

# **gvSIG: Open Source for handling Geospatial Information**



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- ➊ **Generalitat Valenciana (GV) is the government of the Valencian Community (Castellón, Valencia, Alicante)**
- ➋ **Conselleria de Infraestructuras y Transporte (CIT) or Regional Government of Infrastructures and Transport, is the maximum authority in the Generalitat Valenciana for Public Works, Transport, Architecture, Ports and Coasts, and Energy.**

# The administrations need computer applications to develop their functions



**Office automation**



**Databases**



**Signing registration**



**Management of files, etc.**

**There are two options to obtain computer applications:**



**Proprietary Software**



**Open Source Software**



## Proprietary Software (I)

- ➊ High cost of license and maintenance.
- ➋ Tendency to skimp on installations.
- ➌ Promotion of illegal software.

License +

Annual  
maintenance +

Version updates =



## Proprietary Software (II)



**Technological dependence of the provider.**



**The provider choose the new functionalities and when they will be available.**

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uporabnikov gvSIG-a**  
**Project Origin**



## Proprietary Software (III)



**Bad use/quality relationship.**



**You pay for the product.**



**Bad use of the INVESTMENT.**

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## Project Origin

### Open Source Software (I)



There isn't a cost for the license.



Installation in an unlimited number of computers.



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**Project Origin**



## Open Source Software (II)



### Technological independence



### Freedom to give solutions to our problems



### Capacity to develop new functionalities

## Open Source Software (III)



**Implemented functionalities = required  
functionalities**



**You pay for service**



**Total use of the INVESTMENT**



## **Open Source Software: The “freesoms”**

### **Four freedoms of the Open Source Software:**

- ➊ To run the program, for any purpose.
- ➋ To study how the program has been built, and adapt it to your needs (access to the source code is a precondition for this).
- ➌ To redistribute copies so you can help your neighbor.
- ➍ To improve the program, and release your improvements (and modified versions in general) to the public.

**Objective:** Maximize the rights of the client (who has the product).

## Project Origin

### Open Source Software: The licenses



**Software license** = Legal instrument that governs the usage or redistribution of copyright protected software.



It differentiates the Open Source Software from the other kinds of software.

**GNU/GPL License:** It guarantees that the improvements and redistributions will be always “free”.

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**Project Origin**



## Why Open Source Software

### Why Open Source Software?

- ⌚ Technological independence.
- ⌚ Optimization of the investment.
- ⌚ Quality industrial structure.

## Project Origin

### gvPontis: migration of IT to free software solutions

#### Conselleria de Infraestructuras y Transporte

Optimization  
of the I. S.

Technological  
independence

Sustainable  
development

 Migration to information systems under LINUX (end of 2002)



#### Areas of action:

- Office Suites
- Operating systems and communications databases
- Corporate systems within Conselleria
- **GIS y CAD**

Development of GIS client: **gvSIG**

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## Project Origin



### GIS-CAD area. Procedure.

Needs analysis of GIS-CAD users, by questionnaire and interviews

- Visualization
- Query
- Edicion
- Spatial analysis
- Topology
- Map preparation
- Printing

Analysis of the GIS-CAD software on the market

- ArcView
- ArcGIS
- Jump
- Grass
- AutoCAD
- MicroStation
- IntelliCAD

Initial requirements analysis.

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## Project Origin



### GIS-CAD area. Procedure.



**Anyone has the established quality criteria**



**The own development is chosen**



**If there isn't a solution: let's "invent" it.**



## GIS-CAD area. Procedure.

### Public Tender: Exp. 2003/01/0090

**“Desarrollo de aplicaciones SIG (Sistema de Información Geográfica) para la C.O.P.U.T. utilizando software libre.”**  
*(Development of GIS application using free software)*



Tender required working prototypes in C++ and Java.



Evaluation prototype: Java was selected.

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**Project Origin**



**GIS-CAD area. Procedure.**

**Implementation of the edition functionalities of a CAD system.**



**Public Tender: Exp. 2004/01/228**

**“Servicios informáticos de incorporación de  
funcionalidades de geoprocесamientos, topología y  
CAD en el producto gvSIG”**  
*(Adding geoprocessing, topology and CAD in gvSIG)*

## About gvSIG

### Main characteristics

- ➊ **Development language: Java (Multiplatform).**
- ➋ **Adheres to the guidelines of the European Union - Inspire.**
- ➌ **Free license (GNU/GPL).**
- ➍ **Modular, scalable, powerful.**
- ➎ **Simple interface: user friendly.**
- ➏ **International (Spanish, Valencian, English, Basque, Gallego, French, Italian, Portuguese, German, Czech, Polish, Romanian, Russian, Greek and Mandarin. Serbian and Swahili will be available in the next version).**

## About gvSIG

### Project horizons (I)

#### 1. Initially designed to meet GIS needs of the Conselleria.



It meets the majority of needs of the CIT users (including affiliated entities)



175 installations. 200 planned



The training program has been started with courses (over 90 people)

## About gvSIG

### Project horizons (II)

#### 1. Initially designed to meet GIS needs of the Conselleria.



The 2<sup>nd</sup> Public Tender was awarded to meet the full of the actual needs of the CIT users



**Ports and Coasts Division:**

Coastal S.D.I. of the Comunitat Valenciana.



**Road Division – Road Safety Service:**

**Corporate GIS of roads**

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## About gvSIG

### Project horizons (III)

## 2. Offer the Project to the rest of the Consellerias of the Generalitat.



## About gvSIG

### Project horizons (IV)

#### 3. Offer the Project to the national and international community of GIS users.

#### *Established collaborations*

● Laboratorio Nacional de Geomática – Universidad de Rennes (Francia)  
● Universidad de Lausanne (Suiza)  
● Joint Research Center (Milan-Italia)  
● ONU  
● Hidroven (Aguas de Venezuela)  
● Ministerio de Fomento  
● Instituto Geográfico Nacional

● Ayto. Valencia  
● C. Medio Ambiente (Castilla - La Mancha)  
● Instituto Desarrollo Regional CLM  
● C. Cultura (Junta de Extremadura)  
● Conf. Hidrográfica del Guadalquivir  
● Ciudades Digitales  
● LatinGeo (UPM)

## About gvSIG

### Global aim

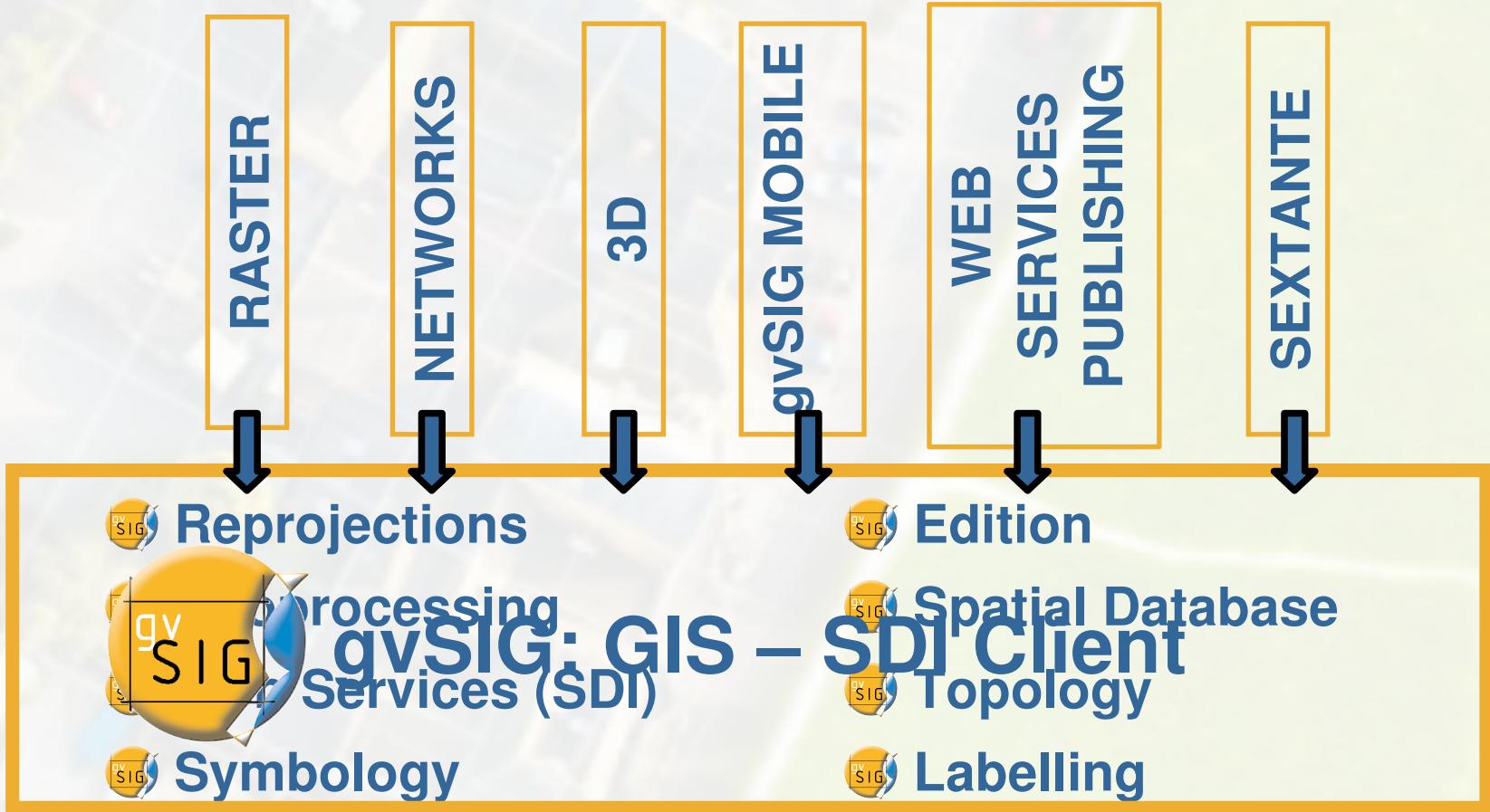
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 **Give solutions to all needs related to the geographic information management based on the integration of free technologies.**

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## Structure and main characteristics

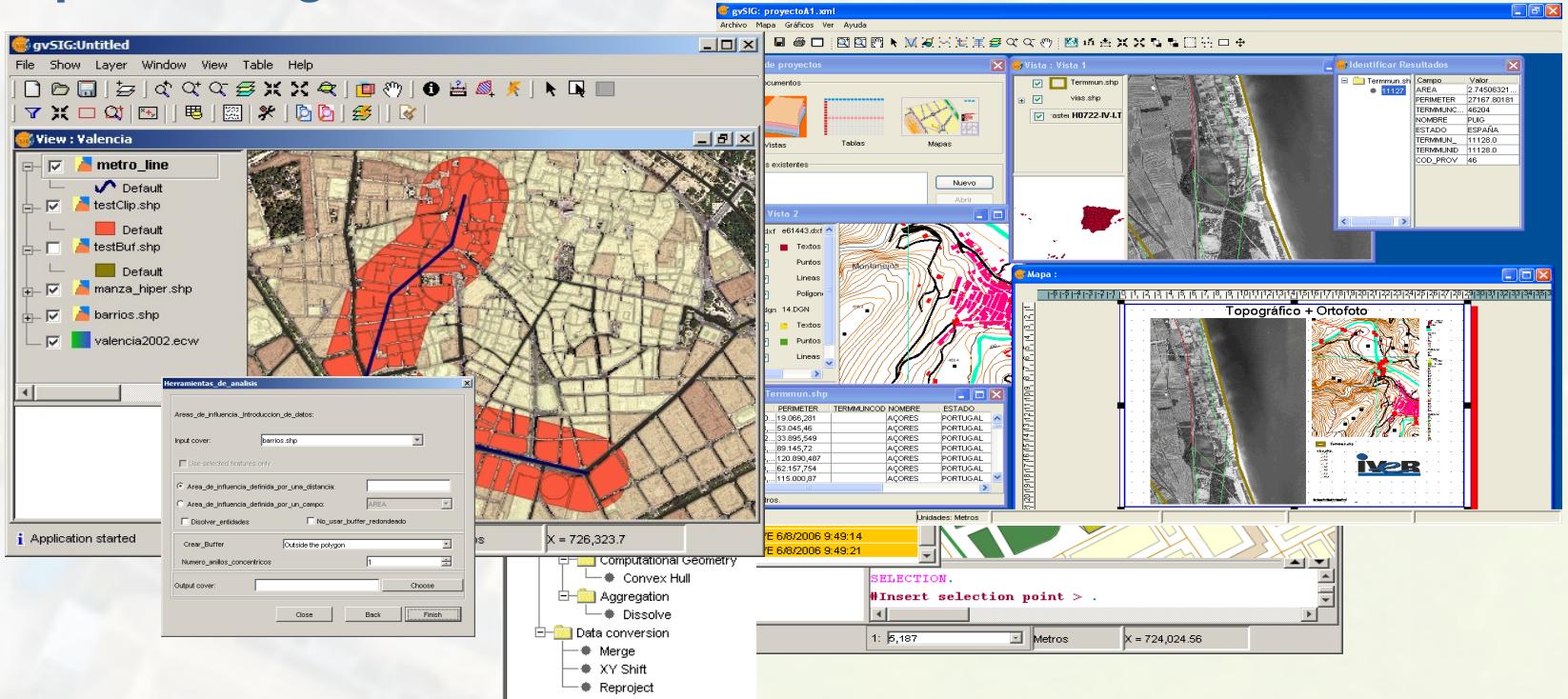


# Giornate Triestine utenti di gvSIG - Tržaški dnevi uporabnikov gvSIG-a

## Structure and main characteristics

**gvSIG, Integrated management: GIS client**

**Tool to manage geographic information, mapping edition, geoprocessing...**



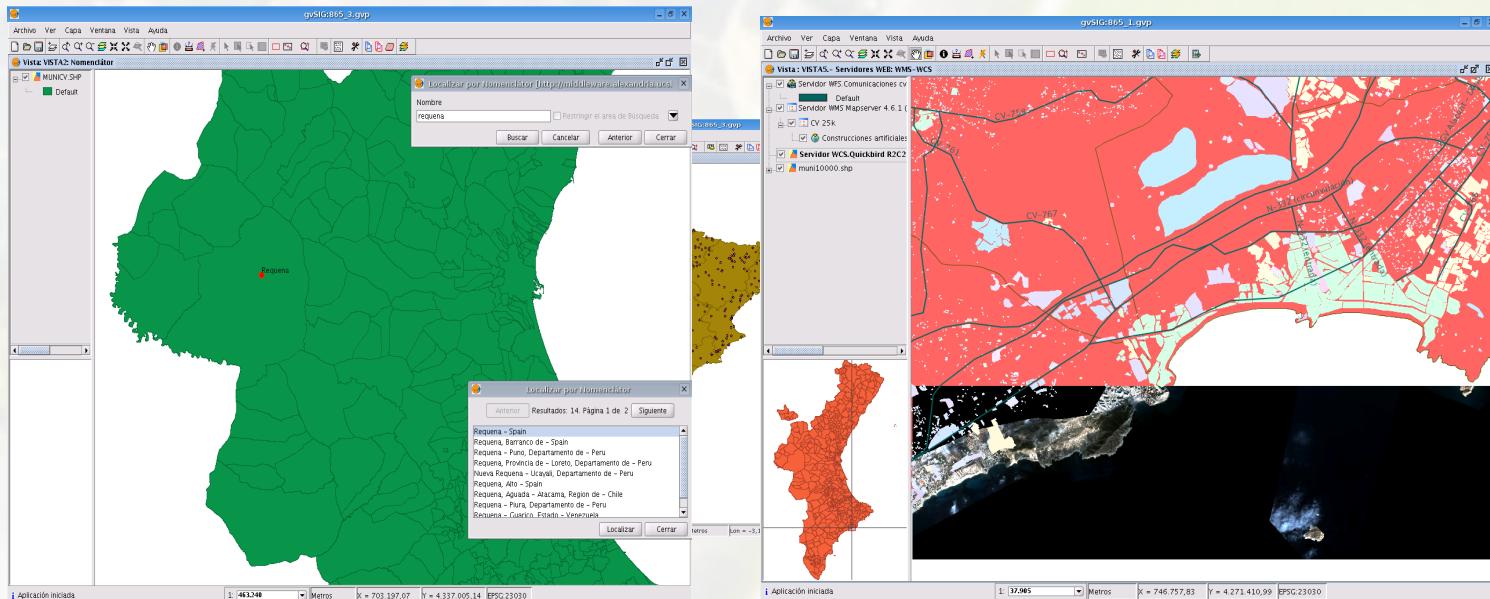
# Giornate Triestine utenti di gvSIG - Tržaški dnevi uporabnikov gvSIG-a



## Structure and main characteristics

**gvSIG, Integrated managment: SDI Client**

**Display and query services (WMS, WCS and WFS servers), searching services (Catalogue client) and location services (Gazetteer client).**

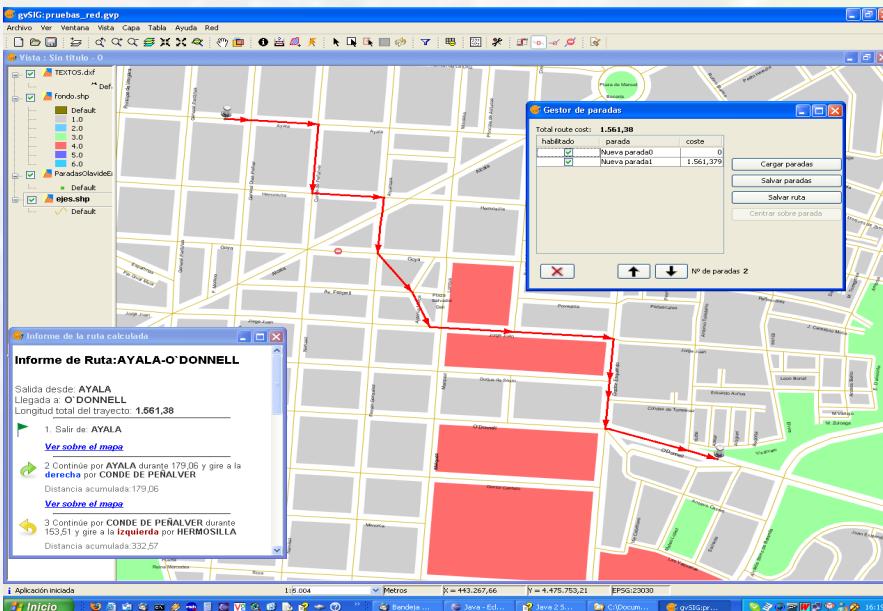


# Giornate Triestine utenti di gvSIG - Tržaški dnevi uporabnikov gvSIG-a

## Structure and main characteristics

**gvSIG, Integrated management: Network analysis and new features**

**Optimal path calculation, topology, more geoprocessing, advanced symbology...**



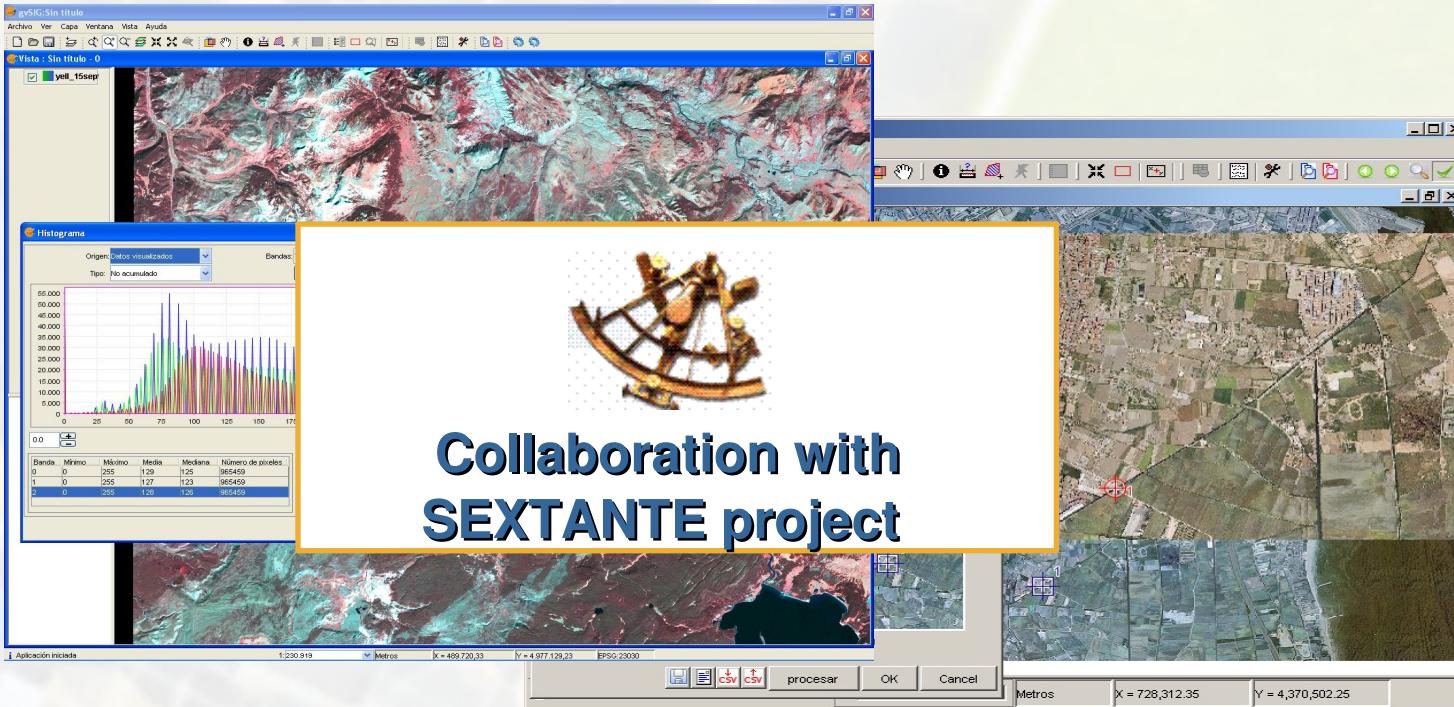
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## Structure and main characteristics

**gvSIG, Integrated management: Raster analysis**

**Georeferencing, Histogram view...**



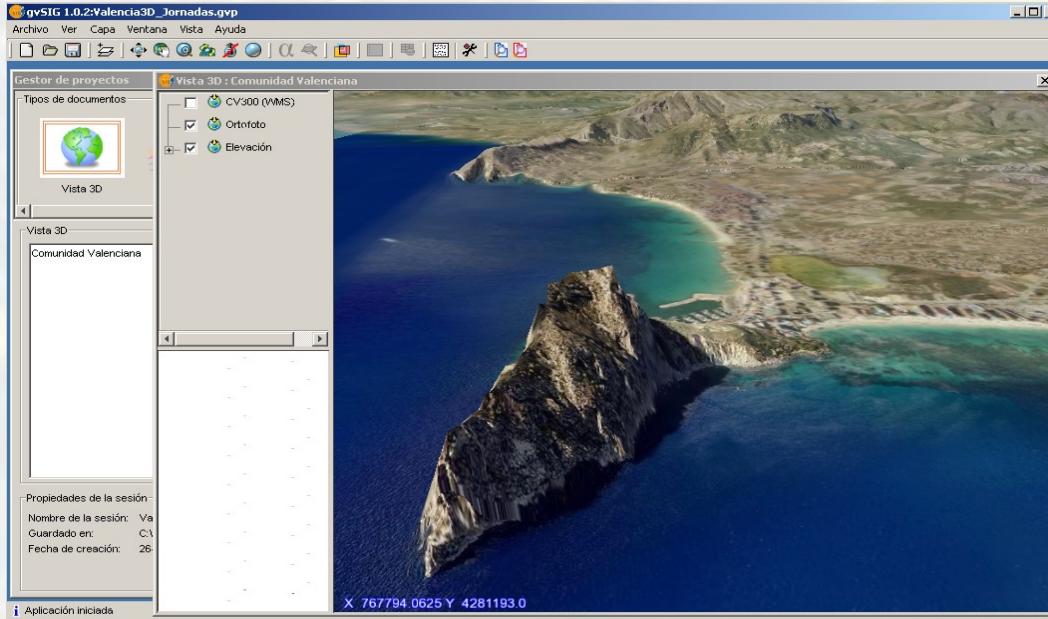
**Collaboration with  
SEXTANTE project**

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## Structure and main characteristics

**gvSIG, Integrated managment: 3D**

**gvSIG 3D: Access to 3D characteristics**



## Structure and main characteristics

**gvSIG, Integrated management: Mobile devices**

**Integration of gvSIG into mobile devices: telephony, PDA...**



## Structure and main characteristics

### **gvSIG, Integrated management: Future projects**



**Geostatistics**



**gvSIG 4D (temporal GIS)**



**Connection with sensors**



**Road map: [http://www.gvsig.gva.es/index.php?  
id=1814&L=2](http://www.gvsig.gva.es/index.php?id=1814&L=2)**

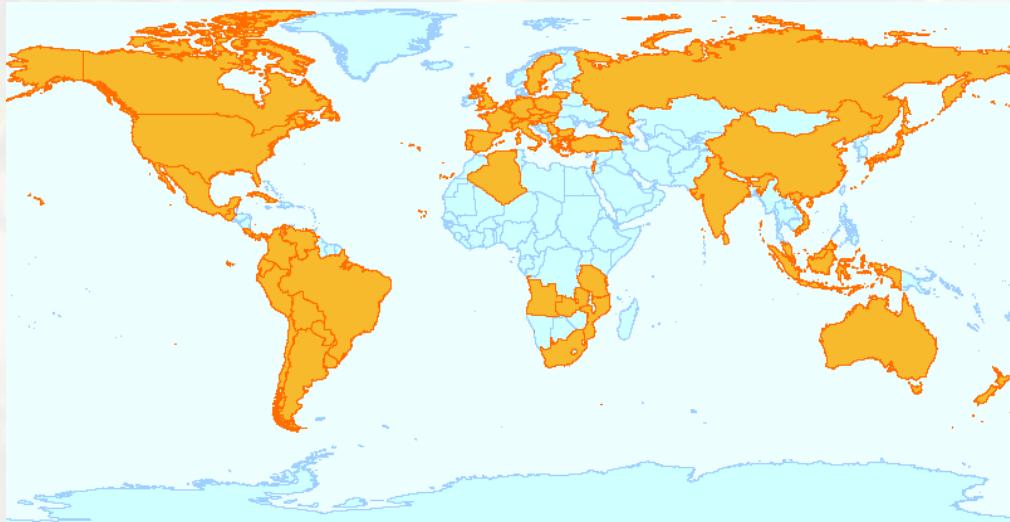
**“gvSIG is a path that we can build together”**

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## Dimension of the project

### Details of the project



gvSIG **Installations in the Generalitat:**  
**(over 400)**

gvSIG **Mailing lists:**

- **Users list: 1218**
- **Developers list: 604**
- **International list: 507**
- **Italian list: 154**

gvSIG **Known countries with registered users: 42**

gvSIG **Known countries where gvSIG has been downloaded: 59**

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gvSIG project**



**gvSIG Conference**

# **4th gvSIG Conference**

**3<sup>rd</sup> - 5<sup>th</sup> decembre 2008**

**More than 650 attendance**

**5th gvSIG Conference:  
End of 2009**



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## Web Page of the project

**<http://www.gvsig.gva.es>**



The screenshot shows the gvSIG project website. At the top, there's a banner for the Conselleria de Infraestructuras y Transporte. Below it, the main navigation bar includes links for Contacto, Mapa web, and language options (Valencian, English). A large gvSIG logo is prominently displayed. On the left, a sidebar lists various project sections like Saludo del conseller, ¿Qué es gvSIG?, and gvPONTIS. The central content area features a "Destacado" section with news about the stable version 1.0, and a "Noticias" section with a recent update from Monday, December 4, 2006. To the right, there's a sidebar for "SERVICIOS" containing links to articles, collaborations, and download resources, along with information about the project being co-financed by the European Union.

-  **Downloads of gvSIG Desktop and gvSIG Mobile**
-  **Courses and tutorials**
-  **Reports**
-  **Lists of distribution**
-  **Road map**

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gvSIG project**



Towards an open organization

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**Put the project in the hands of  
the community**

**What tools and actions are we taking for  
ensuring project quality?**

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Towards an open organization

<http://gvsig.org>



Screenshot of the gvSIG website showing the "Transferring a layer from gvSIG to Oracle" page. The page includes a navigation menu, a breadcrumb trail, and a calendar for September 2008. The main content area contains text about transferring layers to Oracle and performing calculations between geometries.

 User & technical documentation available

 Plugin repository for the community

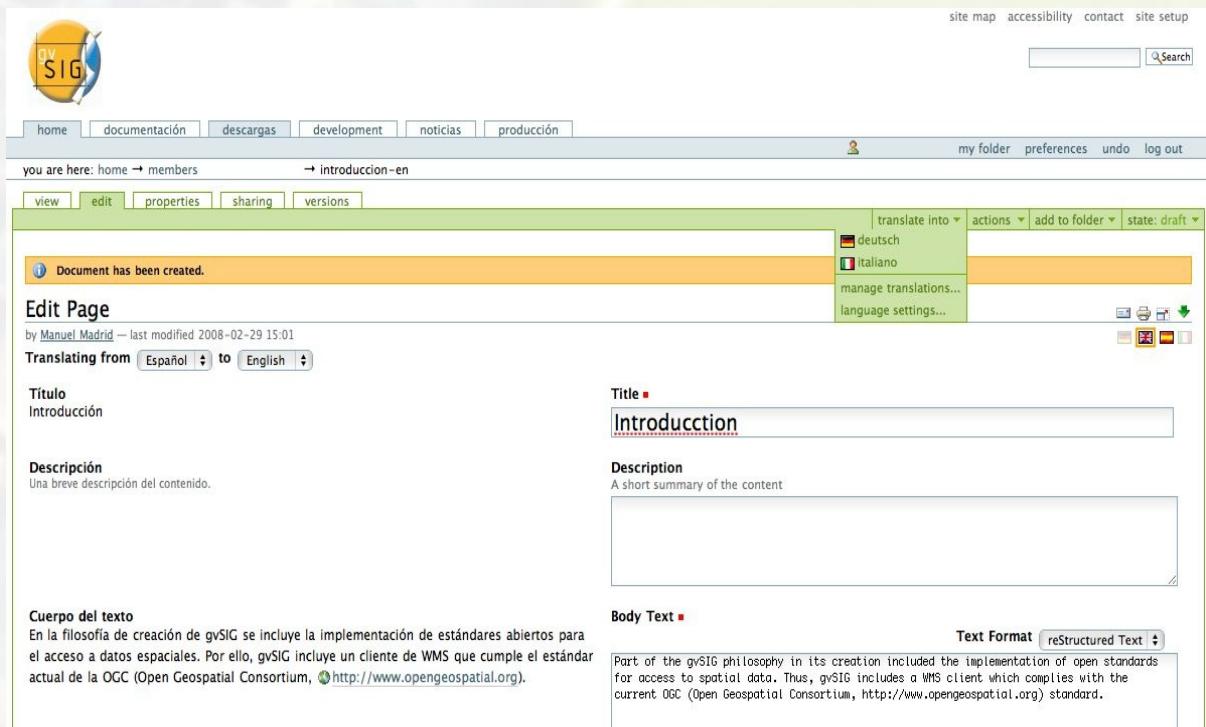
 All the builds of the versions in development available

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## Towards an open organization

<http://gvsig.org>

 **On-line L10N tool:  
an open gate for  
new communities of  
users**



The screenshot shows the gvSIG website's editing interface. At the top, there is a navigation bar with links for home, documentación, descargas, development, noticias, and producción. Below the navigation bar, the URL is shown as you are here: home → members → introducción-en. The main content area is titled "Edit Page" and shows a message "Document has been created." It includes a "Translating from" dropdown set to "Español" and a "to" dropdown set to "English". The page content is divided into sections: "Título" (Title) containing "Introducción", "Descripción" (Description) containing "Una breve descripción del contenido.", and "Cuerpo del texto" (Body Text) containing "En la filosofía de creación de gvSIG se incluye la implementación de estándares abiertos para el acceso a datos espaciales. Por ello, gvSIG incluye un cliente de WMS que cumple el estándar actual de la OGC (Open Geospatial Consortium, <http://www.opengeospatial.org>).". On the right side, there is a sidebar with "translate into" options for "deutsch" and "italiano", and buttons for "actions", "add to folder", and "state: draft". A "Text Format" dropdown is also visible.

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## Towards an open organization

<http://gvsig.org>

## Mailing lists for the community

Nabble - gvSIG Italian forum & mailing list archive - Mozilla Firefox

Archivo Editar Ver Historial Marcadores Herramientas Ayuda

Nabble 1 | Software » GIS » OSGeo.org » OSGeo Software and Data Projects » gvSIG » gvSIG Italian

New! Nabble2 Login : Register

Parent Categories/Forums: [gvSIG](#)

**gvSIG Italian**

Edit this Forum

Search: This forum  Go »

This forum is an archive for the mailing list: [gvsig\\_italian@lists.gvsig.org](mailto:gvsig_italian@lists.gvsig.org) ([mailing list options](#)). Messages posted here will be sent to this mailing list.

 This mailing list is aimed to Italian language users of the gvSIG project.  
Questa è la lista di distribuzione per gli utenti di lingua italiana

Child Forums (0): None

[Post New Message](#) :: [Alert me of new posts](#) :: Rating Filter: 2 ▾

« [Newest](#) < [Newer](#) — Threads 6-40 — [Older](#) »

| Thread (113 Threads)   | Rating | Replies | Last Message                                      |
|--|--------|---------|---|
| <a href="#">db_gvsig</a> by RbrrrbSk8 B  | ★★★    | 4       | <a href="#">Sep 16</a> by Antonio Falciano        |
| <a href="#">Etichette</a> by Luigino Ghedin  | ★★★    | 2       | <a href="#">Sep 15</a> by Luigino Ghedin          |
| <a href="#">importazione/esportazione archivi di dati</a> by RbrrrbSk8 B                   | ★★★    | 5       | <a href="#">Sep 12</a> by Alberto Perli           |
| <a href="#">[RE] difficoltà georeferenziazione</a> by ernesto sferlazza                    | ★★★    | 0       | <a href="#">Sep 12</a> by ernesto sferlazza       |
| <a href="#">4giornate gvsig valencia</a> by Sgambati Alessandro                            | ★★★    | 2       | <a href="#">Sep 11</a> by Juan Lucas Dominguez... |
| <a href="#">Collaborazione nella internazionalizzazione di gvSIG</a> by comunicacion_gvsig | ★★★    | 0       | <a href="#">Sep 10</a> by comunicacion_gvsig      |

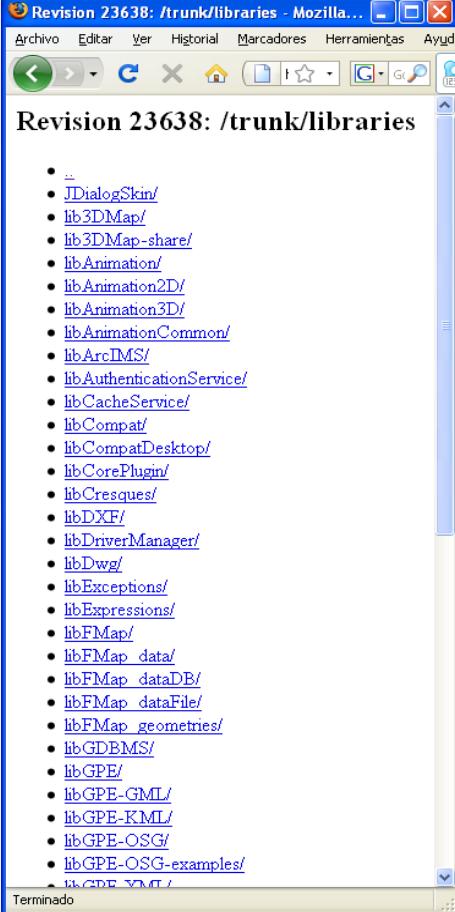
Terminado

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## Towards an open organization

 **Open subversion repository**  
<http://subversion.gvsig.org/gvSIG/>



Revision 23638: /trunk/libraries - Mozilla... Archivo Editar Ver Historial Marcadores Herramientas Ayudar

Revision 23638: /trunk/libraries

- ..
- [libDialogSkin/](#)
- [lib3DMap/](#)
- [lib3DMap-share/](#)
- [libAnimation/](#)
- [libAnimation2D/](#)
- [libAnimation3D/](#)
- [libAnimationCommon/](#)
- [libArcIMS/](#)
- [libAuthenticationService/](#)
- [libCacheService/](#)
- [libCompat/](#)
- [libCompatDesktop/](#)
- [libCorePlugin/](#)
- [libCresques/](#)
- [libDXF/](#)
- [libDriverManager/](#)
- [libDwg/](#)
- [libExceptions/](#)
- [libExpressions/](#)
- [libFMap/](#)
- [libFMap\\_data/](#)
- [libFMap\\_dataDB/](#)
- [libFMap\\_dataFile/](#)
- [libFMap\\_geometries/](#)
- [libGDBMS/](#)
- [libGPE/](#)
- [libGPE-GML/](#)
- [libGPE-KML/](#)
- [libGPE-OSG/](#)
- [libGPE-OSG-examples/](#)
- [libGPE-VMT/](#)

Terminado

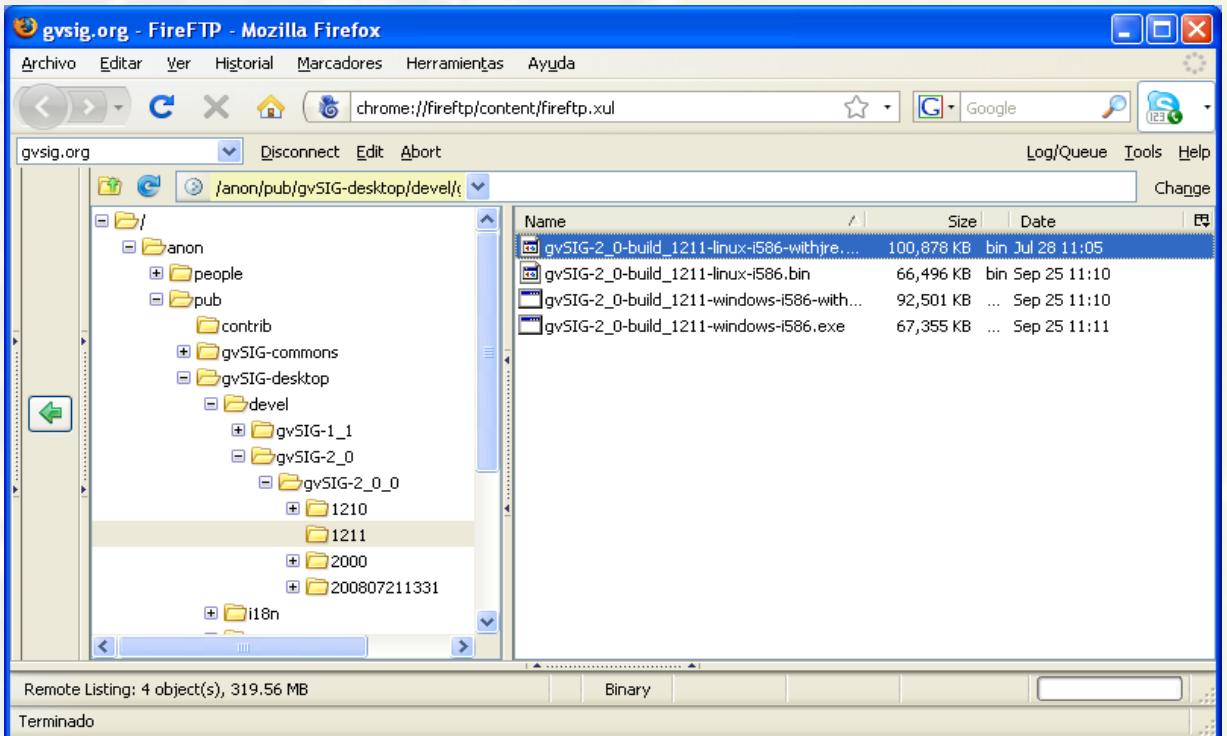
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## Towards an open organization

 **Open FTP  
repository for  
builds, and other  
stuff**

<ftp://gvsig.org>



## Spatial Data Infrastructures

### Actual situation

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#### ***Old model (corporate GIS)***

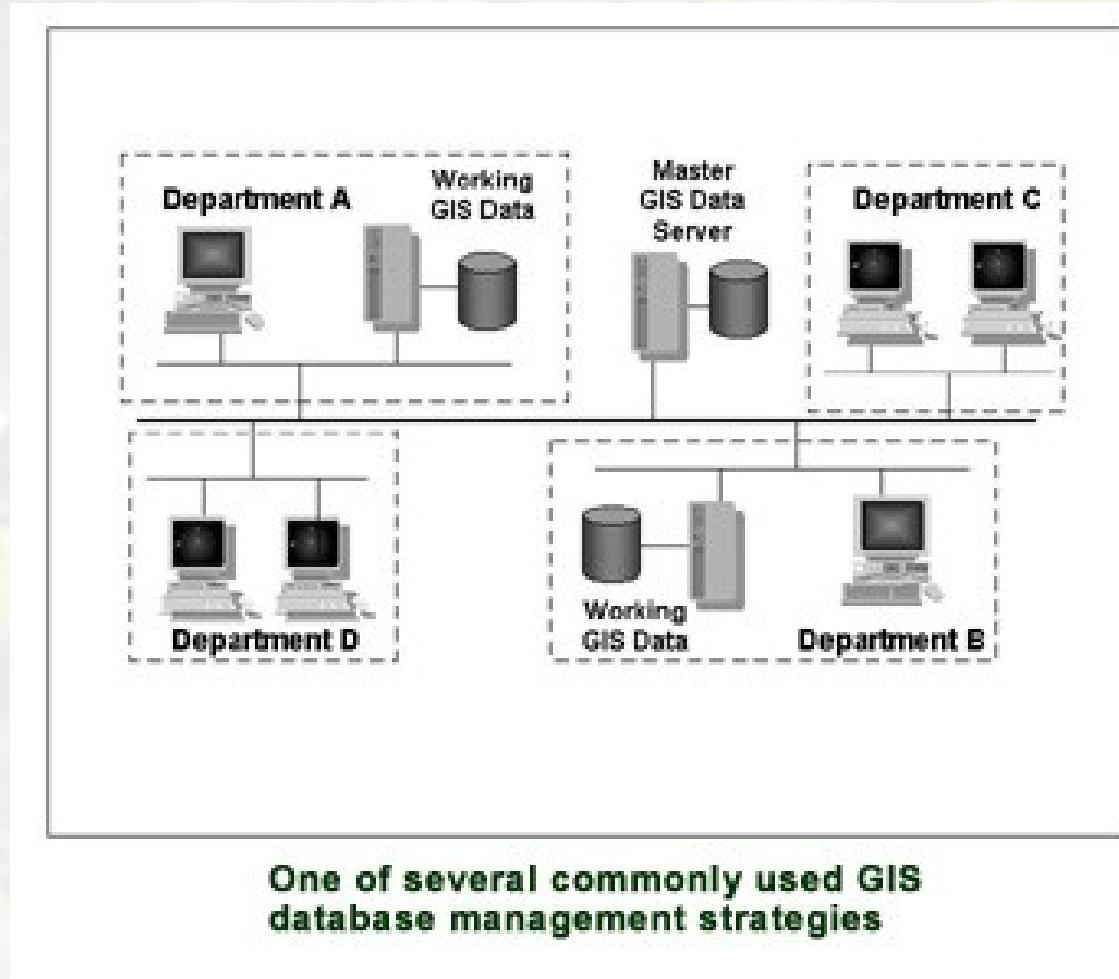
- ➊ A lot of map servers.
- ➋ Every server is optimized for “its users” using its software...

at the expense of possible users with another software, another brand of GIS, another formats of data.

- ➌ Creation of multiuser GIS information islands.

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## Spatial Data Infrastructures



## Spatial Data Infrastructures

### New model

#### ***Spatial Data Infrastructures* (distributed GIS):**

- ➊ **Objective:** Making easy the access to the G. I.
- ➋ **The system is the network (internet/intranet).**
- ➌ **Communication through standards (web services).**
- ➍ **Extended client-server model.**
- ➎ **Decentralized network of servers.**

#### **Evolution:**

**Desktop GIS client -> Desktop GIS – SDI client**

## Spatial Data Infrastructures

### SDI projects



#### **GSDI: Global Spatial Data Infrastructure.**

Promote the international collaboration to create SDI



#### **Antecedents: Clinton Order (EEUU, 1994)**

Building of a National Spatial Data Infrastructures (NSDI)



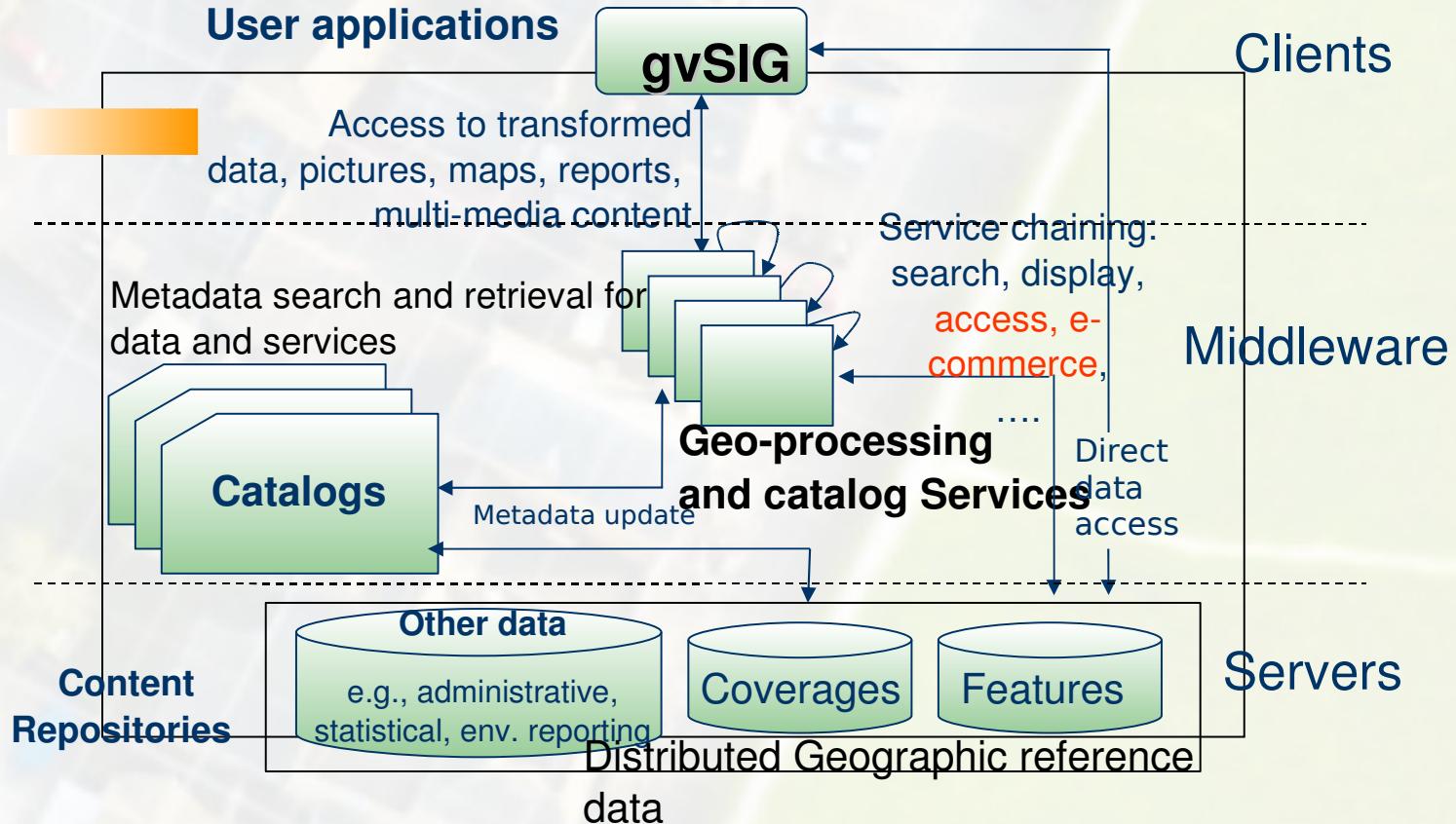
#### **European Union: INSPIRE (2004)**

INfrastructure for SPatial InfoRmation in Europe. Laws to guide the creation of SDI for every country.

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## SDI Arquitecture (with gvSIG as a client)



# Giornate Triestine utenti di gvSIG - Tržaški dnevi uporabnikov gvSIG-a **SDI components**



- **Data:** reference system, transport network, pollution, vegetation, traffic, etc.
- **Metadata:** datas that describe another datas.
- **Services:** offer a group of functionalities that are useful and interesting for a community of users.

## Services

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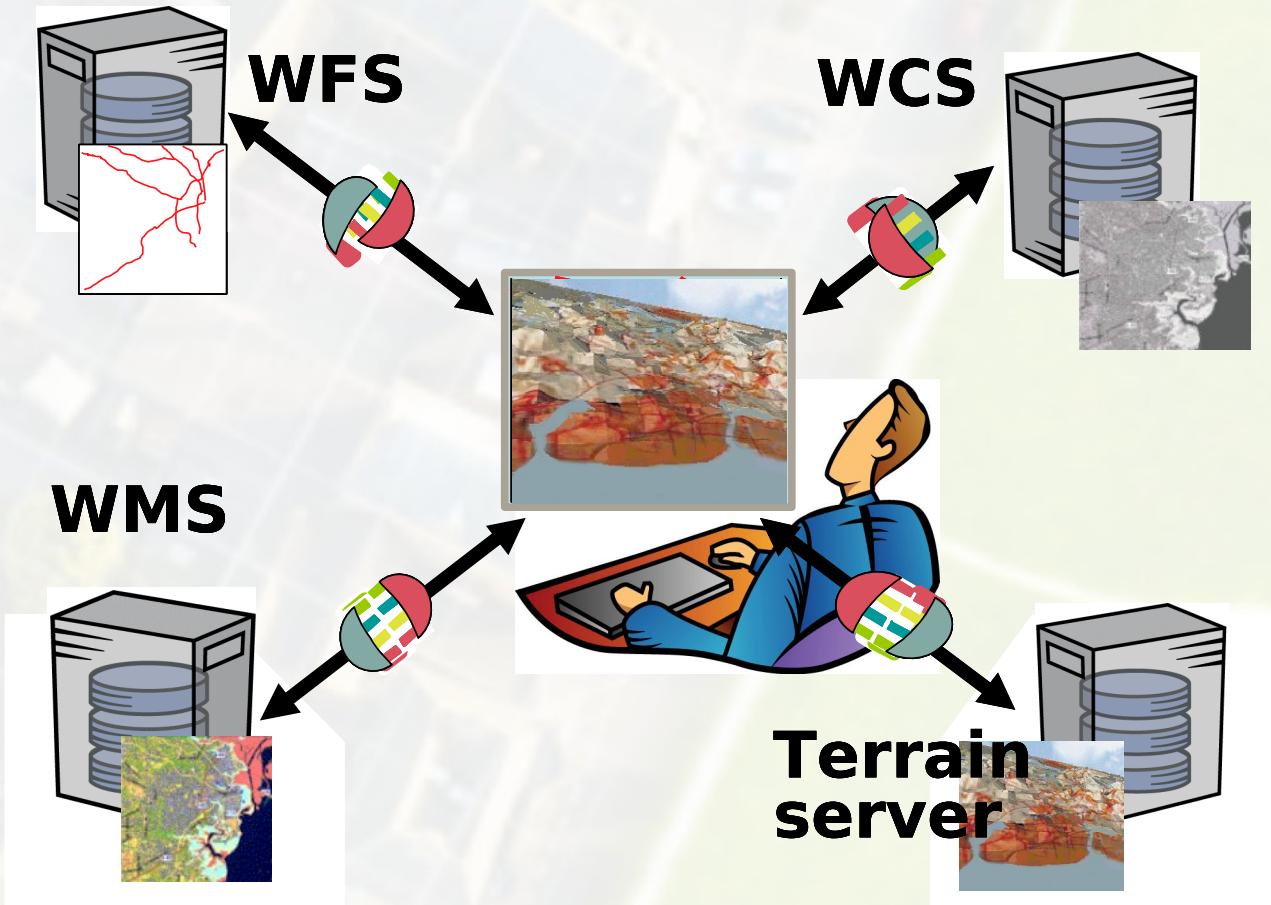
- ➊ The user isn't interested on the download of the data, but obtaining the needed answers directly, that are offered by a service.
- ➋ The SDI services offer functionalities accessible on-line through a simple navigator or browser:
  - ➌ **Web Map Service (WMS)**
  - ➌ **Web Feature Service (WFS)**
  - ➌ **Web Coverage Service (WCS)**
  - ➌ **Nomenclator Service (Gazetteer)**
  - ➌ **Catalog Service (CSW)**

# **Open Geospatial Consortium Protocols (OGC):**

- **Visualization and query of G.I.:  
Web Map Service (WMS)**
- **Advanced access to raster data:  
Web Coverage Service (WCS)**
- **Advanced access to vectorial data:  
Web Feature Service (WFS)  
Bases de Datos Geoespaciales (JDBC)**
- **Access to metadata catalogs:  
Web Catalog Service (WCatS)**
- **Localization by place name:  
Nomenclator Service**

# Giornate Triestine utenti di gvSIG - Tržaški dnevi uporabnikov gvSIG-a

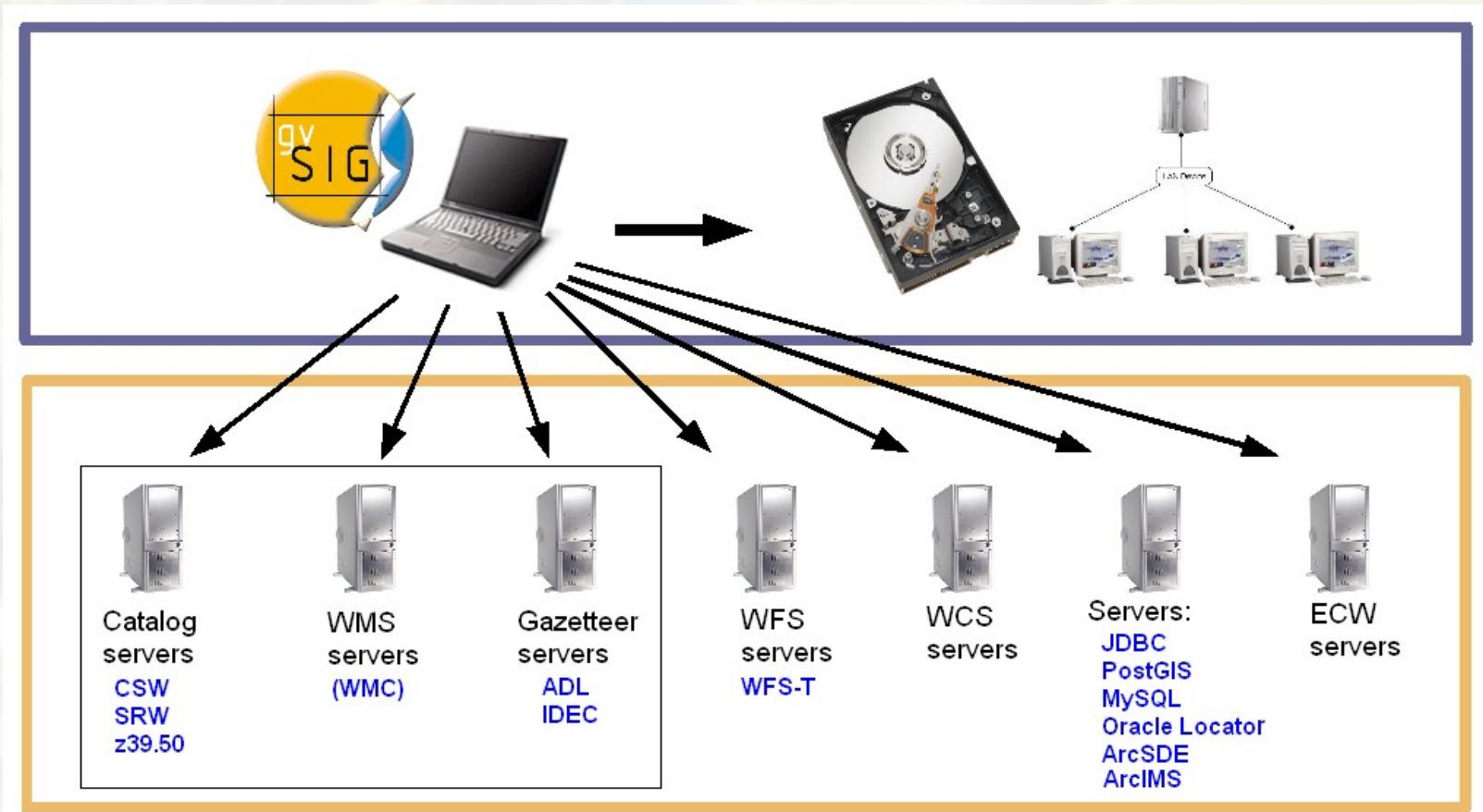
## SDI services



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## SDI services

### Outline

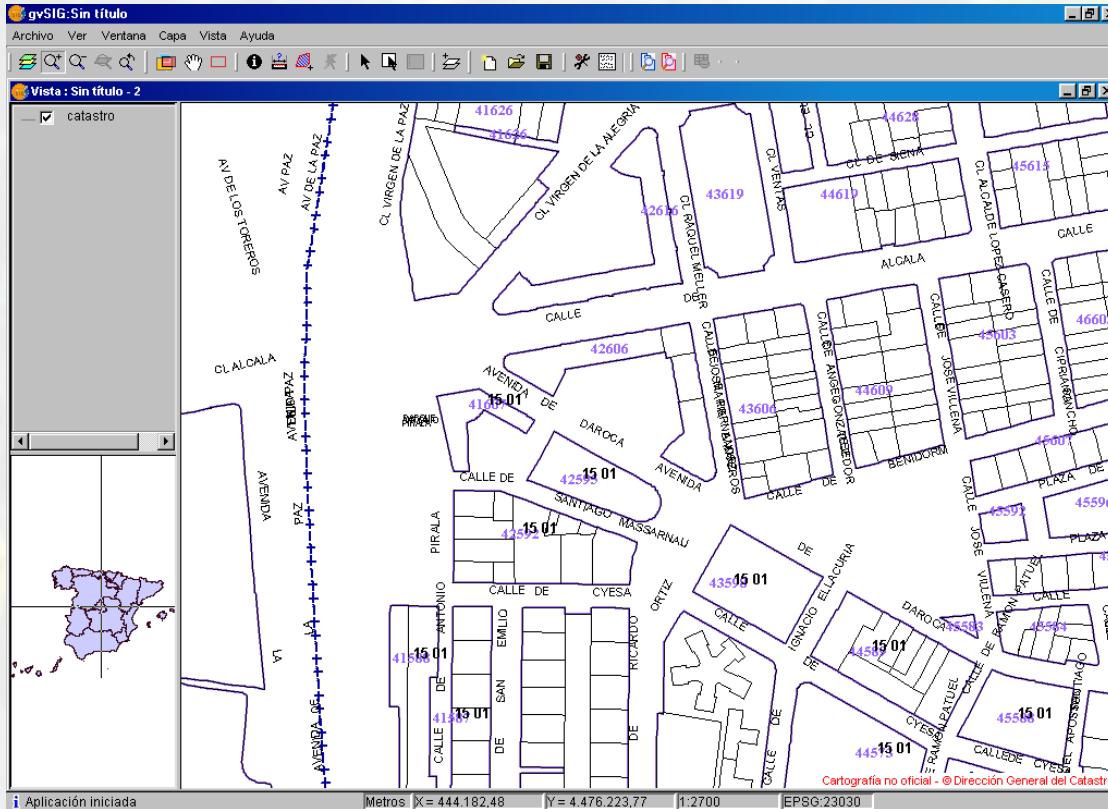


## Visualization and query of G.I.

# Web Map Service (WMS)

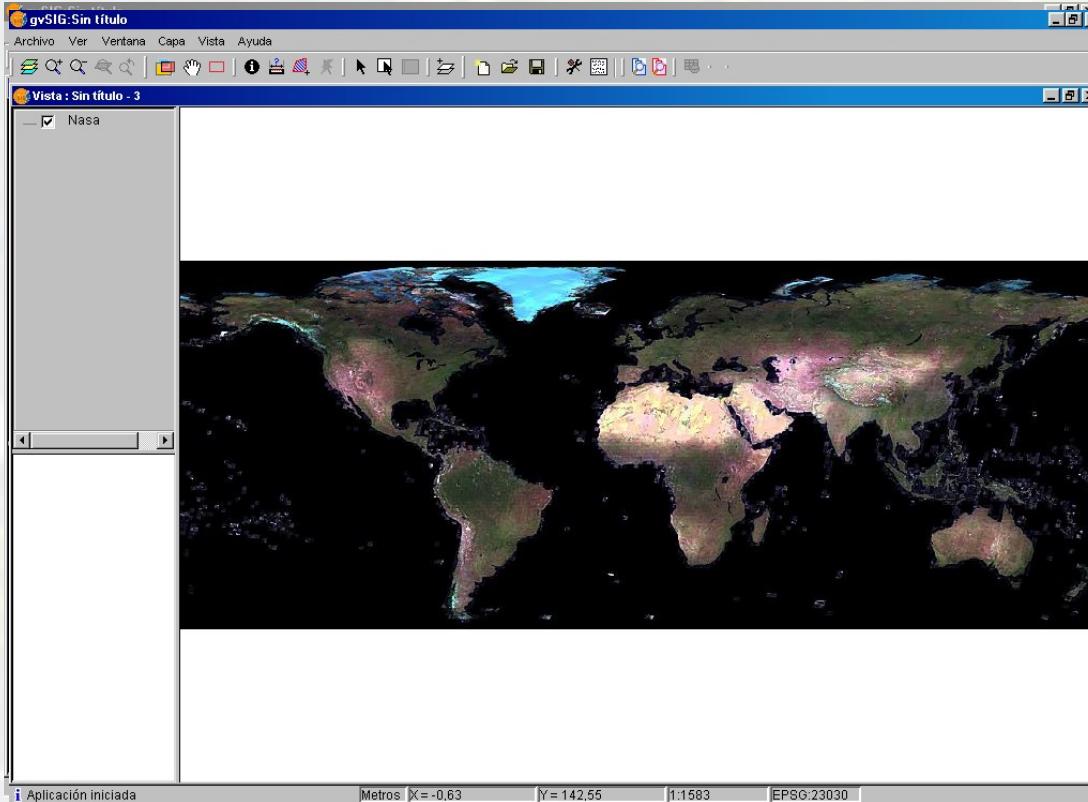
- ➊ Simple and fast visualization of vectorial and raster data.
- ➋ Allows to handle several layers from one or more servers.
- ➌ Allows transparency (by the administrator of the server).
- ➍ Allows simple information.
- ➎ Allows legend set up (using SLD => Styled Layer Descriptor) (by the administrator of the server).

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## WMS (Web Map Service)

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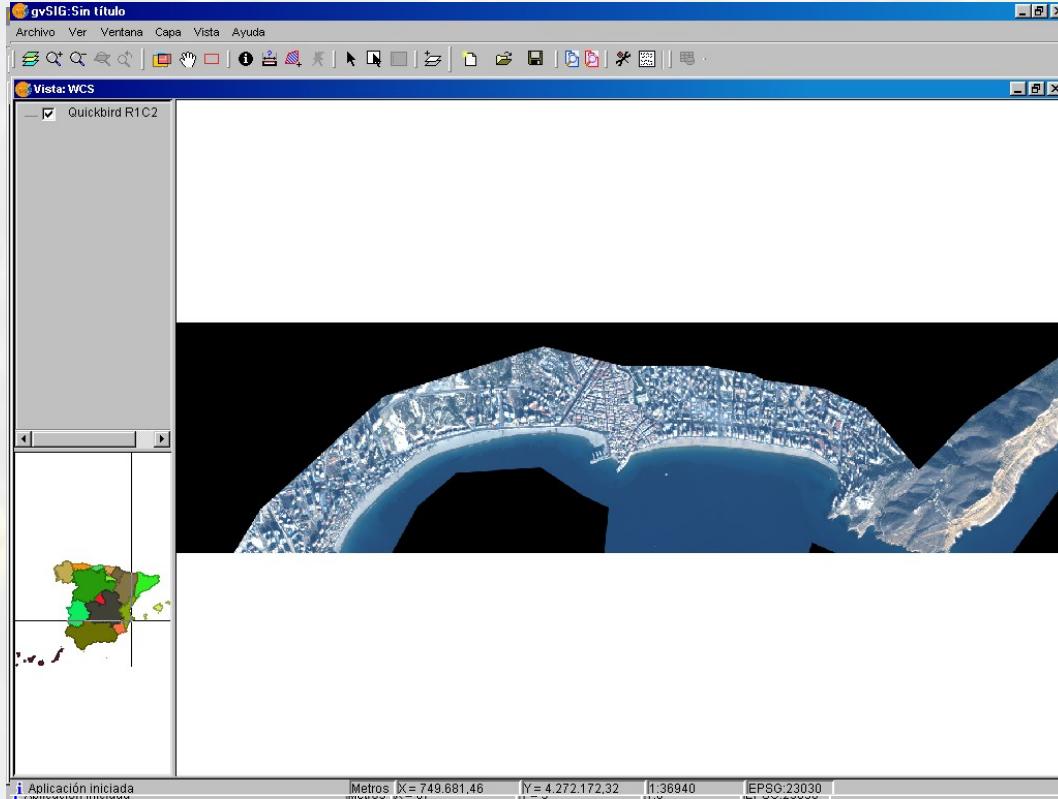
## WMS (Web Map Service)

## Advanced access to raster data

# Web Coverage Service (WCS)

- ➊ Full access to attributes of each pixel.
- ➋ Work with data as it were local.
- ➌ Spatial Analysis.
- ➍ Etc.

# Giornate Triestine utenti di gvSIG - Tržaški dnevi uporabnikov gvSIG-a **SDI services**



## WCS (Web Coverage Service)

## Advanced access to vectorial data

# Web Feature Service (WFS) Geoespatial Database (JDBC)



**Full access to attributes.**



**Use of same legend as for local layers.**



**Work with data as it were local.**



**Advanced queries.**

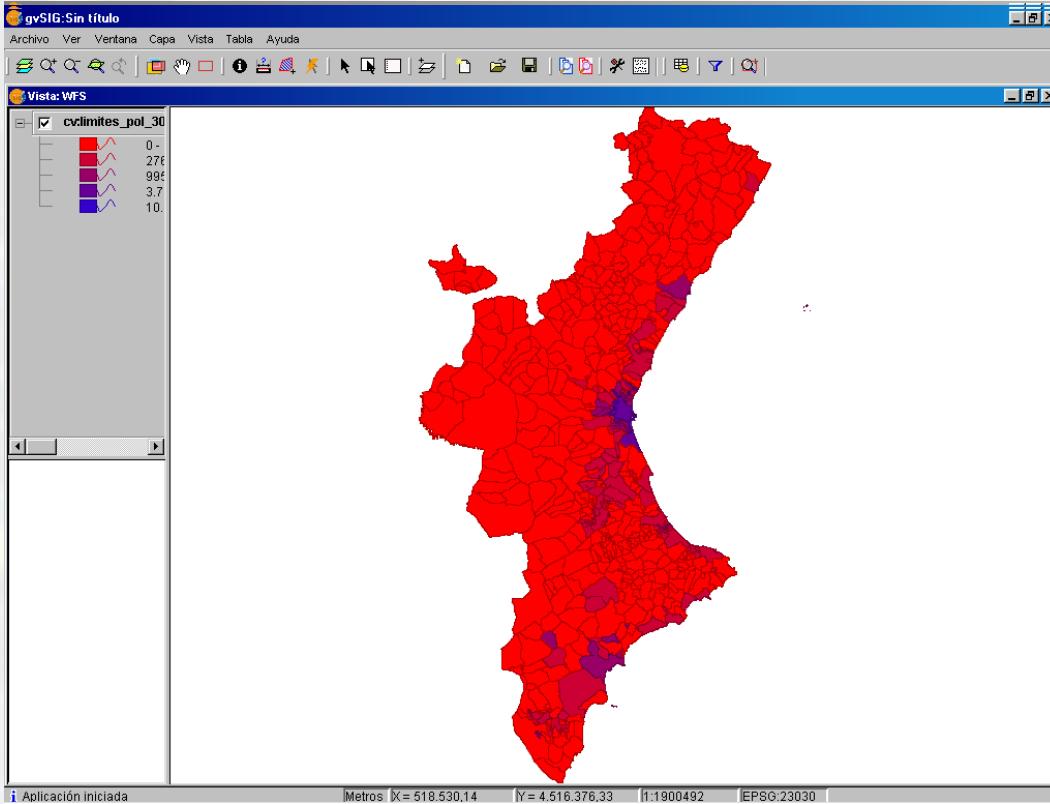


**Spatial Analysis.**



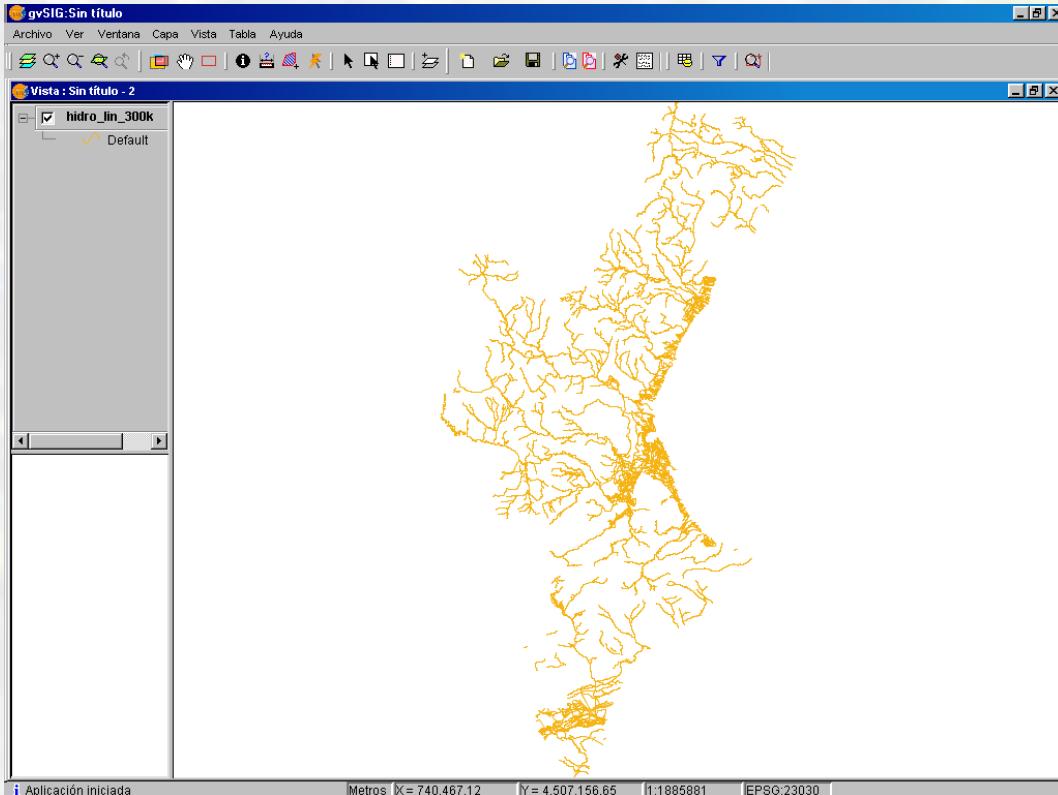
**Etc.**

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## WFS (Web Feature Service)

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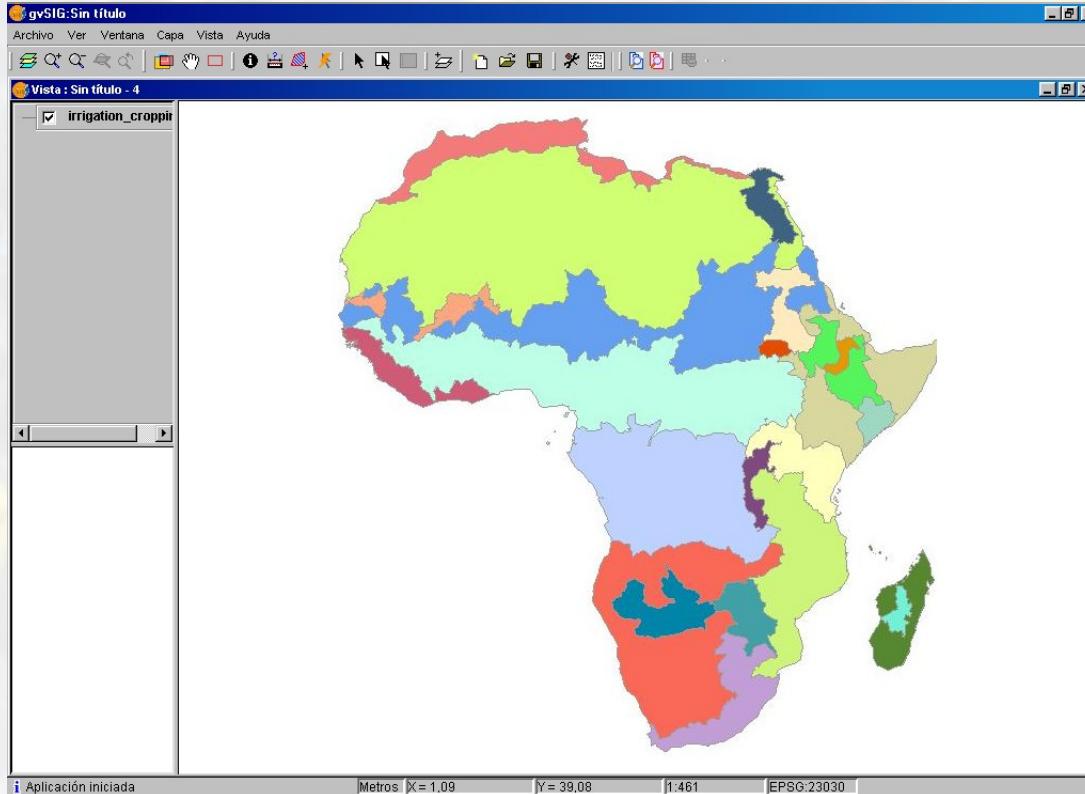
## Geospatial Database (JDBC)

## Access to metadata catalogs

# Web Catalog Service (WCatS)

- ➊ Fundamental part of SDI.
- ➋ Allows discovering G.I.
- ➌ Query by Theme, scale, location, etc.
- ➍ You get layers list found by catalog.

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## Web Catalog Service

## Localization by place name:

# Nomenclator Service



**Georeferenced place names list.**



**Place names index in an atlas:**

- **Place name**
- **Page**
- **Grid**

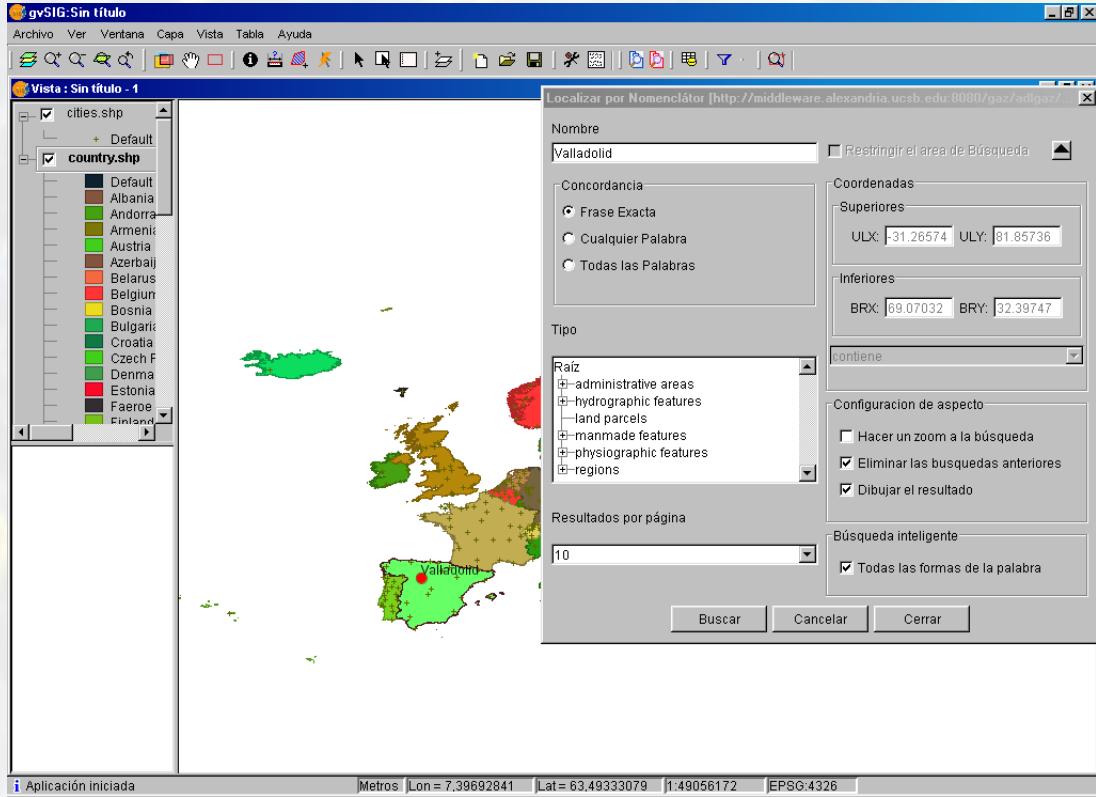


**Nomenclator:**

- **Place name**
- **Geographic coordinates**

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## SDI services



## Localization by place name

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uporabnikov gvSIG-a**  
**Conclusions**



- ➊ Great power and versatility of the web services.
- ➋ Great added value given by a Desktop GIS client like gvSIG.
- ➌ Easy extension and improvement of the application.
- ➍ The community is growing.

# grazie per l'attenzione

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