



Integrating catalog and GIS tools: access to resources from CatMDEDit thanks to gvSIG

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Valencia, 4 December 2008

```
<meta name="HTTP-EQUIV"  
content="text/html; charset=iso-8859-1">  
<meta name="Headline" content="Introduction">  
<meta name="Section" content="Some enterprises  
need an Image urgent" />  
<!-- GENMaps -->  
<map name="banner">  
<area alt="IAAA" coor  
href="http://iaaa.index.html/1/index.html" shape="RECT">  
</map>
```

3-5 Dic'08

as
Jornadas

Palacio de Congresos de Valencia

Outline



- 1. Introduction**
- 2. Architecture**
- 3. Access to resources through gvSIG**
- 4. Demonstration**
- 5. Conclusions**

```
<meta name="HTTP-EQUIV"  
content="text/html; charset=iso-8859-1">
```

```
<meta name="Section" content="Introducción">
```

```
<meta name="Description" content="Some enterprises  
need an Image urgent re-Engineering, let's take over.">
```

```
<!-- GENMaps-->
```

```
<map name="banner">  
href="http://iaaa.index.html/1/mi.html" shape="RECT"/>  
</map>
```



1. Introduction

- **Metadata: a key element to facilitate access and exploitation of spatial data in Spatial Data Infrastructures**
- **But metadata creation is not a task to perform separated from data creation**
 - ❖ Quite the opposite, in addition to discovery, metadata should facilitate the processing of data in a more effective way
- **Data and metadata creation should be a unified process**
 - ❖ This is the purpose of CatMDEdit tool



CatMDEdit

- **Content management tool focused on the management of spatial data resources through standardized metadata**
 - ❖ Resources are data + metadata organized, in different repositories
- **Cross-platform and multilingual desktop tool**
- **Open source since 2004 (SourceForge)**
 - ❖ Developed by IAAA and GeoSpatiumLab
 - with the support of Spain SDI and other research projects
 - ❖ Based on Java, XML, and RDF technologies

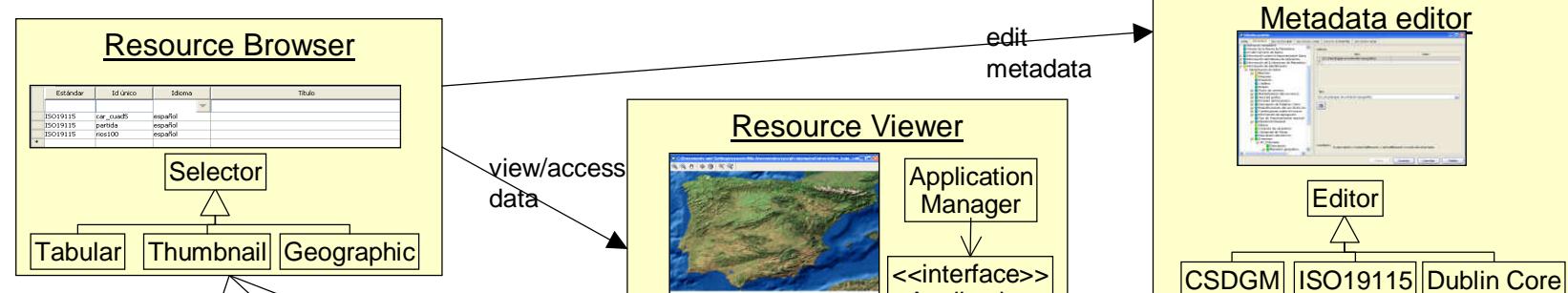


Features of CatMDEdit

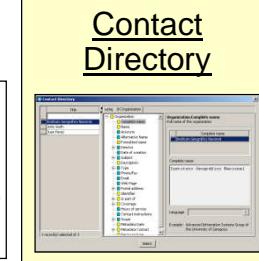
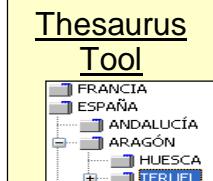
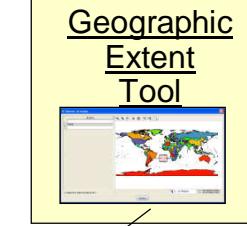
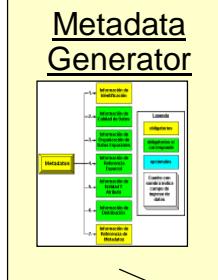
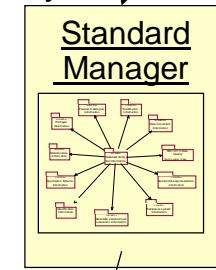
- **Metadata edition in conformance with different standards and profiles (also customization)**
 - ❖ It provides tools to facilitate the edition of metadata
 - Thesauri, validation, online help, ...
- **It makes profit of GIS tools functionality**
 - ❖ Although should be obvious, not common in metadata editors
 - ❖ GIS tools facilitate the edition of metadata
 - Automatic generation of metadata
 - Thumbnails generation
 - Graphical definition of geographic extent
 - Geographic display of resources on a map
- **Additionally, metadata facilitates the connection to GIS tools for viewing and processing data**
 - ❖ Connection to gvSIG

2. Architecture

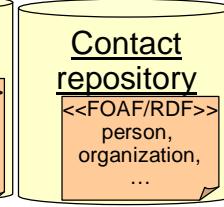
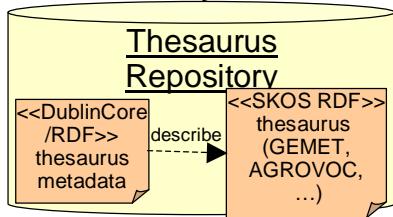
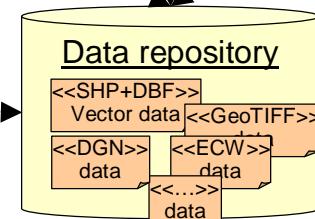
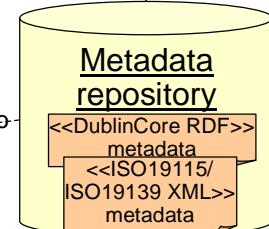
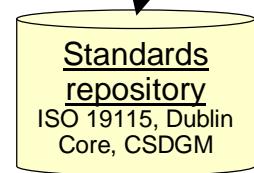
Upper layer



Middle layer



Data layer

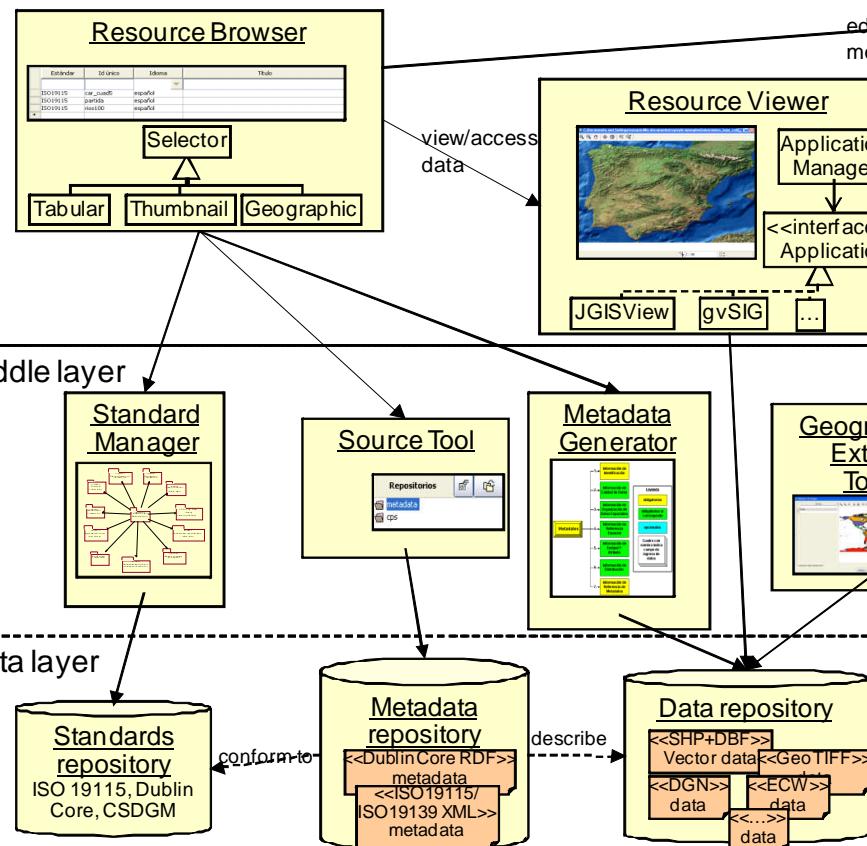


describe

conform to

Resource Browser

Upperlayer



- **Main functional component**
- **Management of repositories and resources**
- **Automatic generation of metadata (extent, spatial representation info) for some GI formats (GIS)**
- **Different selection mechanisms including**
 - ❖ **Thumbnail selection (GIS)**
 - ❖ **Including graphical display of resources on a map (GIS)**

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Explorador de recursos

Repositorios

- metadata
- local repository
- GIS repository**

Estándar	Id único	Idioma	Título
ISO19115	car_cuad5	español	Cuadrícula 1:5000 de....
ISO19115	partida	español	Mapa físico de la Península Ibérica
ISO19115	rios100	español	Mapa de la Cuenca del Ebro
*			

Vistas en miniatura

car_cuad5 partida rios100

Total registros 3

Geographic Selector

1 record(s) selected of 437 1 : 53 X = 1.097033999423 Y = 41.754193301099

gy SIG

UNIÓN EUROPEA
FONDO EUROPEO DE DESARROLLO REGIONAL
"Unir es un modo de hacer Europa"

<meta name="HTTP-EQUIV" content="text/html; charset=iso-8859-1">

<meta name="Section" content="Diseño_Gráfico">

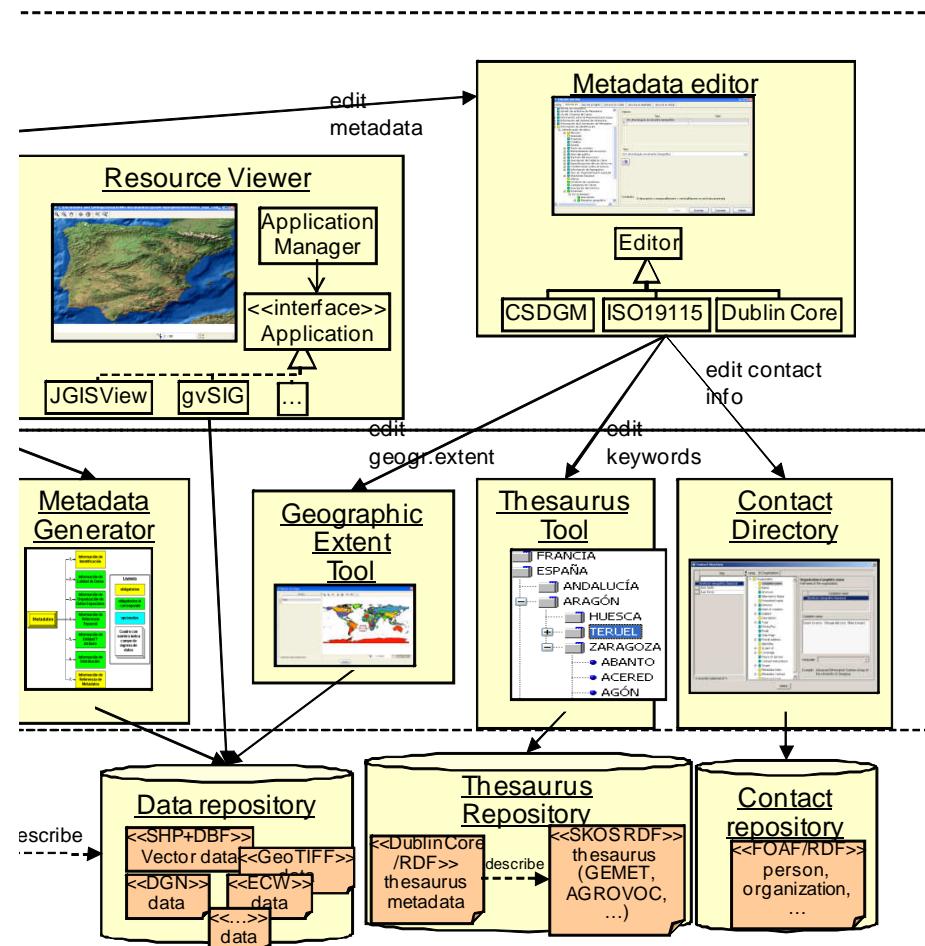
<meta name="Section" content="Introduction">

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IN

Metadata Editor

- **Metadata edition in conformance with ISO19115, Dublin Core, other customizations**
- **Tools to facilitate the edition of metadata**
 - ❖ Contact directory
 - ❖ Thesaurus repository
 - ❖ ...
 - ❖ **Graphical definition of geographic extent (GIS)**



Edición: partida

HTML ISO19115 ISO19115 NEM ISO19115 CORE ISO19115 INSPIRE ISO19115 WISE

Valores

Tipo	Valor
EX_Rectángulo envolvente Geográfico	

Tipo

EX_Rectángulo envolvente Geográfico

Condición: Si description y

extent definition as GML

```

<gmd:EX_GeographicBoundingBox>
  <gmd:westBoundLongitude>
    <gco:Decimal>
      9.988023957949977</gco:Decimal>
    </gmd:westBoundLongitude>
    <gmd:eastBoundLongitude>
      <gco:Decimal>3.305389137050023</gco:Decimal>
    </gmd:eastBoundLongitude>
    <gmd:southBoundLatitude>
      <gco:Decimal>35.820359300350006</gco:Decimal>
    </gmd:southBoundLatitude>
    <gmd:northBoundLatitude>
      <gco:Decimal>44.01197606395001</gco:Decimal>
    </gmd:northBoundLatitude>
  </gmd:EX_GeographicBoundingBox>

```

Selector de mapas

Id Único

World

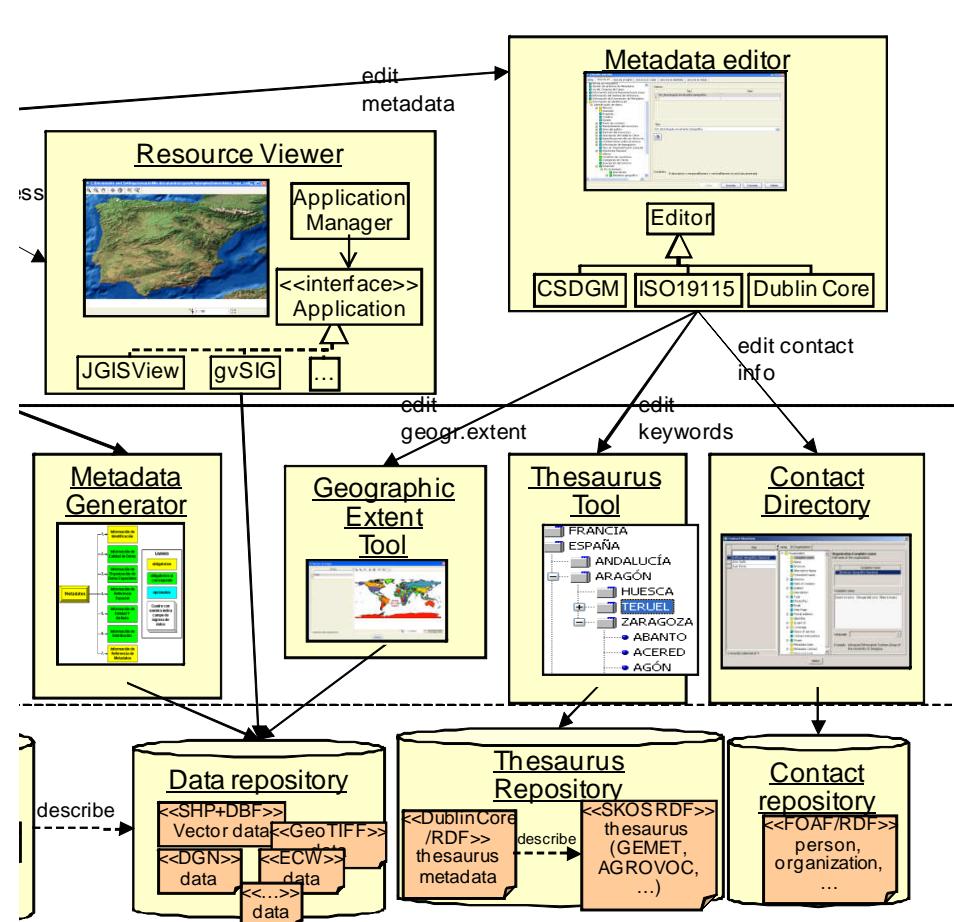
1 registro(s) seleccionado(s) de 1

Aceptar

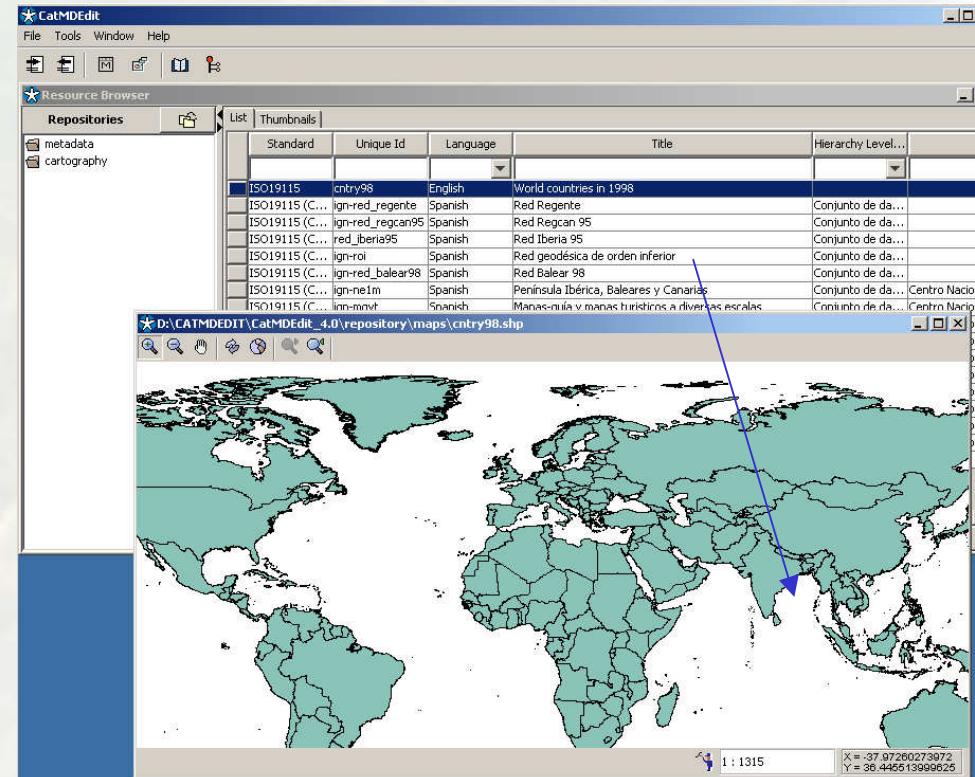
X = 159.98608750586
Y = 104.97409871983

Resource Viewer

- Connection with applications that are able to view/modifying resource data
 - ❖ Shapefile, ECW, GeoTiff, GIF, JPG, BMP, HTML, ...
- How to display GI formats until version 4.0.1?
 - ❖ Thanks to JGISView library
 - ❖ Used in previously mentioned GIS capabilities
 - ❖ Provides Java bean component for viewing purposes



3. Access to resources through gvSIG



□ Problems with JGISView

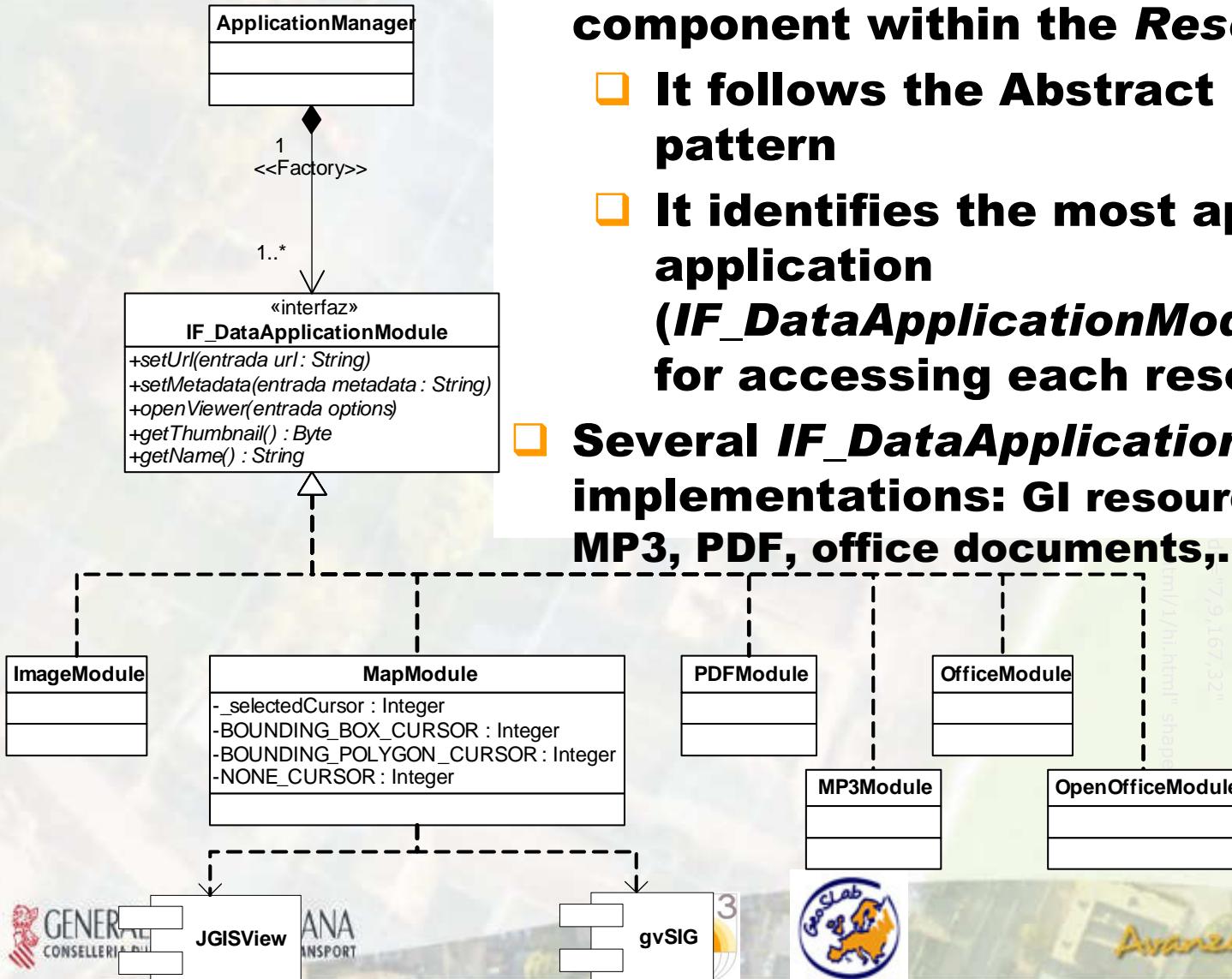
- ❖ not oriented towards the modification of data
- ❖ no support for some specific GI formats

□ Solution:

- ❖ integration with gvSIG
- ❖ gvSIG enables access and management of most usual raster and vector formats

How to establish the connection with gvSIG?

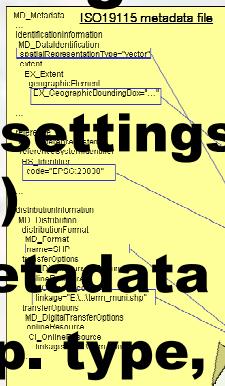
- **Application Manager is the main component within the Resource Viewer**
- **It follows the Abstract Factory design pattern**
- **It identifies the most appropriate application (*IF_DataApplicationModule* interface) for accessing each resource type**
- **Several *IF_DataApplicationModule* implementations: GI resources, images, MP3, PDF, office documents,...**





Steps followed for connection with gvSIG

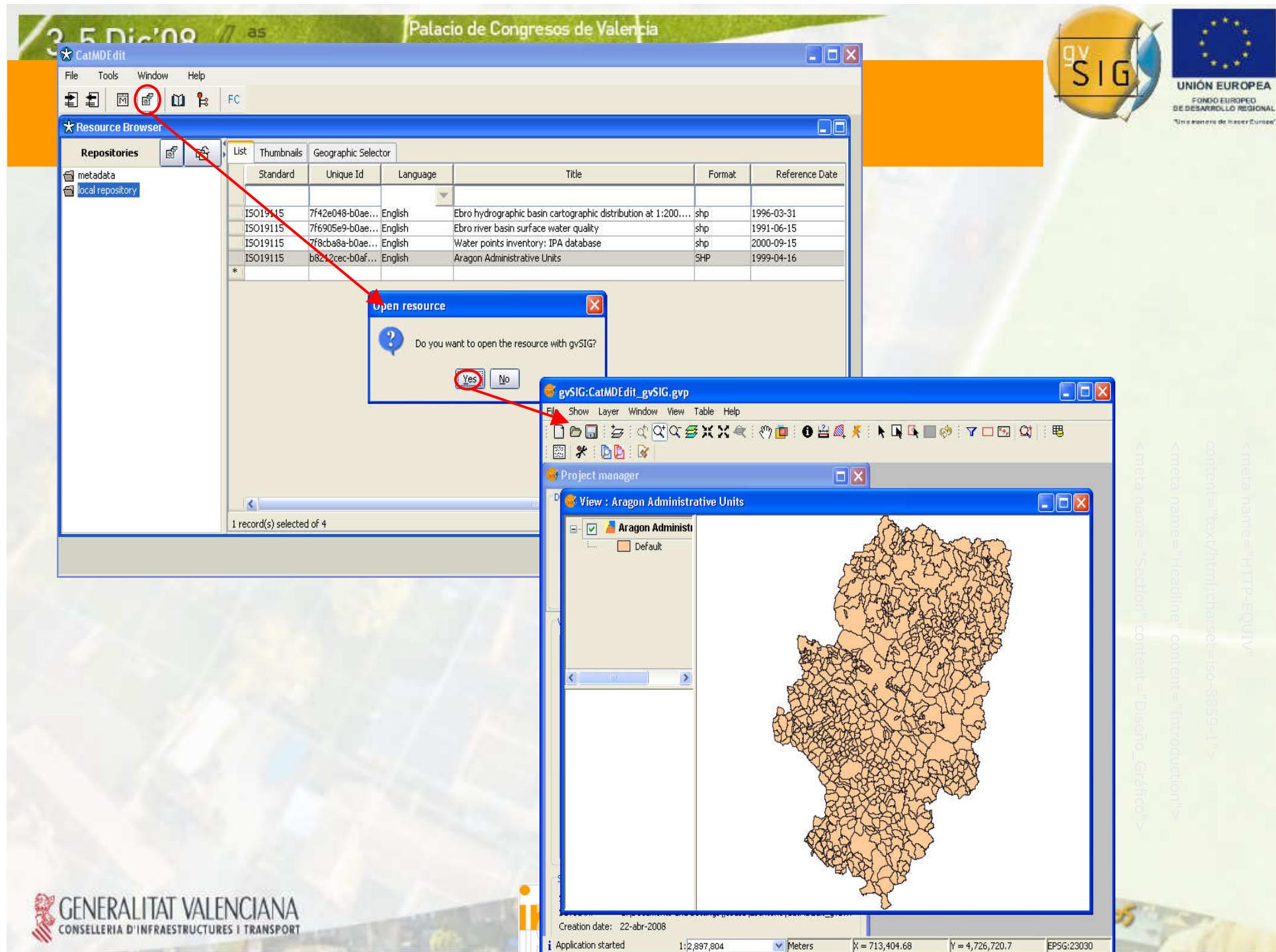
- **1. Generate a gvSIG project from the contents of the metadata describing a resource**
 - ❖ **gvSIG is managed through projects (settings of digital maps users wants to produce)**
 - ❖ **We can derive main settings from metadata**
 - **storage device, format, spatial rep. type, SRS, viewing parameters (geographic extent)**



- ☐ **2. Launch gvSIG as an external application
(lightweight integration at a first stage)**
 - ☐ **3. gvSIG will read the features of this project
to open the resource with correct viewing
parameters**



Avanzando juntos





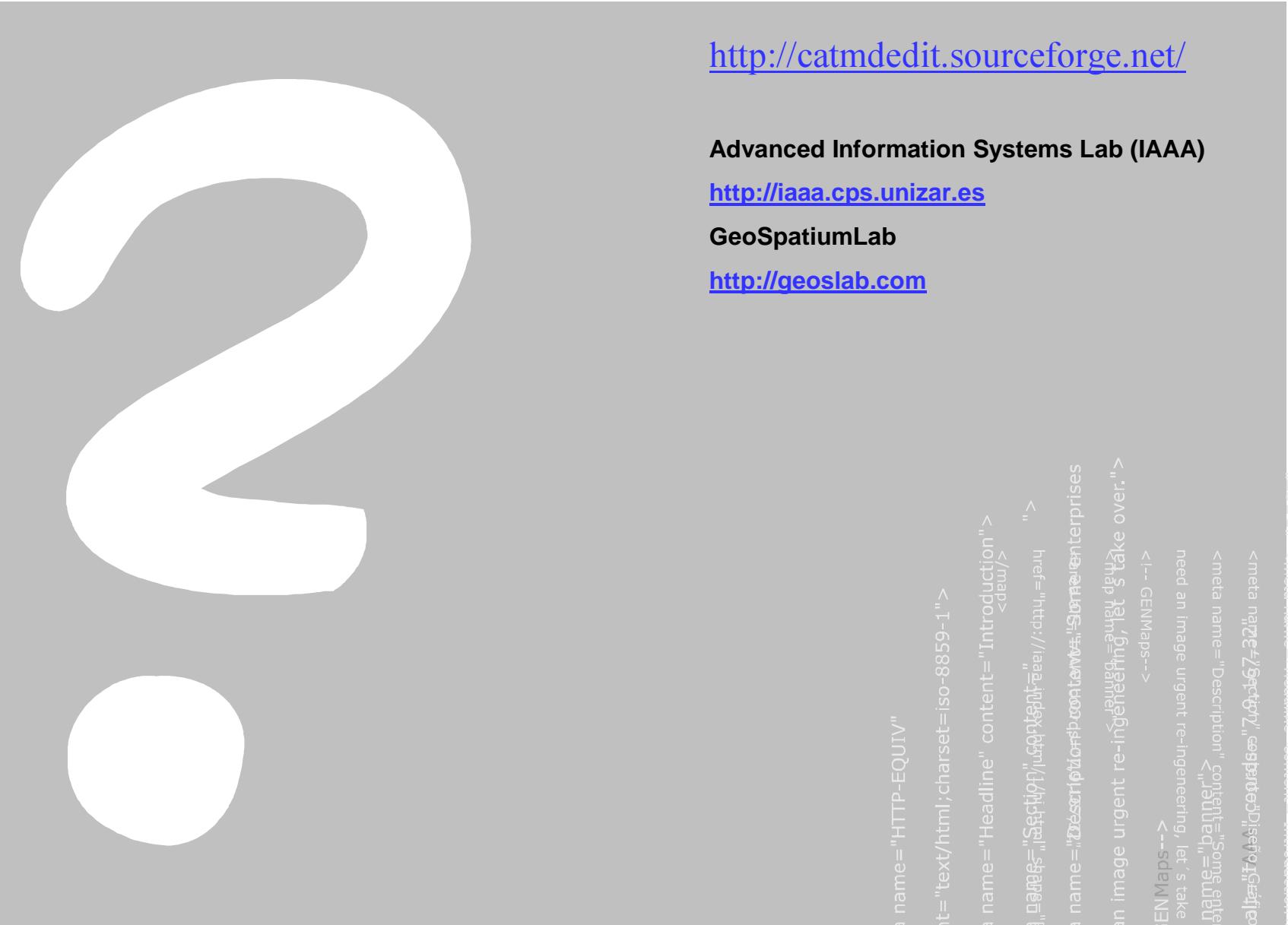
4. Demonstration

- Create a new repository containing some datasets**
- Autogenerate metadata while defining repository**
- Thumbnail selection of resources**
- Different ways of defining geographic extent**
- Graphical selection of resources on a map**
- Online connection with GIS tools (gvSIG)**
- Generation of GeoRSS (and display with Open Layers)**
- CatMDEdit video.avi**



5. Conclusions

- **The objective of CatMDEdit is to have a synergy between data and metadata creation**
 - ❖ The integration with gvSIG is a step forward
 - ❖ Feature to be included in new version of CatMDEdit (beginning 2009)
- **Further work**
 - ❖ Accomplish a tight integration between tools by means of plug-ins
 - ❖ Establish a bidirectional communication
 - Currently, gvSIG is launched from CatMDEdit
 - In the future, modifications performed in gvSIG will be notified to CatMDEdit and vice versa



<http://catmdedit.sourceforge.net/>

Advanced Information Systems Lab (IAAA)

<http://iaaa.cps.unizar.es>

GeoSpatiumLab

```
<meta name="HTTP-EQUIV"  
content="text/html; charset=iso-8859-1">  
map <a href="http://www.mindmatrix.com/mindmatrixsample.html">MINDMATRIX</a>
```