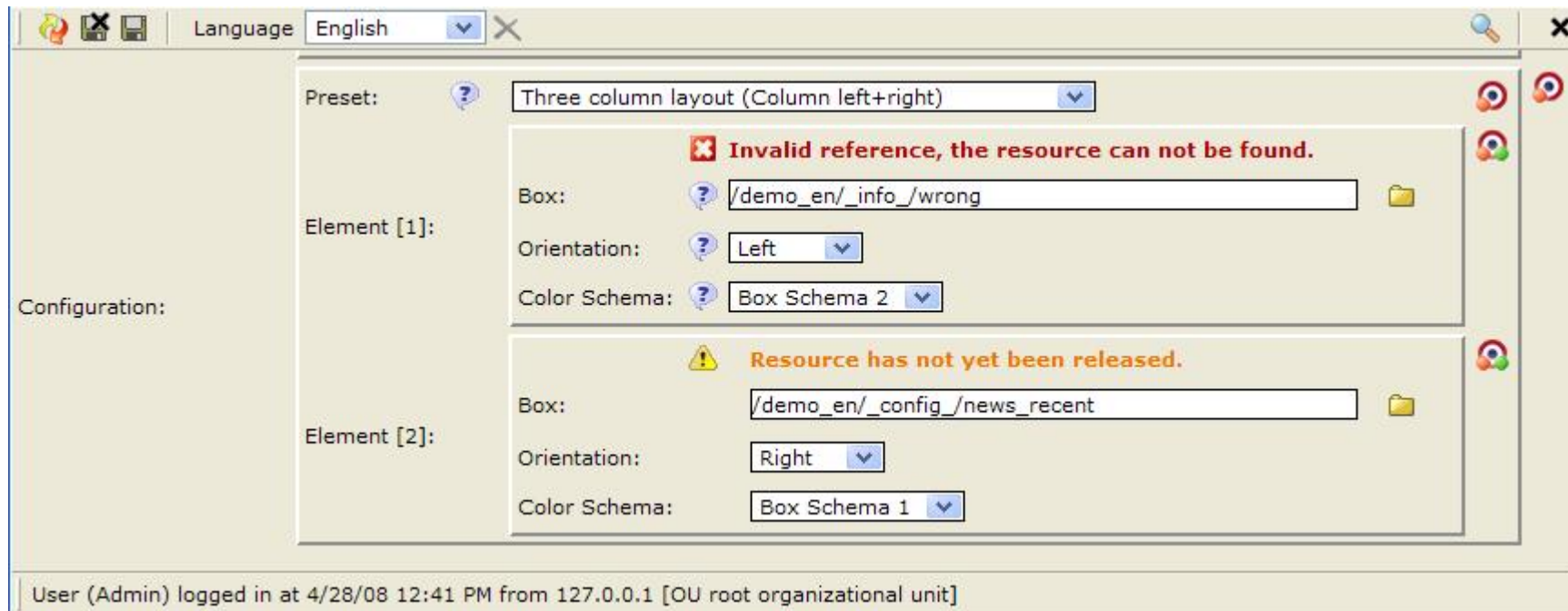
Search

Broken links Explorer Print

I	L	S	Name	Title	Type	Size	Date last modified
			/sites/default/demo_en/view/sausagefun.html	Sausage fun	xmlpage	1871	Apr 28, 2008 at 12:48 PM
			Broken links :	Site "/sites/default": /demo_en/view/a.html			
			/system/workplace/locales/de/help/editors/simple.html	Der Quelltext - Editor	xmlpage	3150	Jun 28, 2007 at 12:06 PM
			Broken links :	Site "/": /system/workplace/locales/de/help/editors/msdhtml.html			
			/system/workplace/locales/de/help/editors/xmlcontent.html	Der Xmlcontent - Editor	xmlpage	3301	Mar 27, 2006 at 2:00 PM
			Broken links :	Site "/": /system/workplace/locales/de/help/editors/msdhtml.html			



- New XML schema types with link validation:
  - **OpenCmsVfsFile:**
    - VFS link
  - **OpenCmsVarFile:**
    - VFS or external link





- New relations context menu

The screenshot shows the OpenCMS Workplace interface. On the left is a tree view of the site structure. The main area displays a table of files in the '/demo\_en/dictionary/' directory. A context menu is open over the 'haggis.html' file, showing various actions. The 'Relations' menu item is expanded, revealing options to link to or from other files, show siblings, and assign categories.

Name	Title	Type	Size	Date last modified
cervelat.html	Cervelat	titem	3769	3/1/08 6:32 PM
<b>haggis.html</b>	Haggis	titem	5096	3/3/08 9:52 AM
Lock	Sausage dictionary	ttarticle	3674	3/1/08 6:34 PM
Publish directly	Liverwurst	titem	4331	3/1/08 6:33 PM
Edit	Mettwurst	titem	4226	3/1/08 6:35 PM
Copy	Salami	titem	4320	3/1/08 6:35 PM
Rename/Move	Saumagen	titem	4755	3/1/08 6:35 PM
Delete	Weisswurst	titem	4880	3/1/08 6:36 PM

Context menu options for 'haggis.html':

- Undo changes
- Relations
  - Link relation to ...
  - Link relation from ...
  - Show siblings
  - Assign Categories
- Permissions
- Change navigation
- Advanced
- History
- Properties

User (Admin) logged in at 4/28/08 12:41 PM from 127.0.0.1 [OU root organizational unit]





- Relations overview

Explorer > Link relations to resource

## Link relations to resource ↑ Up



**Resource**

Path: /demo\_en/dictionary/haggis.html  
Title: Haggis

**Link relations**

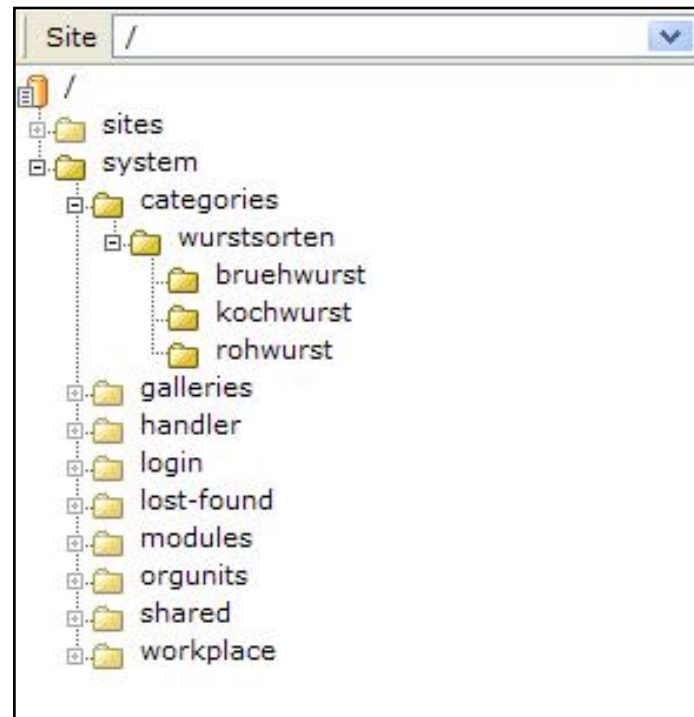
Link relations (2) Explorer Print

Search

I	L	S	Relation	Name	Title	Type	Size
			Html link	/demo_en/view/procedure/de/index.html	Herstellungsverfahren	layoutpage	16479
			Html link	/demo_en/view/procedure/en/index.html	Sausage making	layoutpage	16479



- Centralized category definition





# Workplace: Categories



- Categories dialog

Explorer > Category assignment

## Category assignment Up

**Resource**

Path: /demo\_en/dictionary/haggis.html  
Title: Haggis

**Assigned categories**

Assigned categories (2) Path Description Print

Search

A	Category
	Wurstsorten
	Kochwurst / Cooked

**Available categories**

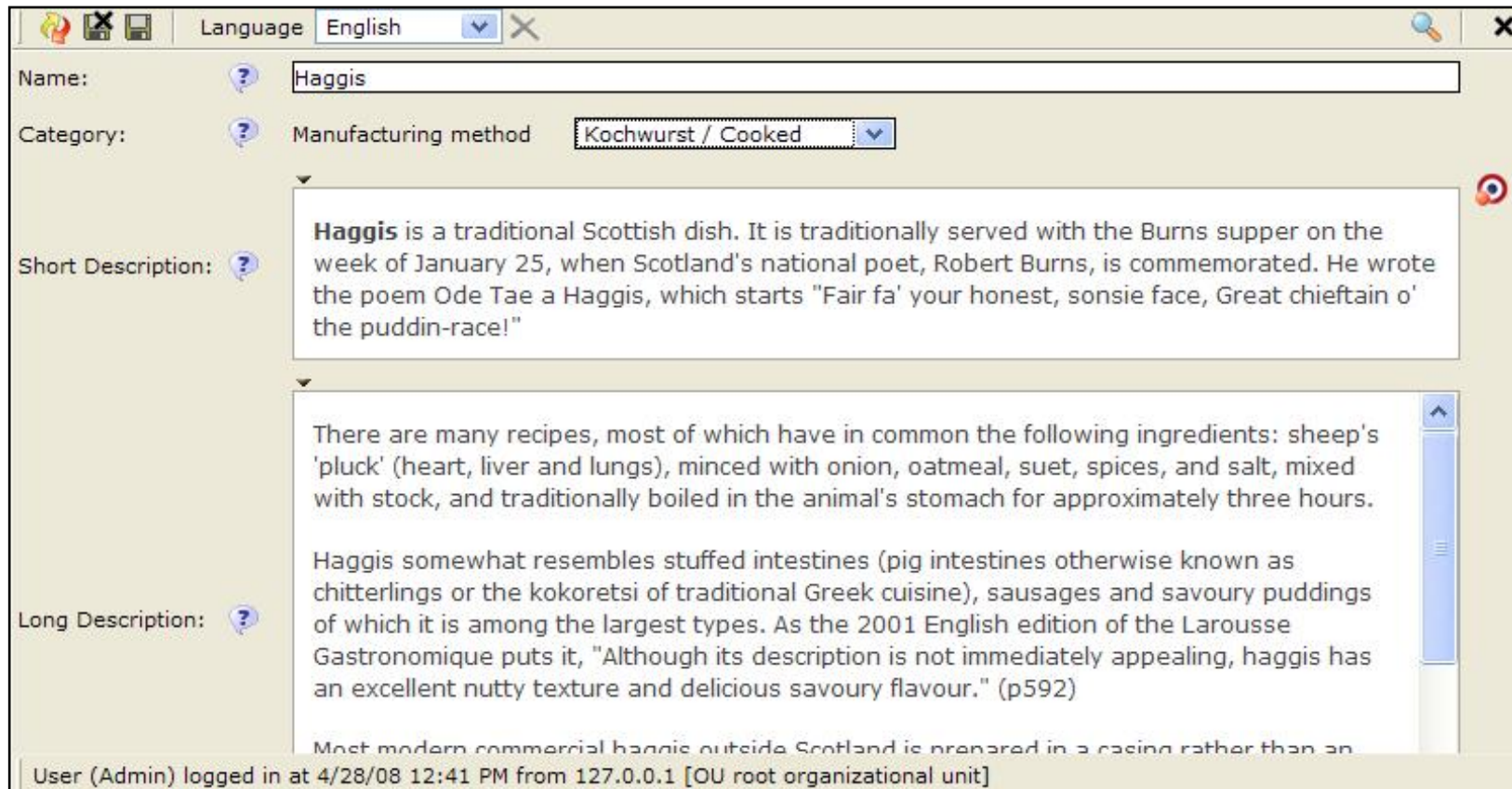
Available categories (3) Path Description Print

Search

A	Category
	Wurstsorten
	Brühwurst / Pre-cooked
	Rohwurst / Raw



- Category widget



The screenshot shows a web browser window with the OpenCMS interface. The language is set to English. The category name is 'Haggis'. The category is 'Manufacturing method' with a sub-selection of 'Kochwurst / Cooked'. The short description is: 'Haggis is a traditional Scottish dish. It is traditionally served with the Burns supper on the week of January 25, when Scotland's national poet, Robert Burns, is commemorated. He wrote the poem Ode Tae a Haggis, which starts "Fair fa' your honest, sonsie face, Great chieftain o' the puddin-race!"'. The long description is: 'There are many recipes, most of which have in common the following ingredients: sheep's 'pluck' (heart, liver and lungs), minced with onion, oatmeal, suet, spices, and salt, mixed with stock, and traditionally boiled in the animal's stomach for approximately three hours. Haggis somewhat resembles stuffed intestines (pig intestines otherwise known as chitterlings or the kokoretsi of traditional Greek cuisine), sausages and savoury puddings of which it is among the largest types. As the 2001 English edition of the Larousse Gastronomique puts it, "Although its description is not immediately appealing, haggis has an excellent nutty texture and delicious savoury flavour." (p592) Most modern commercial haggis outside Scotland is prepared in a casing rather than an...'. The footer shows 'User (Admin) logged in at 4/28/08 12:41 PM from 127.0.0.1 [OU root organizational unit]'.



- Categories
- Link management
  - XML Pages
  - XML Contents
- The `% (link)` macro
- Permalinks



- Categories Collector:  
`org.opencms.files.collectors.  
    CmsCategoryResourceCollector`
  - Name: `allKeyValuePairFiltered`
  - Parameter: `categoryTypes`
  
- Categories API:  
`org.opencms.relations.  
    CmsCategoryService`
  - `readCategoryResources`
  - `readResourceCategories`
  - `addResourceToCategory`
  - `removeResourceFromCategory`



- Move semantic:
  - Links stored with path and id
- Relation types:
  - Automatic, hard coded
- Broken link handling:
  - No broken link handling



- Move semantic:
  - New XML schema types with link validation
    - `OpenCmsVfsFile`
    - `OpenCmsVarFile`
  - Links stored with path and id
- Relation types:
  - Default is weak
  - Optional annotation setting
- Broken link handling:
  - Default is to invalidate node
  - Optional annotation setting
  - NOTE: Node has to be optional



- Nested schema:

```
<xsd:complexType name="OpenCmsTImage">
  <xsd:sequence>
    <xsd:element name="Image" type="OpenCmsVfsFile" />
    <xsd:element name="Description" type="OpenCmsString" />
  </xsd:sequence>
</xsd:complexType>

<xsd:annotation>
  <xsd:appinfo>
    <layouts>
      <layout element="Image" widget="ImageGalleryWidget" />
    </layouts>
  </xsd:appinfo>
</xsd:annotation>
```



- Outer schema

```
<xsd:complexType name="OpenCmsTTArticle">
  <xsd:sequence>
    <xsd:element name="Title" type="OpenCmsString" />
    <xsd:element name="Paragraphs" type="OpenCmsTTParagraph" />
    <xsd:element name="Config" type="OpenCmsConfig" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>

<xsd:annotation>
  <xsd:appinfo>
    <relations>
      <relation
        element="Paragraphs/Image/Image"
        invalidate="parent"
        type="strong" />
    </relations>
  </xsd:appinfo>
</xsd:annotation>
```





- Original

**Extranet of the Wurst**

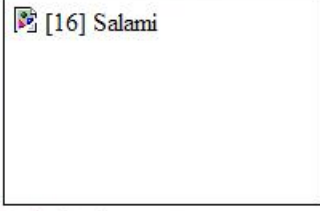


[16]Salami  
In our Extranet you will find secret Wurst recipes and other great stuff.  
**You need to login in order to access the Extranet.**

To the [login page of the Wurst Extranet](#)

- Invalidate false

**Extranet of the Wurst**



[16] Salami  
In our Extranet you will find secret Wurst recipes and other great stuff.  
**You need to login in order to access the Extranet.**

To the [login page of the Wurst Extranet](#)

- Invalidate true/node

**Extranet of the Wurst**

[16]Salami  
In our Extranet you will find secret Wurst recipes and other great stuff.  
**You need to login in order to access the Extranet.**

To the [login page of the Wurst Extranet](#)

- Invalidate parent

**Extranet of the Wurst**

In our Extranet you will find secret Wurst recipes and other great stuff.  
**You need to login in order to access the Extranet.**

To the [login page of the Wurst Extranet](#)



- JSP Pages
  - Move semantic
    - `% (link.weak)` macro
  - Include dependencies
    - `% (link.strong)` macro
  - Usage:

```
13 
```

- After saving:

```
13 
```

- After moving target:

```
13 
```



- Permalink:
  - Resource access by path  
`/index.htm`
  - Resource access by id  
`/permalink/87972a79-12be-11dd-a2ad-111d34530985.htm`
  - Exact link is shown in most explorer dialogs



Delete resource: /demo\_en/images/Simplicissimus\_Abgewinkt.gif

Title: [17]Simplicissimus  
State: changed  
Permalink: http://localhost:8080/opencms/opencms/permalink/73bd2150-e549-11dc-8457-51cb880fd12a.gif

**Link check**

These links will get broken (1)  Hide broken link sources  Print

I	L	S	Name	Title
			Simplicissimus_Abgewinkt.gif	[17]Simplicissimus

Broken link sources : /demo\_en/view/sausagefun.html (Image link)



- How to define a relation?
  - From a XML Page: `<A>`, `<IMG>`, etc.
  - From a XML Content: `vfsFile` and `VarFile`
  - From a PDF File:
    - User defined relation types
- Configuration in `opencms-vfs.xml`

`/opencms/vfs/resources/`

```
<relationtypes>
  <relationtype name="pdfweak" type="WEAK" />
  <relationtype name="pdfstrong" type="STRONG" />
</relationtypes>
```



- **CmsObject**
  - To add a relation
    - `addRelationToResource`
  - To remove relations
    - `deleteRelationsFromResource`
  - To read relations
    - `getRelationsForResource`
- **CmsRelationFilter**
  - Relation direction
    - `SOURCE, TARGET, BOTH`
  - Resource
    - `filterResource`
  - Additional options
    - Type, subresources, etc.



# Implementation details

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- XML Page
- XML Content
- Database tables



# Implementation: XML Page



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```
<?xml version="1.0" encoding="UTF-8"?>

<pages xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="http://www.opencms.org/dtd/6.0/xmlpage.xsd">
  <page language="en">
    <element name="body">
      <links>
        <link name="link0" internal="true" type="A">
          <target><![CDATA[/sites/default/release/maillinglist.html]]></target>
          <uuid>f0d8f8ae-11b7-11db-91cd-fdbae480bac9</uuid>
        </link>
      </links>
      <content><![CDATA[<h1>Release Notes for OpenCms 7.0.4</h1>
<p>Please contact the core development team on the <a href="%(link0)">opencms-
dev</a> mailing list in case you are interested in supporting the
development of OpenCms.</p>
</a></p>
<p>Thank you for using OpenCms and have fun with OpenCms 7.0.4 :-
)</p>]]></content>
    </element>
  </page>
</pages>
```



# Implementation: XML Content

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```
<?xml version="1.0" encoding="UTF-8"?>

<TTImages xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="opencms://system/modules/org.opencms.
  s.frontend.templatetwo.demo/schemas/nested/image.xsd">
  <TTImage language="de">
    <Image>
      <link type="WEAK">
        <target><![CDATA[/sites/default/test.jpg]]></target>
        <uuid>9cb2ffbb-dbcc-11dc-8613-9f7a6a6ce285</uuid>
      </link>
    </Image>
    <Description>My nice picture</Description>
  </TTImage>
</TTImages>
```





- Offline & Online tables

<u>CMS OFFLINE RESOURCE RELATIONS</u>	
RESOURCE_SOURCE_ID	VARCHAR(36)
RESOURCE_SOURCE_PATH	TEXT BINARY
RESOURCE_TARGET_ID	VARCHAR(36)
RESOURCE_TARGET_PATH	TEXT BINARY
RELATION_TYPE	INT

- Null UUID for broken relations



**Thank you very much for your attention**

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<http://www.alkacon.com>

<http://www.opencms.org>

