Space Details

Key:	WRK
Name:	Workshops
Description:	Talleres y workshops de Prodevelop
Creator (Creation Date):	mmontesinos (Dec 01, 2008)
Last Modifier (Mod. Date):	mmontesinos (Dec 01, 2008)

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This page last changed on Jun 15, 2010 by jsanz.

Minimum requirements.

- Intel-compatible CPU (i486 or later)
- Minimum RAM: 256 MB, Recommended: 512 MB or more
- DVD reader with autorun (IDE/ATAPI, Firewire, USB or SCSI)
- SVGA-compatible graphics board

Starting the gvSIG LiveDVD

- Make sure the BIOS allows OS start from the Live-DVD.
- Insert the Live-DVD in the DVD reader and restart the computer.
- When the first screen appears, select *Try Xubuntu without any change to your computer* and press *Enter*.
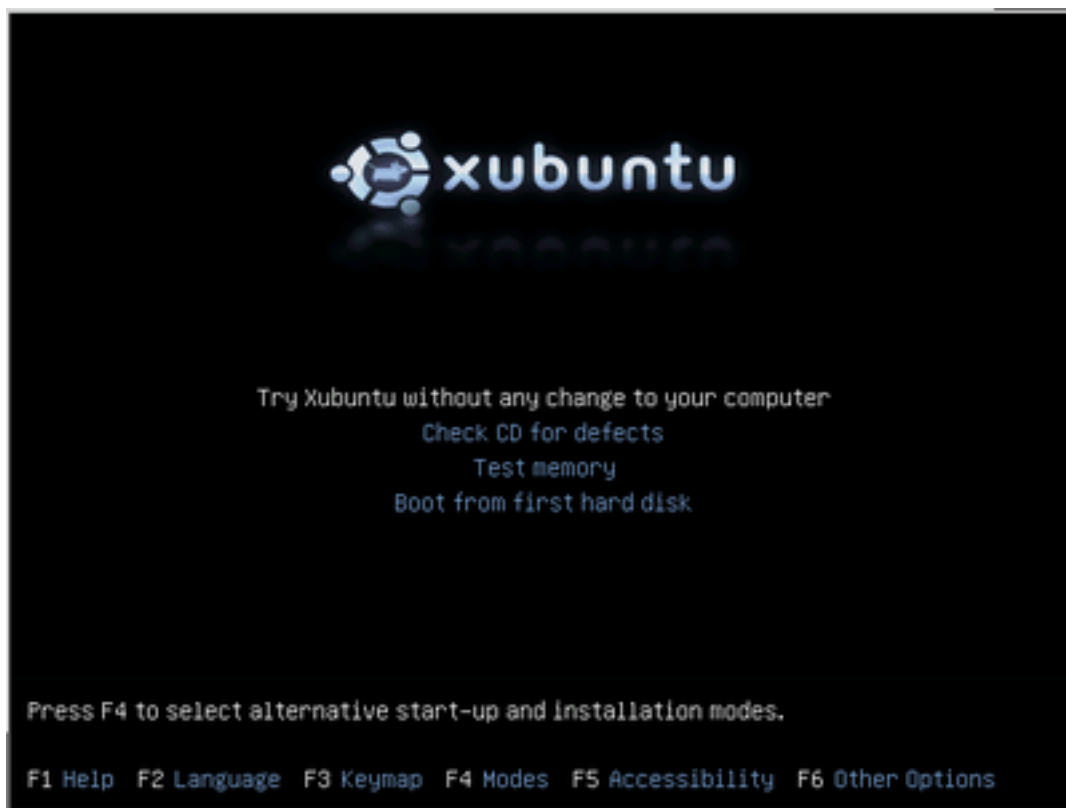

- ✅ Press F2 to change the language, and F3 to change the keyboard. Press F1 to obtain more help.
- After a few moments the gvSIG LiveDVD Desktop should appear

Setting up the University Proxy

The Nottingham laboratory has a web proxy so you need to set it up on the LiveDVD web browser (Mozilla Firefox)

- Open Firefox browser
- Go to Edit->Preferences->Advanced Section->Network tab->Connection Settings button:
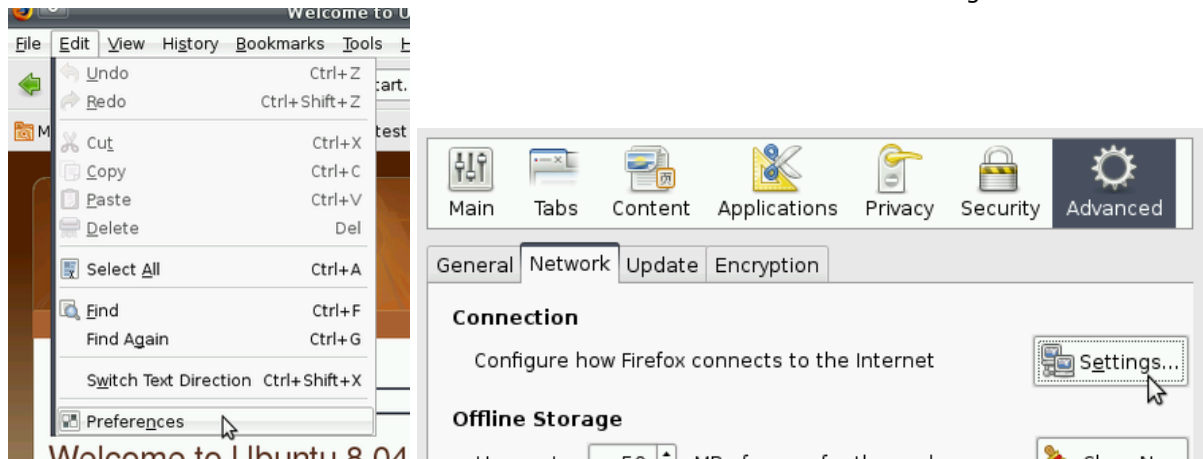
- Add the url http://mainproxy.nottingham.ac.uk and the 8080 port to the HTTP proxy section:

Configure Proxies to Access the Internet

○ No proxy

○ Auto-detect proxy settings for this network

○ Use system proxy settings

⦿ Manual proxy configuration:

HTTP Proxy: `proxy.nottingham.ac.uk`   Port: `8080`

☐ Use this proxy server for all protocols

SSL Proxy: [ ]   Port: `0`

- Now you should be able to navigate on the Internet

OSGIS10 Brief introduction to the project gvSIG

This page last changed on Jun 18, 2010 by jsanz.

gvSIG is a tool oriented to manage geographic information. It is characterized by a user-friendly interface, with a quick access to the most usual raster and vector formats. In the same view it includes local as well as remote data (for example WMS, WCS or WFS source).

It is aimed at users of geographic information, whether professionals or civil servants (city councils, councils, regional councils or ministries) from any part of the world (at the moment its interface is in more than 20 languages, in addition to being free.

Given its Free Software nature (open source) it is highly interesting for the international community of developers and, in particular, for university settings due to its R&D&I component. In fact, special emphasis has been placed on the expansion of the project so that potential developers can easily expand the functions of the application, as well as develop completely new applications from the libraries used in gvSIG (as long as they comply with the GPL license).

gvSIG Desktop is a desktop application designed for capturing, storing, handling, analyzing and deploying any kind of referenced geographic information in order to solve complex management and planning problems. gvSIG is known for having a user-friendly interface, being able to access the most common formats, both vector and raster ones. It features a wide range of tools for working with geographic-like information (query tools, layout creation, geoprocessing, networks, etc.), which turns gvSIG into the ideal tool for users working in the land realm.

gvSIG Mobile is a Geographic Information System (GIS) aimed at mobile devices, ideal for projects that capture and update data in the field. It's known for having a user-friendly interface, being able to access the most common formats and a wide range of GIS and GPS tools which are ideal for working with geographic information. gvSIG Mobile aims at broadening gvSIG Desktop execution platforms to a range of mobile devices, in order to give an answer to the needings of a growing number of mobile solutions users, who wish to use a GIS on different types of devices. So far, gvSIG Mobile is a Geographic Information System, as well as a Spatial Data Infrastructures client for mobile devices. Such a client is also the first one licensed under open source.

Slides

The gvSIG introduction slides can be viewed online here

The slides are in SVG format and must be viewed using Firefox 3.0 or newer

Interesting links

- gvSIG community portal
  - User docs
  - gvSIG mailing lists
- gvSIG association
- OSOR.eu portal
  - gvSIG Desktop
  - gvSIG Mobile
- OSGeo Foundation
  - gvSIG Incubation status
  - OSGeo Live

OSGIS10 Structure and configuration of a project in gvSIG

This page last changed on Jun 18, 2010 by jsanz.

gvSIG application works with projects, with **.gvp** extension.

Every project can contain three different documents:

- **Views:** where the cartography is loaded as different layers.
- **Tables:** attribute tables attached to every vector layer loaded in a view.
- **Maps:** layouts where views (with north arrows, legend...) can be added to be printed or exported to a pdf file.

When gvSIG is opened, the *Project manager* window appears directly, and different views, tables and maps can be created from it.
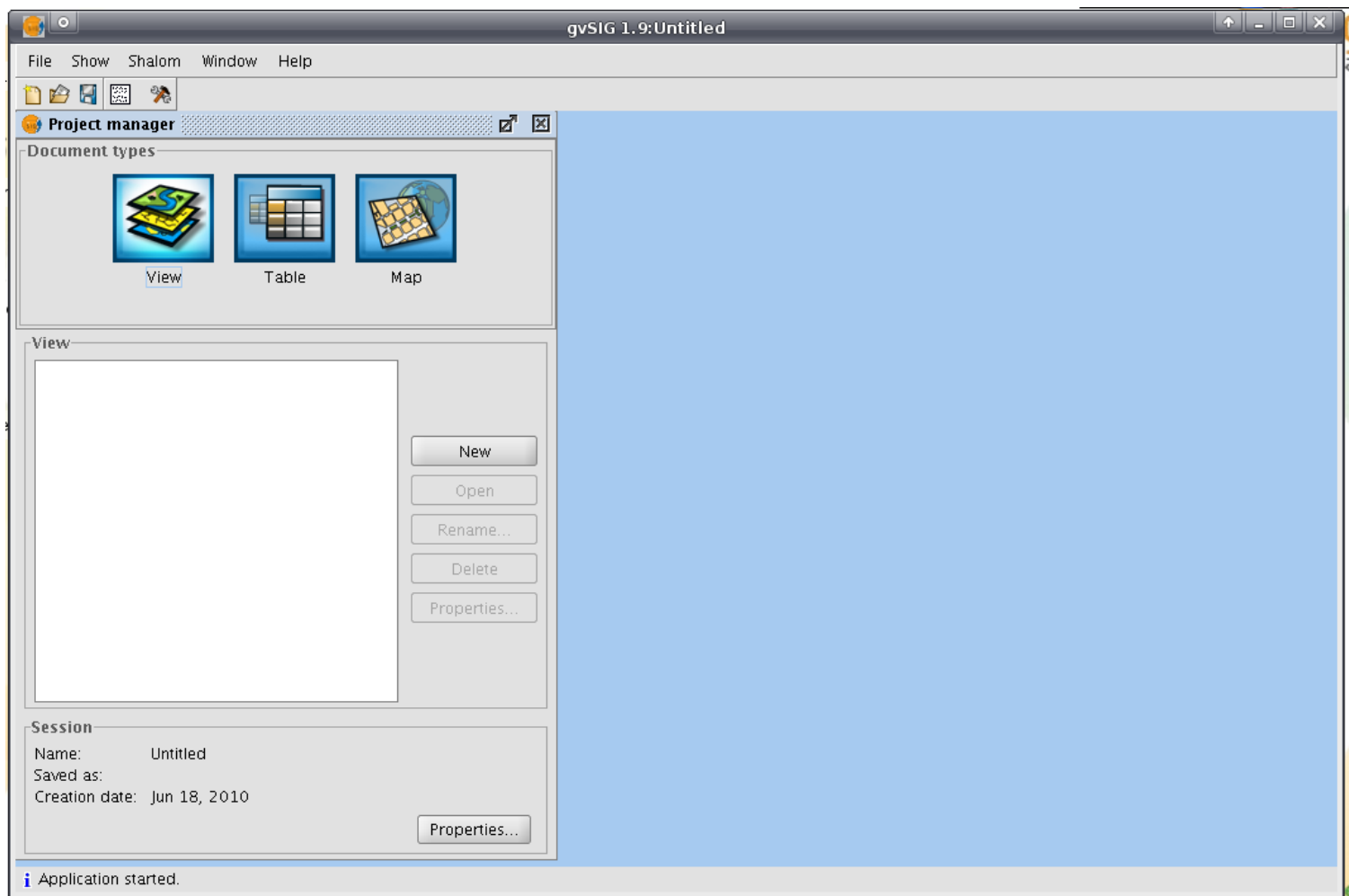

Preferences configuration

From the *Windows->Preferences* menu:

- Editing: To change the configuration when editing tools are used.
- Maps: To activate grid and ruler in a Map.
- Symbology: To change the symbology by default.
    - Change *Default fill color* to *Aleatory*
- Cartography: To change measure units
- View: To change default projection for the views, zoom factor, view back color, selection color, map units...
- View->Layer loading order: To change the order of the loaded layers.
- Network->Firewall/Proxy: To select the Proxy configuration when we have internet through a proxy.

- General->Language: To change to another language, install a new one or an update, or export to a file to translate to a new language.
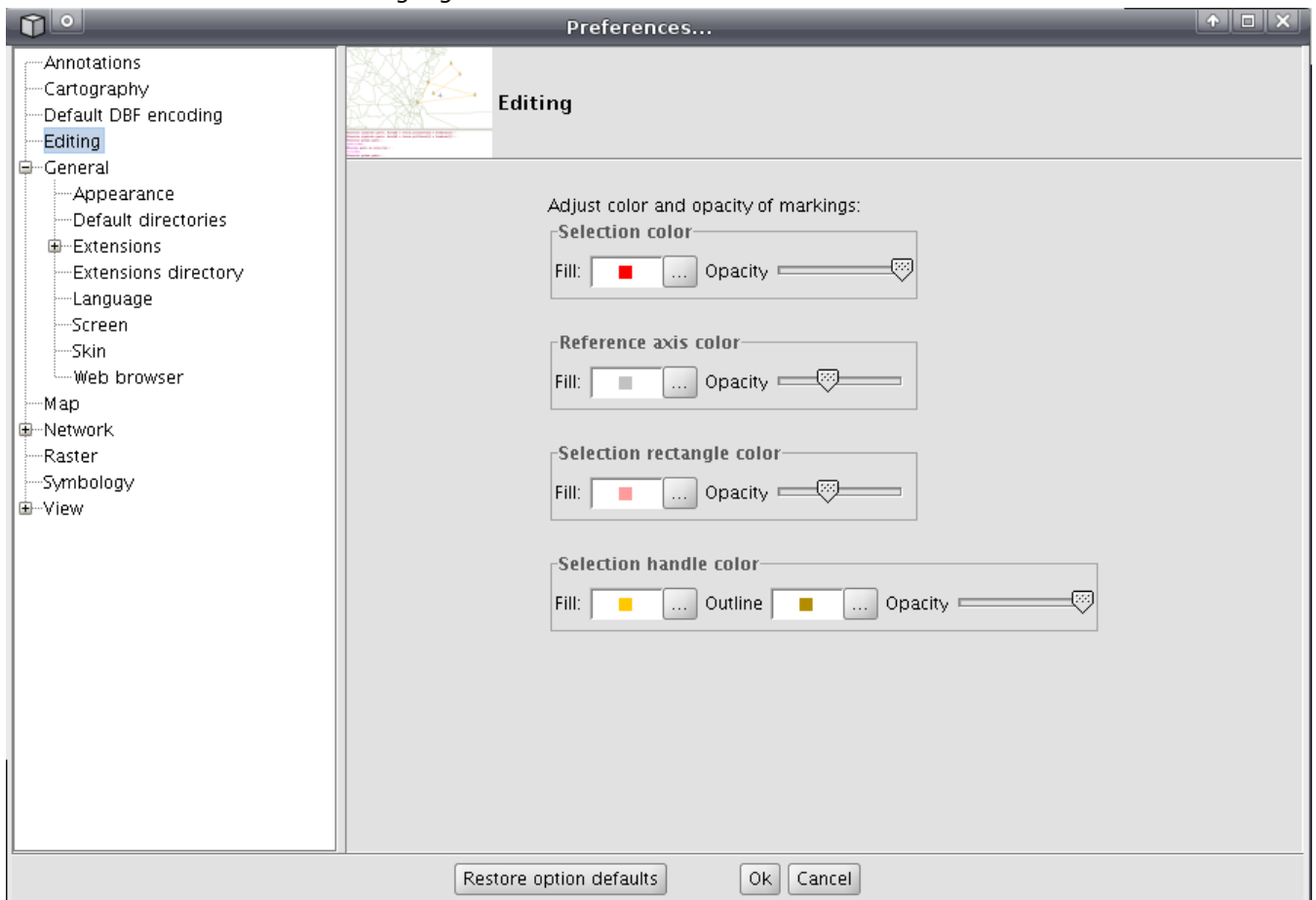
This page last changed on Jun 19, 2010 by jsanz.

Contents

Error formatting macro: toc: java.lang.NullPointerException

Create a view and add a *shapefile*

- Add a new View and open it: From the *Project manager*, press *New,* select the new View, and press *Open.*
- A View has three different elements:
    ◦ Geographic View: Where the vector and raster layers are loaded graphically.
    ◦ Table of contents (TOC): Layers loaded in the Geographic View. The order of the layers is the same than their visualization in the Geographic View.
    ◦ Locator: An easy way to navigate on the View.
- *View->Add layer* menu, and add **esp_provincias.shp** file from the `/data/cartography/Spain/` folder.
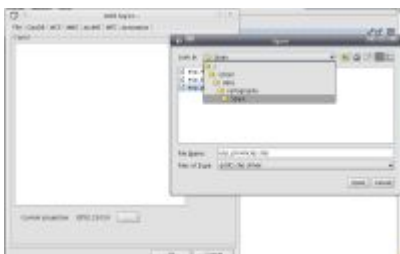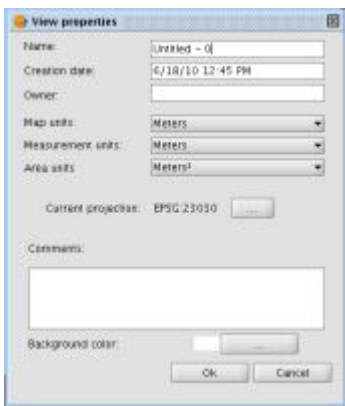
Navigation on the View

Basic tools

✅ **Tip**
To change the layer symbology, you should click on the *Properties* button and then **close** the locator dialog


- Locator:

- ◦ *View->Configure locator map* menu
- ◦ Add layer: **esp_localizador.shp**
- Zoom to layer:
  - ◦ Add layers to the View: **Centro_2002.jp2** and **Puerto_1980.ecw** at `/data/cartography/Valencia/` folder**.**
  - ◦ Select the layer **Centro_2002.jp2** and right-click on it; then *Zoom to layer* to navigate to the layer extent
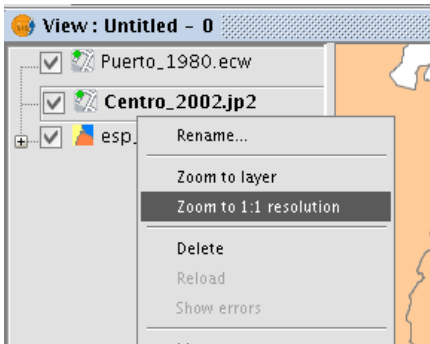
- Zoom manager (1):
  - ◦ Add layer: **parcelas_Valencia.shp** from the same folder
  - ◦ Zoom to a little area of the Valencia's port.
 - ◦ *View->Navigation->Zoom manager* menu; save the current zoom as *Port*
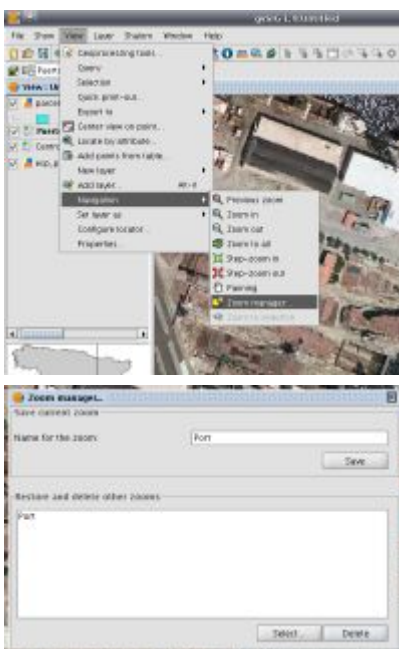
- Center view to a point:
  - ◦ Add layer: **Puerto_2002.ecw**
  - ◦ View->Center view to point menu:
    - - X: *725830*
    - - Y: *4372060*
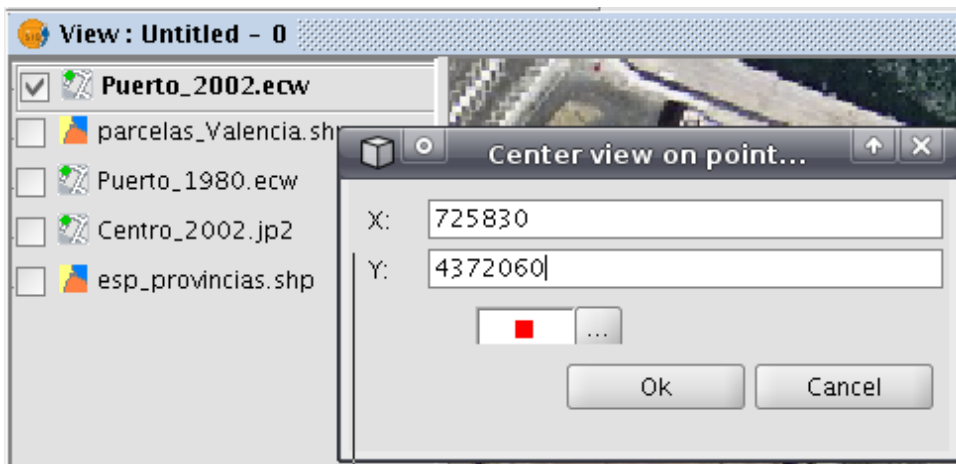
- Zoom manager (2):
  - *View->Navigation->Zoom manager* menu; select the *Port* zoom and press *Select.*

Areas and distances

- Over the view, *Areas* and *Distances* can be measured (from *View->Query*).
- Try to measure the area and maximum longitude of the Valencia City Hall Square (x=725800,y=4372432)
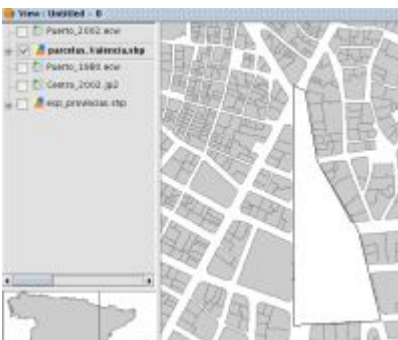
Locate by attribute

- Another way to navigate on the view is with the Locate by attribute tool, where a zoom can be done to an element of a layer, selecting the field of the layer and the value of the associated table.
- Go to the *View->Locate by attribute* menu.
- Select the following values:
  - Layer: **esp_provincias.shp**
  - Field: *NOMBRE99*
  - Value: *Valencia*
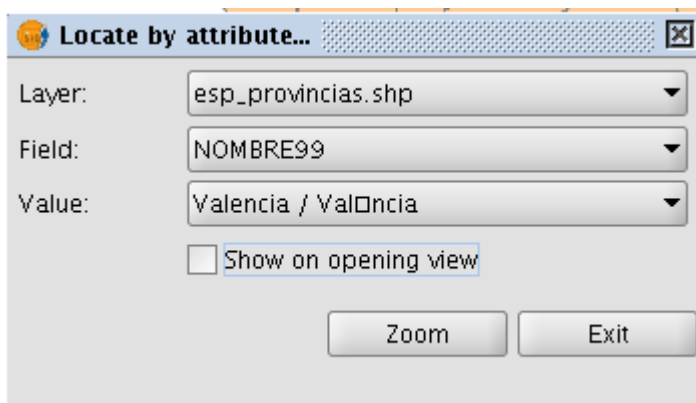
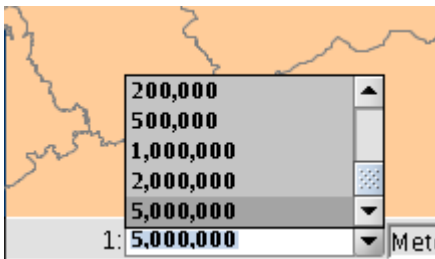## Scale of a view

- The scale of a view can be modified from the scale bar. Default scale values can be selected, or a value can be written by keyboard.


Styling

Transparency of a raster image

On the same view, keep only visible **Puerto_2002.ecw** and **Puerto_1980.ecw** layers, and **Puerto_2002.ecw** as active layer.

- Press right button on the active layer, and then *Raster properties* (1). You'll see an overview of raster characteristics(2).
- Select *Transparency* tab.
- Active *Opacity*, and select a *35%* of transparency. The differencies of the port between 1980 and 2002 are shown on the view(3).

1	2	3
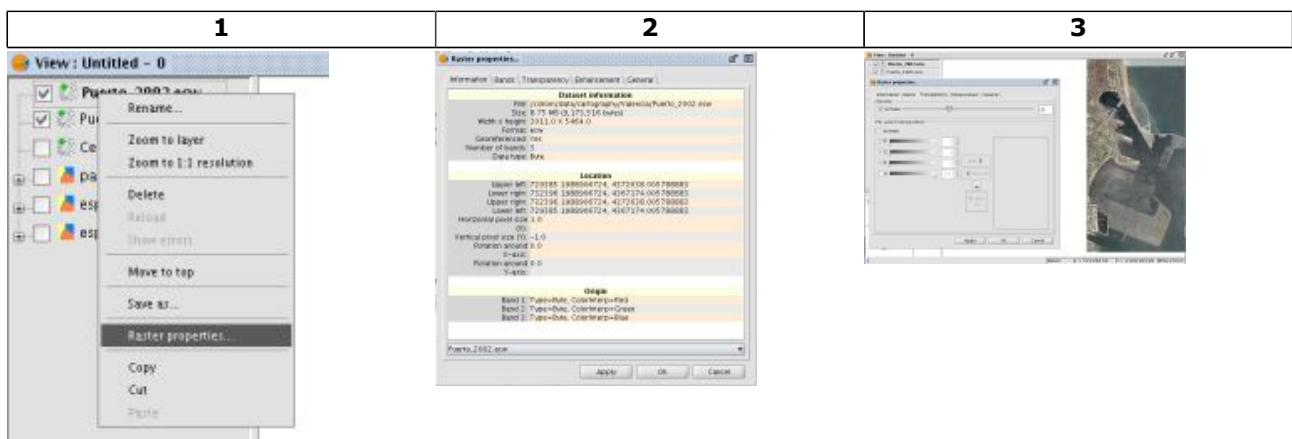
ℹ Extension

- Play with the bands switchers to change the colour assignment. This could be more interesting if you add to a new view the raster file `/data/cartography/Uruguay/raster/RecorteB10_B70.tif`.
- Try to remove the grey colour of the `/data/cartography/Andalucia/relieve_andalucia.jpg` raster file activating the *per-pixel transparency* and using the small *Pick RGB from view* helper.
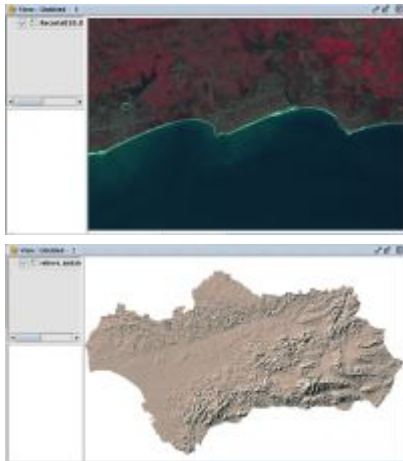
Legends and basic symbology

✅ **tip**
You can change one symbol double-clicking on the TOC symbol preview

- Properties of the layer: Double-click on the `esp_provincias.shp` layer in the TOC.
- Select *Symbology* tab, then *Categories->Unique values*; change *Classification field* to *NOMBRE99*; press *Add all* and *Accept.*
- Modifying symbology of a polygon:
  ◦ Access to the Properties of the layer again; select on the *Albacete* symbol (with double-click)
  ◦ Press *Choose symbol*, and change Fill color, Border color...

ⓘ **Extension**

- Try to apply the *Expressions* category legend to show witch provinces of Spain are bigger than 1^10 square meters.
- Enter on the properties of the symbol and experiment with the polygon symbology options like using a *line fill*, modifying the outline, etc.
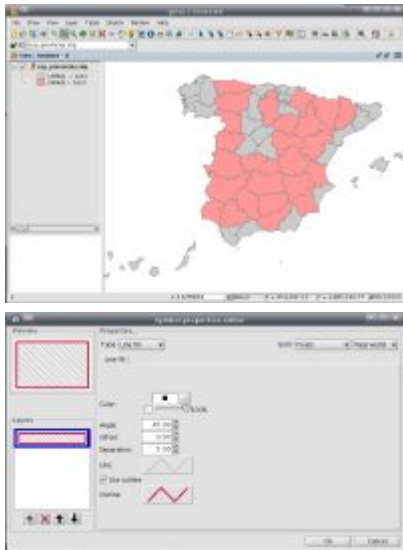
Legend by intervals

- Do a copy of the first View: *Project Manager->View*, and right mouse button on the first View. Select *Copy*, then left mouse button and *Paste*. Write a new name.
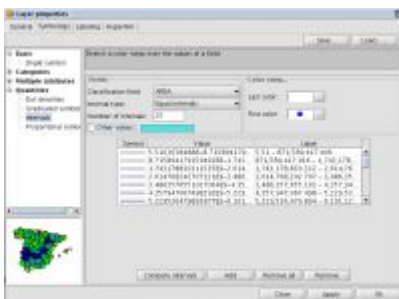- *Properties->Symbols* of the **esp_provincias.shp** layer.
- Select *Quantities->Intervals,* and the following values:
    - Field *AREA*
    - *Equal intervals*
    - Begin colour: *White*
    - Number of intervals: *25*
- Press *Compute intervals*, and then *Accept*.

Labelling

- Access to the *Properties* of the esp_provincias.shp layer, then the *Labelling* tab
- Select *Enable labelling*, and the following values:
    - General: *Settings from attributes field*
    - Field to be labeled: *NOMBRE99*
    - Fixed height: *10*
    - Units: *pixels,* and *In the world*
    - Fixed color: *Black*
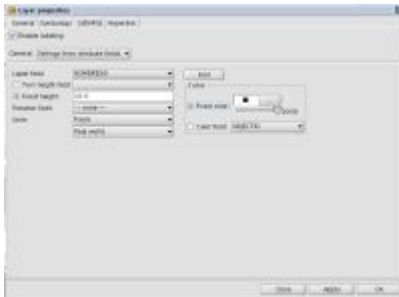
ℹ️ **Extension**
The new advanced labelling features of gvSIG are out of the scope of this workshop but you can check the documentation (sorry, at this time only in Spanish) or check the last gvSIG Conference workshop video on new features of gvSIG 1.9 (translated in English) (minute 20:22).

Predefined legend

gvSIG has its own legend file format (`.gvl`) that supports all the gvSIG features.

- Create a new view, called **Andalucia1**.
- Add new layers: `municipiosAndal.shp`, `hidro_andalucia.shp` and `ferrocarrilAndal.shp` (Reference system: 23030).
- Keep as visible layers `municipiosAndal.shp` and `hidro_andalucia.shp`
- Access to the *Properties* menu of the {{hidro_andalucia.shp* layer, and then *Symbols* tab.
- Press *Load legend* and load the `jerarquia.gvl` file (from the `Andalucia` folder).

A created legend can be exported to a symbology interchange format (`.sld`). It can be used to share legends with other programs, but if it's used in gvSIG, some characteristics can disappear.

- Access to *Properties->Symbols* of the `municipiosAndal.shp` layer.
- Create a new symbology (*Cathegories->Unique values*), by the field `PROVINCIAS`. Then press *Save Legend*, and save it as a `.sld` file.

Layer tools

Vector layer reprojection

- Add new layer: **esp_4326.shp** (with the Current projection by default: *23030*).
- After a Zoom to the new layer, we see that the coordinates of the new layer aren't correct.
- Delete the last layer.
- Add new layer: **esp_4326.shp** , but changing the Current projection (1)
  - Type: EPSG
  - By code: *4326* (and press *Enter*)
  - Select transformation: *EPSG Transformation*, and press *Next*. (1)
  - Transformation: *1633 (Spain-mainland...)*, and press *Finalize*. (2)
  - Finish the setting up and accept the warning, you should see the Spain shapefile well transformed over the rest of the layers.

| 1	2	3
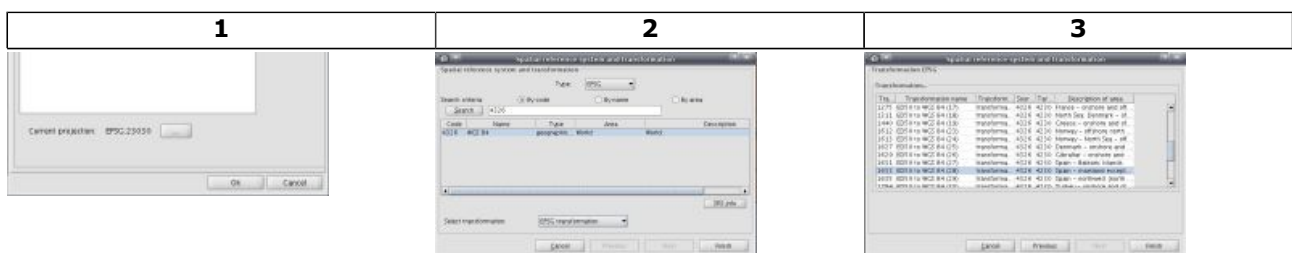
Add event layer

A layer of points can be added in a view from an alphanumeric table with coordinates.

Firstly, the table has to be added to the project:

- From the *Project manager*, select *Table* document, then *New* and finally *Add.*
- Select `XY_mun.dbf` file at `/data/cartography/Valencia/` folder (1)
- In the last view, go to the *View->Add event layer* menu (2) and select the following values :

Table	X	Y
XY_mun.dbf	XUTM	YUTM

- Press *OK*, you should see a new point layer at gvSIG with the centroids of the Valencian region municipalities(3).

1	2	3
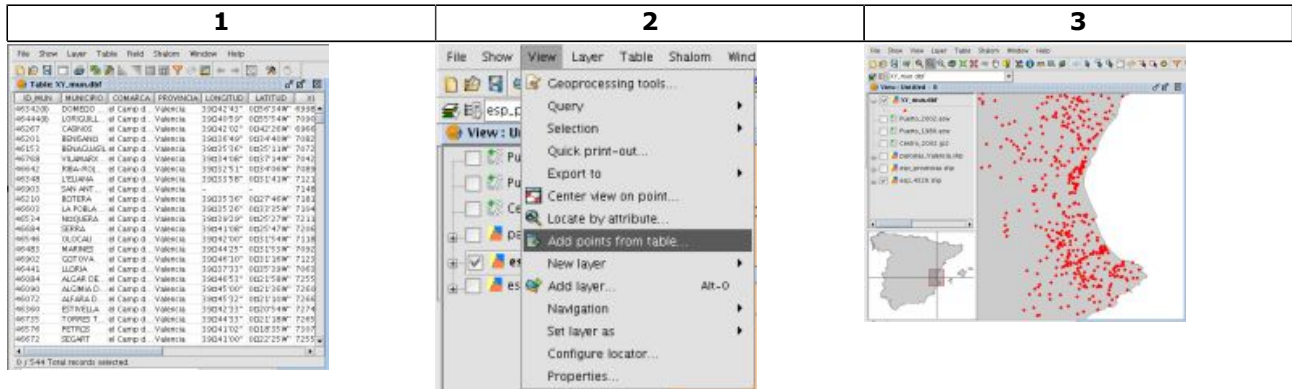
⚠️ **Remember**
An event layer at gvSIG is just a graphical representation of an alphanumeric table, so no real data has been converted on this process

Export data

Export the view to an image

A view can be exported to an image file without georeferencing. This is useful to add the view in documents, presentations, etc.

- Access to the *View->Export->Image* menu and save our current view.

Exporting layers

Last exercise was a simple image export, to do a real conversion of vectorial data you should us the Export tools. As the event layer is only a virtual layer, to obtain a real layer it must be exported to a *shapefile* format for example.

- Having an active layer, if there are several elements selected on it, only those features will be exported. If there aren't any element selected, all the layer features will be exported to a new one.
- It can be done from the *Layer -> Export to -> SHP* menu.

This page last changed on Jun 19, 2010 by jsanz.

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Error formatting macro: toc: java.lang.NullPointerException

Selecting tools

Basic tools

Create a new *View* and assure it's in EPSG:23030.

- Add the `municipiosAndal.shp` layer from `/data/cartography/Andalucia` folder.
- The following selecting tools can be used in gvSIG (from the *View->Selection* menu):
  - Select by point (press "Ctrl" for multiple selection)
  - Select by rectangle
  - Select by polygon*
  - Select by polyline*
  - Select by circle

* (double-click to end)

Selection tools menu	Selection toolbar
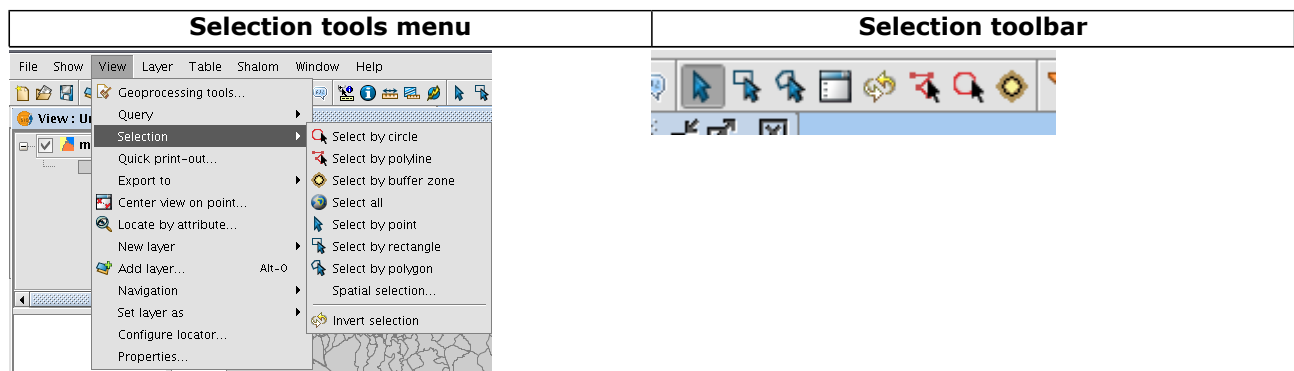
Select by buffer of distance

Other type of selection is the *Select by buffer zone*. This tool need a previous selection and doing a buffer over the selected features it increases it.

- Remove any previous selection with the *Clear selection* tool (from the toolbar)
- Activate the `municipiosAndal.shp` layer, and select a feature with the *Select by point* tool (1).
- Go to *View->Selection->Select by buffer zone*
- Write *120.00* m. (this in fact means 12000m, see side note)
- In the *Options* area, activate *Add buffer zone layers*, and press *OK* (2).
- The selection will be performed, a new vector layer with the buffer calculated will be added and finally a dialog with the details of the process will appear (3).

Bug!
There's a bug on this gvSIG version, you should write your distance taking in account the decimals as normal zeros, so to ask for `12000` meters you have to write `120.00`. A bug ticket with this issue has been reported on the official gvSIG Desktop bugtracker.

1	2	3

Selection by attributes

Instead of using graphical tools you can also do a selection based on attribute table values.

- Remove any previous selection with the *Clear selection* tool (from the toolbar)
- Add the `ferrocarrilAndal.shp` to your view
- Activate the layer: `ferrocarrilAndal.shp`
- Access to the *Table->Filter* menu
- Select the query *"COD_ENT" = "V10"*, and press *New set*.

✅ **Tip**
You can concatenate several selections adding or subtracting features from the current selection set.

Spatial select

You can do a more complex selection based on spatial topological rules. On this example will select all the municipalities touched by the last railway selected.

- Activate `municipiosAndal.shp` layer
- Go to *View->Selection->Selection by layer*
- Do the following query:
    - _Select items from active layers that are...
        - *Intersected with*
    - *Selected items of a layer*
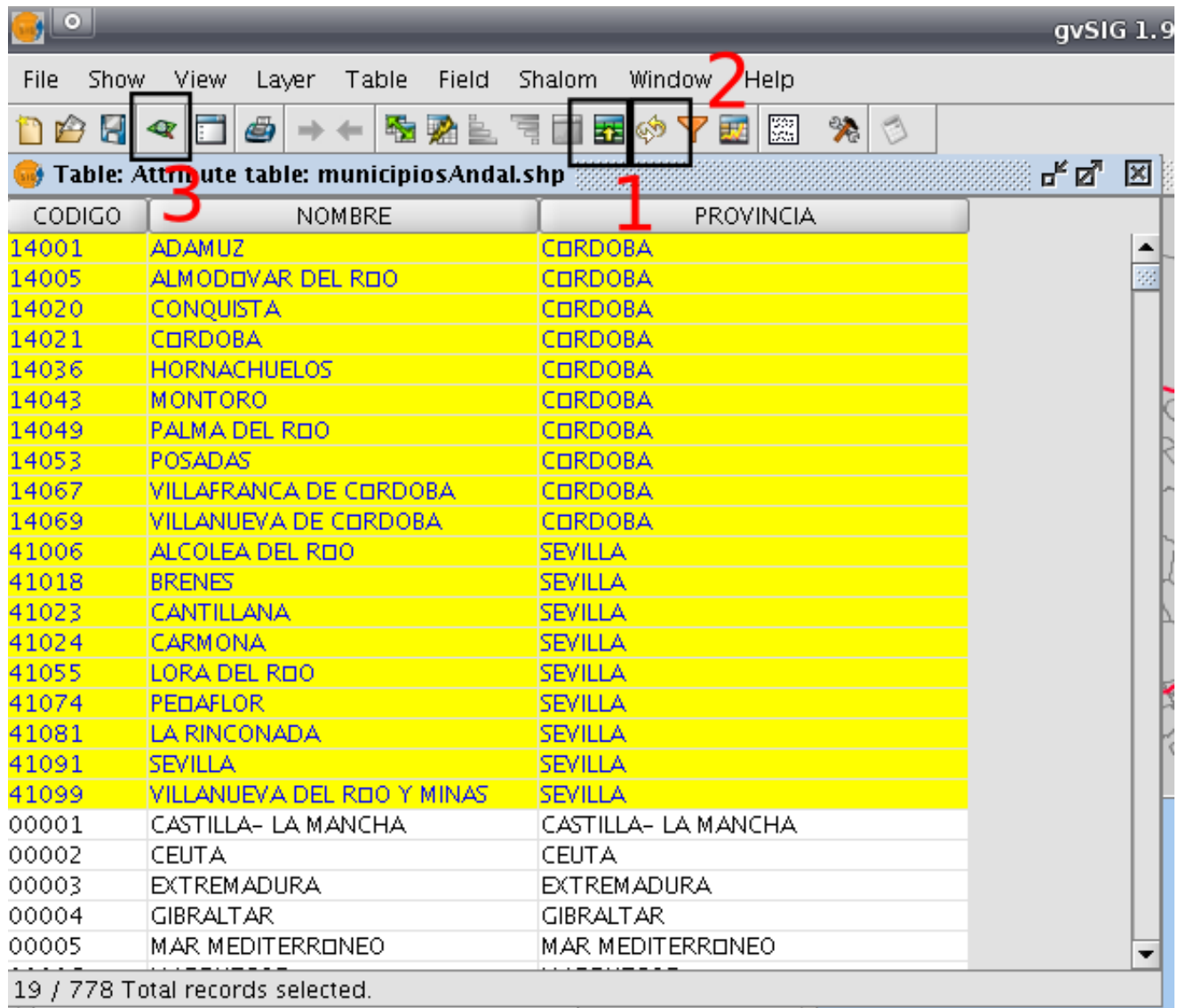   - `ferrocarrilAndal.shp`
- Press *New set*

✅ **Tip**
You can concatenate several selections adding or subtracting features from the current selection set.

Exploring attribute tables

gvSIG has several features in order to let the user explore and navigate over the attribute table associated with many vectorial data formats.

- Activate municipiosAndal.shp (there were several selected elements of the previous exercise)
- Open its attribute table (from *Layer->See table of attributes*)
- Move selected elements to top (1)
- Select the complementary elements (2)
- Go to the selected elements directly (3)

CODIGO	NOMBRE	PROVINCIA
14001	ADAMUZ	CORDOBA
14005	ALMODOVAR DEL ROO	CORDOBA
14020	CONQUISTA	CORDOBA
14021	CORDOBA	CORDOBA
14036	HORNACHUELOS	CORDOBA
14043	MONTORO	CORDOBA
14049	PALMA DEL ROO	CORDOBA
14053	POSADAS	CORDOBA
14067	VILLAFRANCA DE CORDOBA	CORDOBA
14069	VILLANUEVA DE CORDOBA	CORDOBA
41006	ALCOLEA DEL ROO	SEVILLA
41018	BRENES	SEVILLA
41023	CANTILLANA	SEVILLA
41024	CARMONA	SEVILLA
41055	LORA DEL ROO	SEVILLA
41074	PEDAFLOR	SEVILLA
41081	LA RINCONADA	SEVILLA
41091	SEVILLA	SEVILLA
41099	VILLANUEVA DEL ROO Y MINAS	SEVILLA
00001	CASTILLA– LA MANCHA	CASTILLA– LA MANCHA
00002	CEUTA	CEUTA
00003	EXTREMADURA	EXTREMADURA
00004	GIBRALTAR	GIBRALTAR
00005	MAR MEDITERRONEO	MAR MEDITERRONEO

19 / 778 Total records selected.

Information tools

Information of the elements can be consulted with two different tools: Information, and Quick info.

- Access to *View->Query->Information*, and click on an element of the municipiosAndal.shp layer
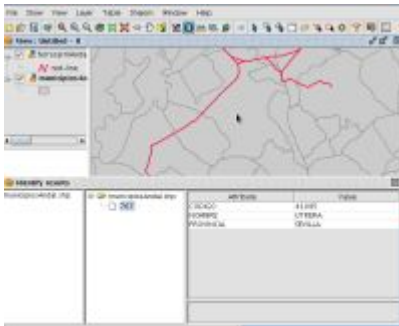
- Activate `ferrocarrilAndal.shp`
- Access to *View->Query->Quick info*
- Select the `ferrocarrilAndal.shp` layer, activate the field `COD_ENT`, and select the `Length` calculated field. After accepting, if the mouse is on an element of the layer, its information is shown directly.
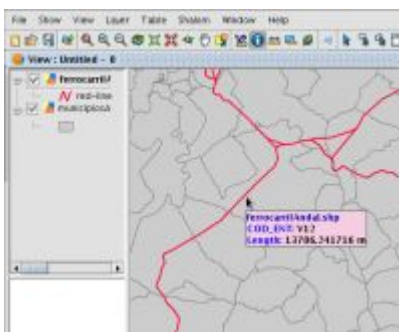
Table tools

Table summarize

This tool gets statistics of field values grouping the data by one of their attributes.

- Add `hidro_andalucia.shp`, activate it and open its attribute table
- Open the *Table summarize* tool (from the toolbar) (1)
- The group will be done by the field `JERARQUIA`
- Then select from the field `LENGTH` the *Minimum*, *Maximum* and *Sum*
- Save as a new dbf file, for example `/tmp/summarize.dbf` (2)
- This new table is added to the gvSIG project (3)

1	2	3

Joining tables

On this exercise you will join an external comma separated file (`.csv`) with data coming from the Spanish National Institute of Statistics with the Spanish provinces layer.

⚠ **Note**

For a correct import of a CSV file you should use semicolon (`;`) to separate your fields and use the dot (.) as a decimal separator.

- Go to the *Project Manager*, and then *Table*
- Press *New*, and then *Add*
- Add `PoblacionINE.csv` from the `/data/cartography/Spain/` folder
- On a new View add `esp_provincias.shp`
- Open the attribute table of this layer
- Go to *Table->Join.*
- Select `esp_provincias.shp`, field `DPROV`, a `prov` prefix and *Next* (1).
- Then `PoblacionINE.csv`, field `CODIGO`, a `ine` prefix and *Finish* (2)
- You'll get a joined table with the prefixes set up to identify the table where they come from (3)

| 1	2	3

⚠ You can remove a table join using the *Table->Remove joins* menu entry.

Import fields

The previous exercise doesn't modify the layer with the table joined. On this exercise we will do a similar task but writing the *imported* fields so the first thing we need to do is to copy the shapefile where we can modify it.

- Go to an explorer and copy the 5 files of the `esp_provincias` layer to the folder `/home/ubuntu` (1).
- Open it in a new View, and open its table
- Go to *Table->Import fields*
- Select the following values: Table: `esp_provincias.shp`, Link field: `DPROV`, Table to import: `PoblacionINE.csv`, Link field: `codigo`, and then *Next* (2)
- Select the fields `Nombre`, `Total`, `Hombres` and `Mujeres`, and then *Finish* (3)

1	2	3
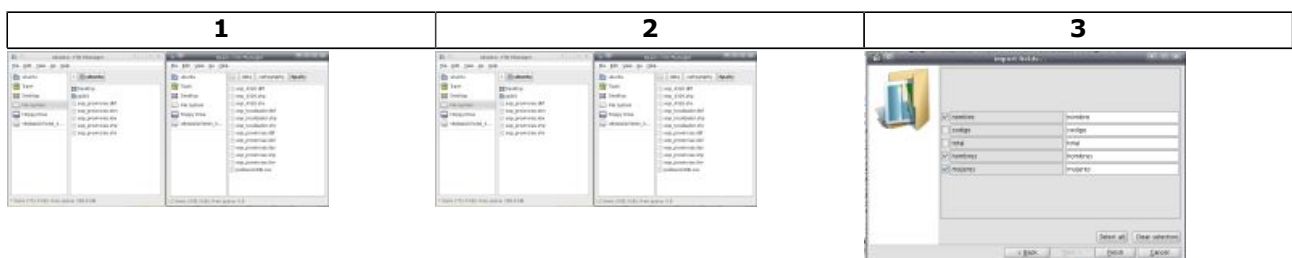
⚠ Using the selection tools now you can check witch features of the provinces *shapefile* have no values on the statistics fields and see that their `DPROV` value maybe it's not so good...

Export table

This feature let you export any table to `DBF}` or `Microsoft Excel format ({{.xls)`.
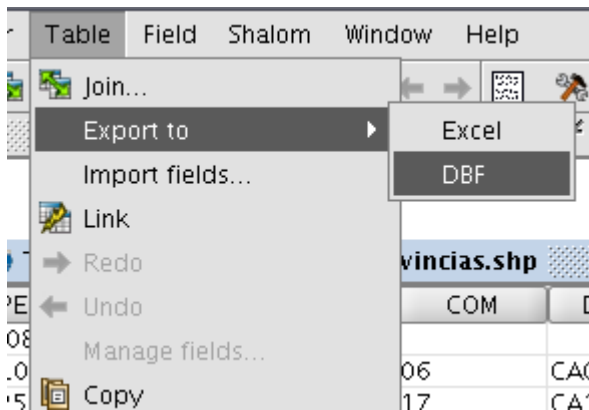
Table encoding

As you probably have noticed, the provinces shapefile shows some strange characters on the name field. This is because the character enconding is not well set. The *Shalom* extension let the user to manually set the encoding for `dbf` files.

- Close gvSIG
- Repeat the copy of the *shapefile* `esp_provincias` to your home folder (`/home/ubuntu`)
- Open gvSIG
- Open the gable `esp_provincias.dbf`, you'll see strange characters at `NOMBRE99` field
- Assign the **CP1252** enconding using *Shalom->Set Encoding to dbf files*
- Delete the table from your gvSIG project
- Create new View and add `esp_provincipas.dbf`. If you apply a labelling by the `NOMBRE99` field you'll be able to see the correct characters with accents, apostrophes, etc.

Before	After

This page last changed on Jun 21, 2010 by jvhigon.

Proxy Settings

First of all, if a proxy is needed to connect internet you will have to change gvSIG settings. Go to *Window > Preferences ...* > Network --> Firewall/Proxy and set your proxy parameters.
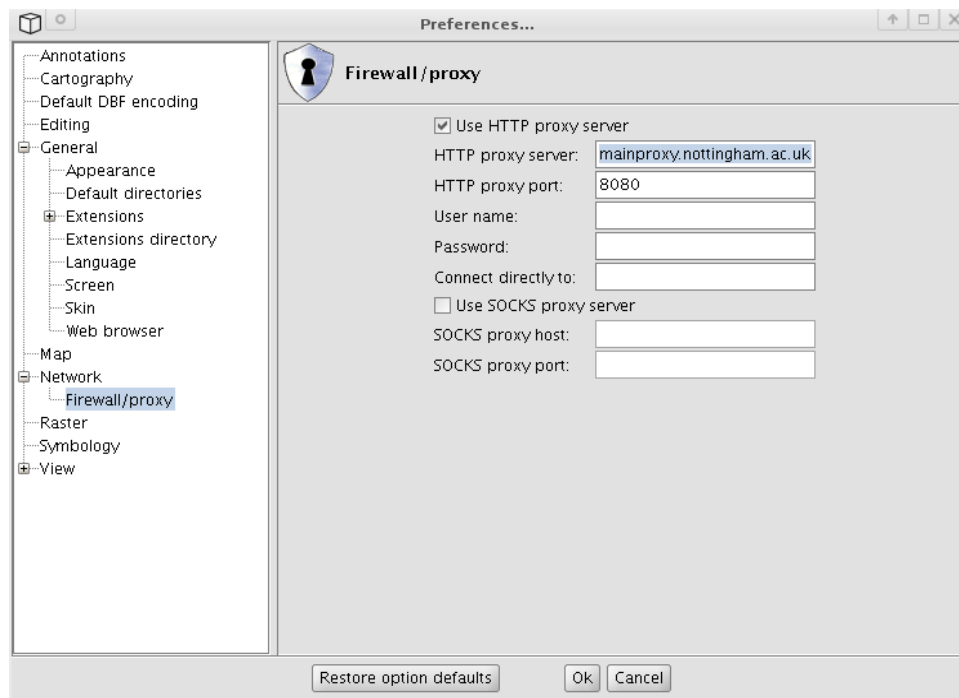
# WMS - Web Map Service

On a gvSIG view we can have both kind of data: local and remote (WMS, WFS, WCS).

1. Copy the view *VISTA1* that already exists (on the Project Manager). We are going to add a WMS layer on this view.
2. Keep as active only the layer *Centro_2002.jp2*
3. Go to *View --> Add Layer...* and click on the *WMS* tab. Put the url: *http://localhost/mapserver/ wms** and click *Connect*. The service description should appear.
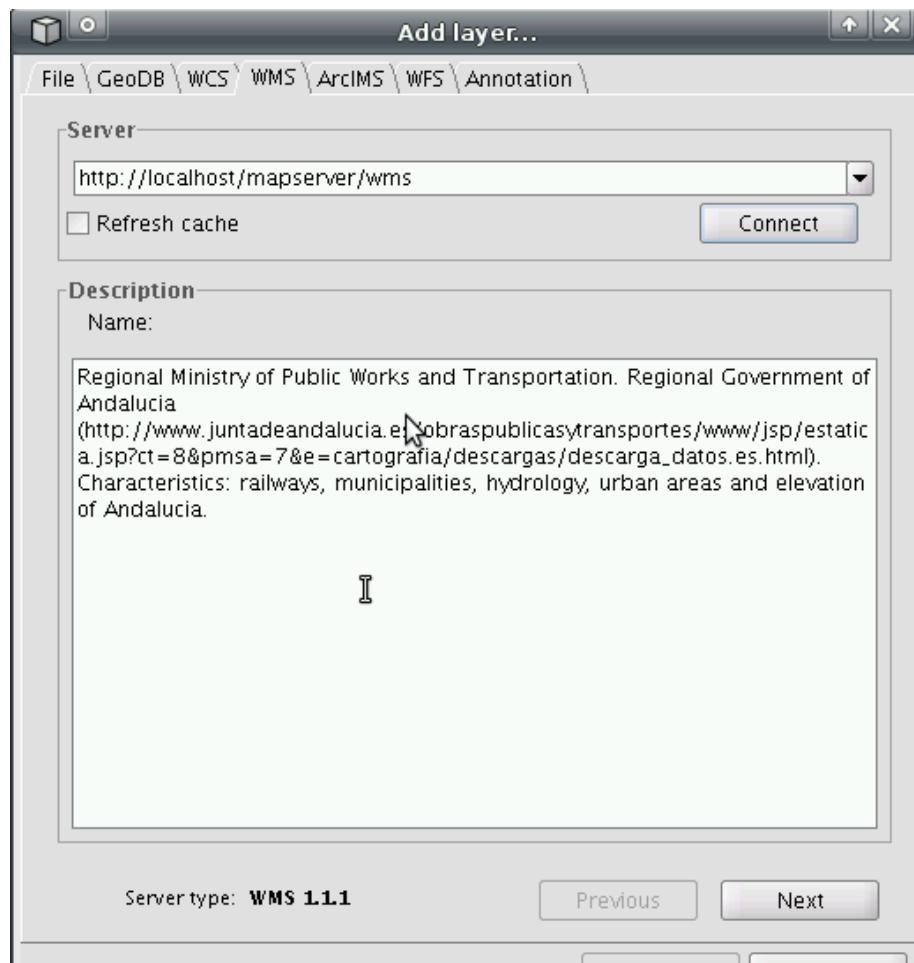
4. Click on *Next* button, go to the tab *Layers* and select the layer **Constructions in Valencia**, then click on button *Add*. Select format **.png** and SRS **23030**.The layer will be added to the TOC on the view.
5. Change the opacity of the layers doing right click on the name of the layer and selecting *Raster properties*. Select the tab *Transparency* and active the opacity to see the orthophoto below (use the slide bar for selecting an opacity percentage).
6. Select the *Information* tool and click on one of the geometries of the vector layer. A window will show only the queryable attributes. For example, you could find out what is the composition of any building seeing the attribute called *constru*.
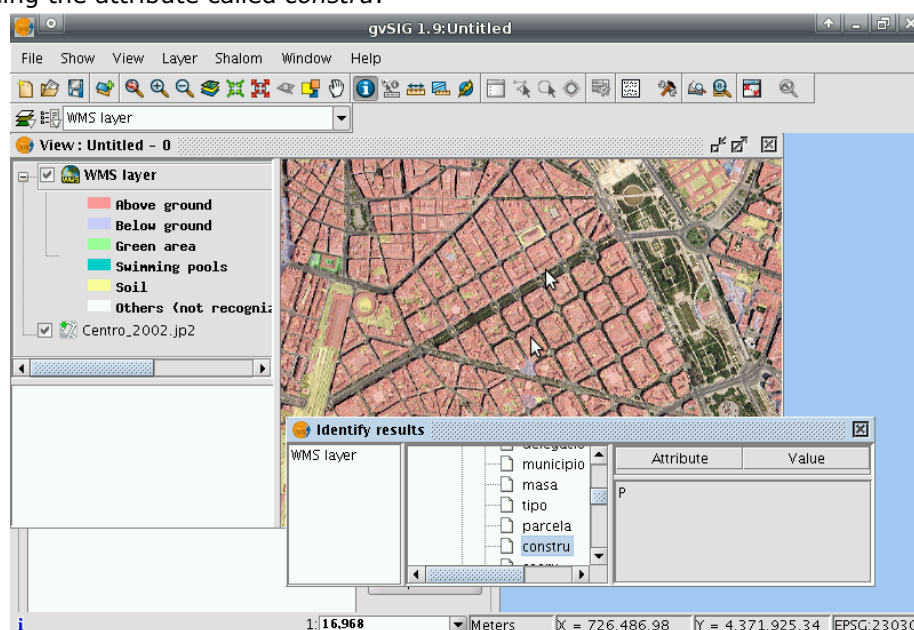
7. Load another WMS layer, this time from Catastro (you must have internet connection). Its url is http://ovc.catastro.meh.es/Cartografia/WMS/ServidorWMS.aspx . Select the layer called **Catastro** , the **.png** format and SRS **23030**.

8. If you click with the **Information** tool into one plot, a window will open showing the cadastrial reference of that plot. This link is useful in order to see the public information related to this plot published on the cadastrial web pages .

9. Another use we can make from a WMS is to compare 2 different layers from the same extent but different period of time. Connect again to *http://localhost/mapserver/wms** , select the layer **Harbour from Valencia, years 1980 and 2002** and click on *Add*. Go to the tab called *Dimension* and select and specific date (for example 1980 first).
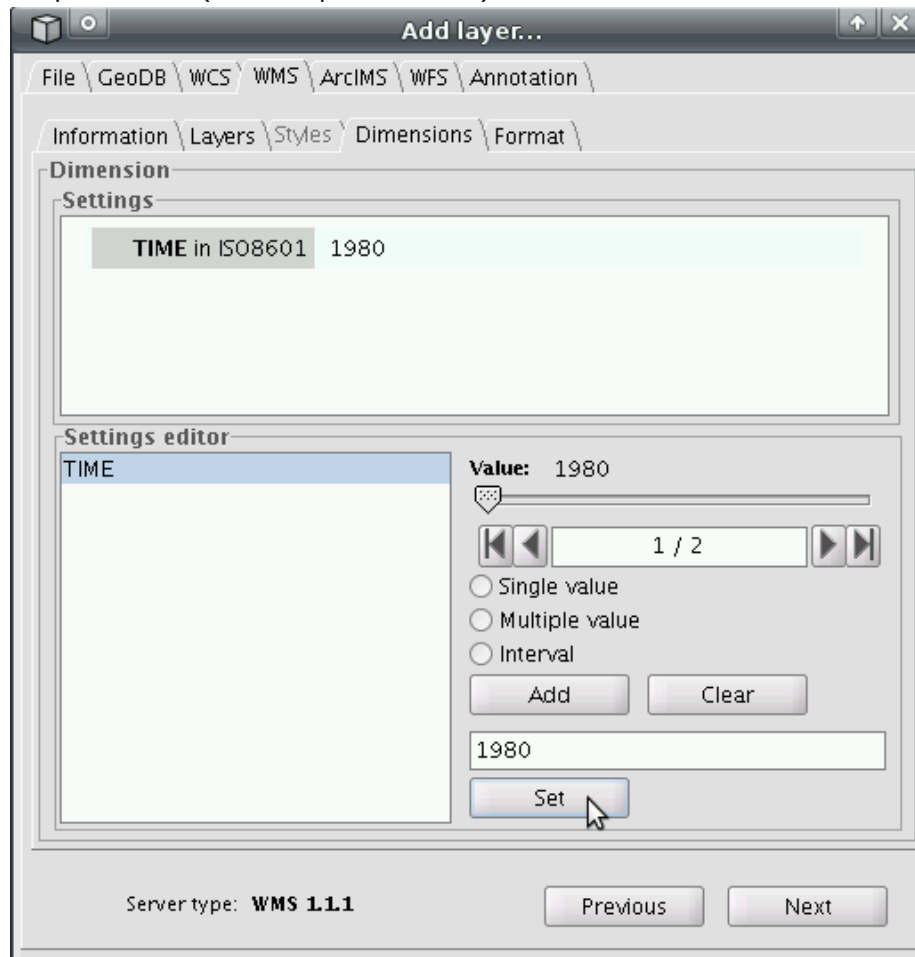

10. In order to see differences between two periods of time, load the same layer on a different time and change its opacity (70 percent for example).
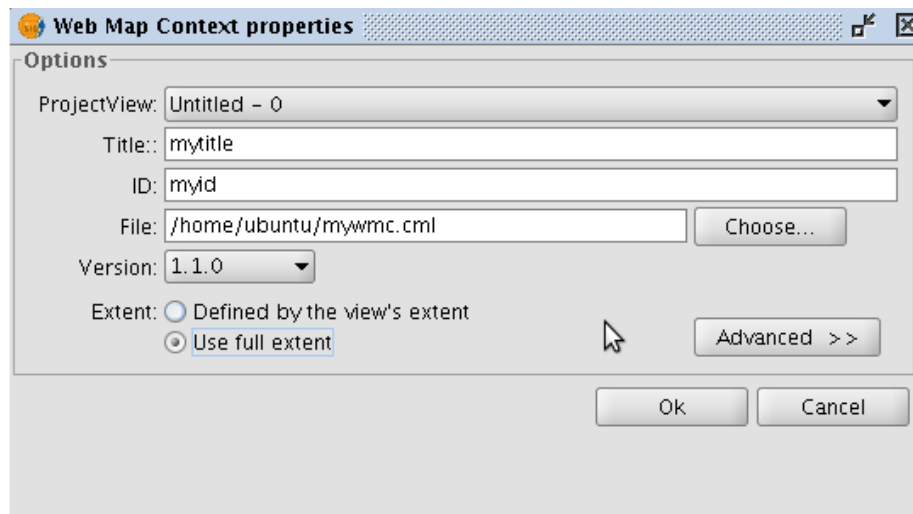
WMC – Web Map Context

Once you have a WMS layer added, you are able to export a WMC file (.*cml* format) that allows you to save the local settings of your WMS layers added to the view (layers, zooms, extent).

1. You should have a WMS layer on the TOC (if not, add one to the view), click on the tool **Center view to point** and type the coordinates **X = 726300** and **Y = 4372900**. Once the view has been centered on this coordinates and a red marker appears on it, change the **scale** on the state bar to **1:1000**.
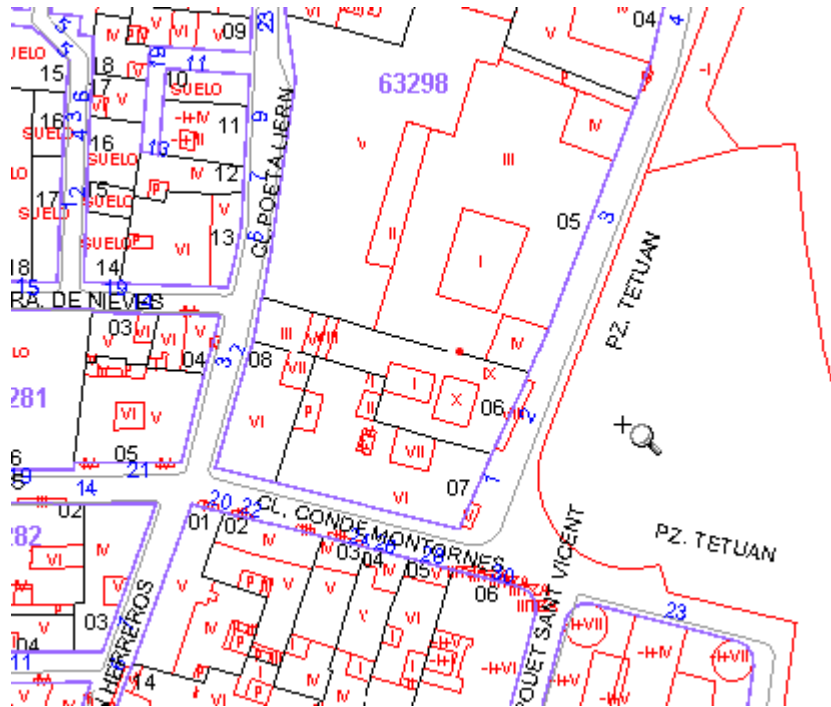
2. The next step will be to save the view state as a WMC file. To do that go to **View/Export/Web Map Context...** and select a view, a title, an identifier and a file to save it. It is important to save the file in a location with permissions like **/home/ubuntu**. Finally, choose the option *Defined by the view's extent* .


Now, the other way round: import WMC files.

1. Create a new view and go to **File/Import/Web Map Context** in order to select and load the WMC file. The new view should have the same WMS layers (and properties) and extent that the original one. The same could be done if you import that WMC file in another computer.

WFS - Web Feature Service

The WFS service allows you to work with vectorial layers loaded from a remote service. The information is retrieved in GML format.

1. Create a new view where the WFS layer will be added. Connect to *http://localhost/geoserver/wfs* and select the feature type **Railway lines of Andalucia** (linear layer). Select all the attributes on the **Field** tab. On the **Option** tab do not change the value of Max. features (1000 by default). Finally, keep the default settings for **Options**, **Filter** and **Area**.
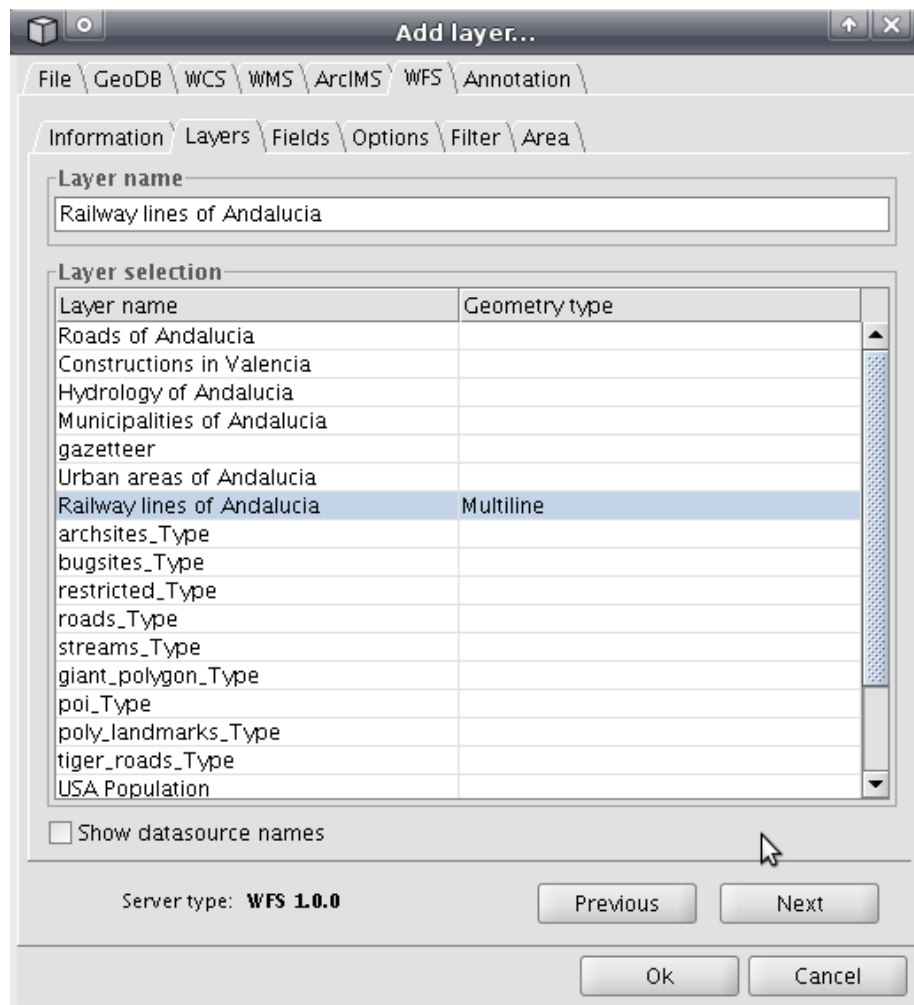
2. After the wizard is completed, a vector layer will be added to the TOC of the view. This vector layer is like any other vector layer, so you will be able to change its symbology. Go to the context menu of the layer, click on **Properties** and select the **Symbols** tab. Choose the **Unique values** option and set the legend to the field *cod_ent*.
3. Apply the new legend, go to **Layer/Export to/SHP** and export the date into a **shapefile**. Notice that you can export the vector layer into other formats like dxf, kml, gml and postgis as well.
4. Finally, try to change the request paramaters in the context menu **WFS Properties** of the layer. For example use the filter option, change the fields request or set other maximum features to load.

WCS - Web Coverage Service

From this web servise you are able to load coverages to the gvSIG view. This is a kind of raster files, for example DEM or DTM .

1. Create and Open a new view on the gvSIG project manager. Select *Add layer* and go to the tab WCS. Connect to the url ***http://localhost/mapserver/wcs***
2. Once you are connected, select the layer ***90m DTM of South West section of the Iberian Peninsula*** and on the Format tab select **GEOTIFF**.
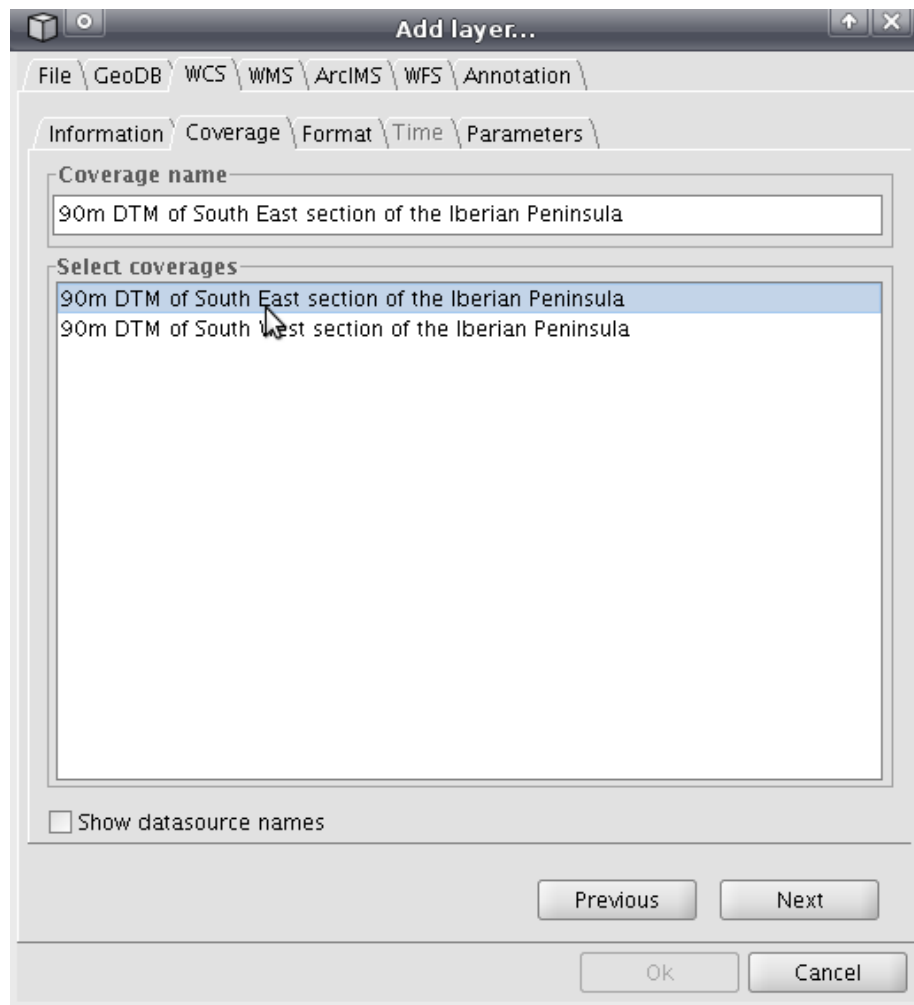
3. On the last tab you can select the image band to load. Select the only one available. Click on button *Accept* and the layer will be added to the view.
4. In the context menu of the layer, you are able to change the **WCS Properties**, like others services.

Catalogue search

The catalogue search service gives us the possibility for searching geographical information on the net.

1. Open a new view, call it "Andalucia's towns". Click on the catalogue icon (Geodata search).
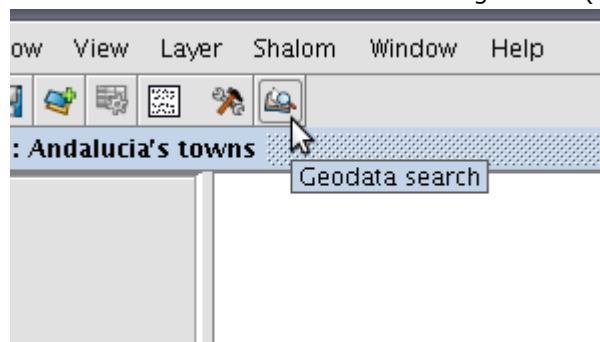
2. Set the url ***http://localhost/geonetwork/srv/csw*** and select the **CSW/ISO 19115** protocol.
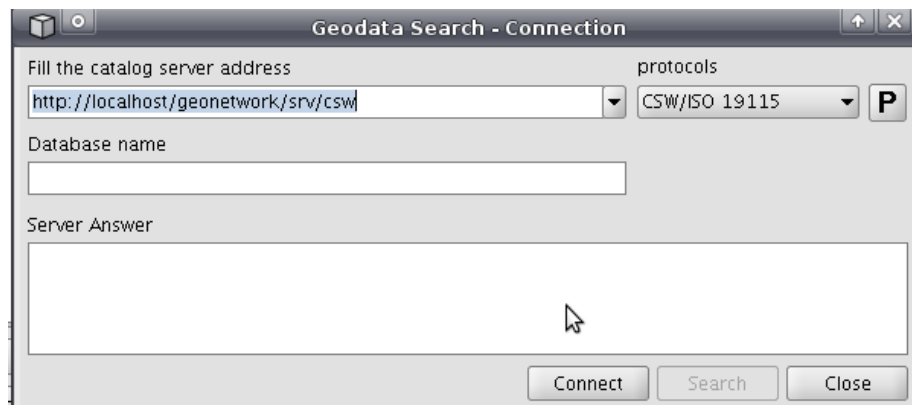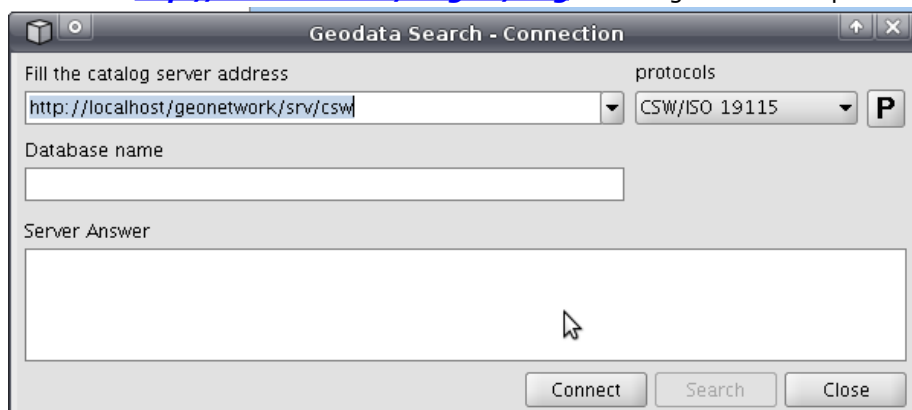
3. After the connection to the server is established, type the keyword **Andalucia** and click the button **Search**.

4. A window will be showed with the results of the geosearch, any metadata that contains this word should appear. You can see the metadata details clicking on the button *Description*. Also, you can load into the view any remote resource attached to the metadata clicking on the button *Add Layer*. For example, go to the metadata called *Populated places of Andalucia* and add its WMS layer (Map).
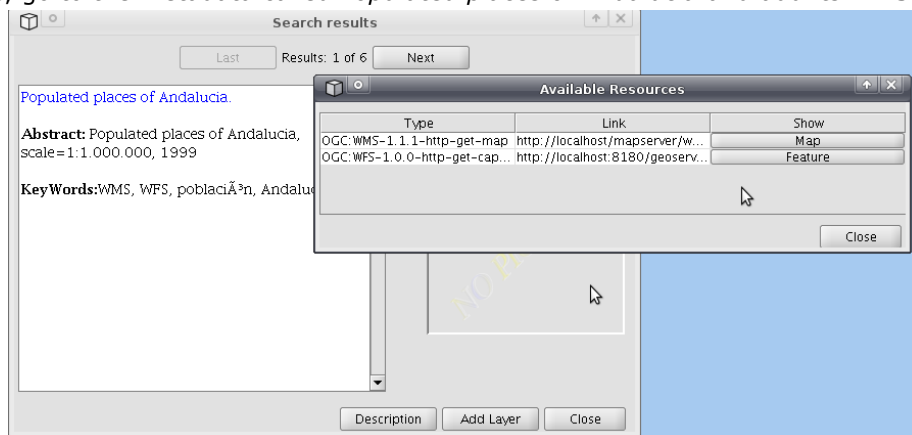
Gazetteer

The Gazetteer service is a way of linking geographical coordinates and place names. gvSIG has a gazetteer client in which you can search geographical keywords, and those places will be shown on the gvSIG view.

1. On the same view used in the last exercise, click on the gazetteer icon (Finfing by gazetteer). A connection dialog will appear (remember that the gazetteer icon will not appear until you load at least one layer).
   !gazetteer-button.png | align=center,width=32,height=32!

2. Connect to the server **http://localhost:8180/deegree/wfsg** selecting the **WFS-G** protocol.

3. Type the keyword **Sevilla** and then click on **Search**. Two results will be displayed on the result pages. Select the first one and click on **Localize**.


4. A red point will appear on the view centered on that place, showing the position and name of the place.
5. Once the point is drew on the view, the rubber icon appears for erasing the place names added before.

Access to PostGIS DataBase

gvSIG can access postgres table, as well as PostGIS layers that contain geographical (vector) information.

In order to load a PostGIS layer you should do the following steps:

1. In the last view (or in a new one) go to *View/Add layer/GeoBD* and click on the button *Add Connection*, on the right.
2. In the connection settings dialog, put these parameters:
   a. Connection name: *accesstest*
   b. Driver: *PostGIS JDBC Driver*
   c. Server URL: *localhost*
   d. Port: *5432*
   e. DB name: *postgres*
   f. User: *postgres*
   g. Password: *postgres*
   h. Check the connected checkbox.
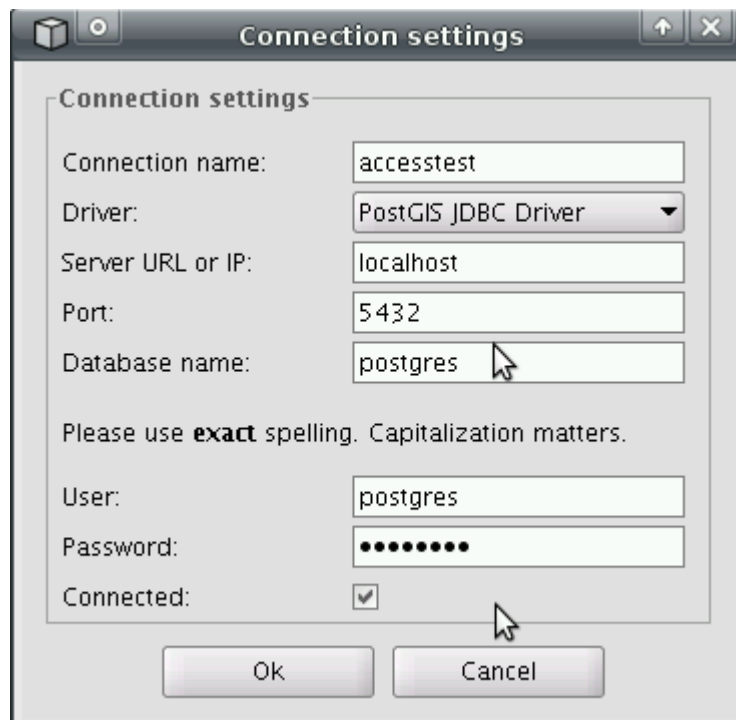
3. Click the *Accept* button and you will see a list of available layers. Select the layer **public.poblacion** and every field of that layer will appear on the right column. You could select one of those fields or all of them. Select the field **gid** as the ID field and the field **the_geom** as the field that contains the geometric field.
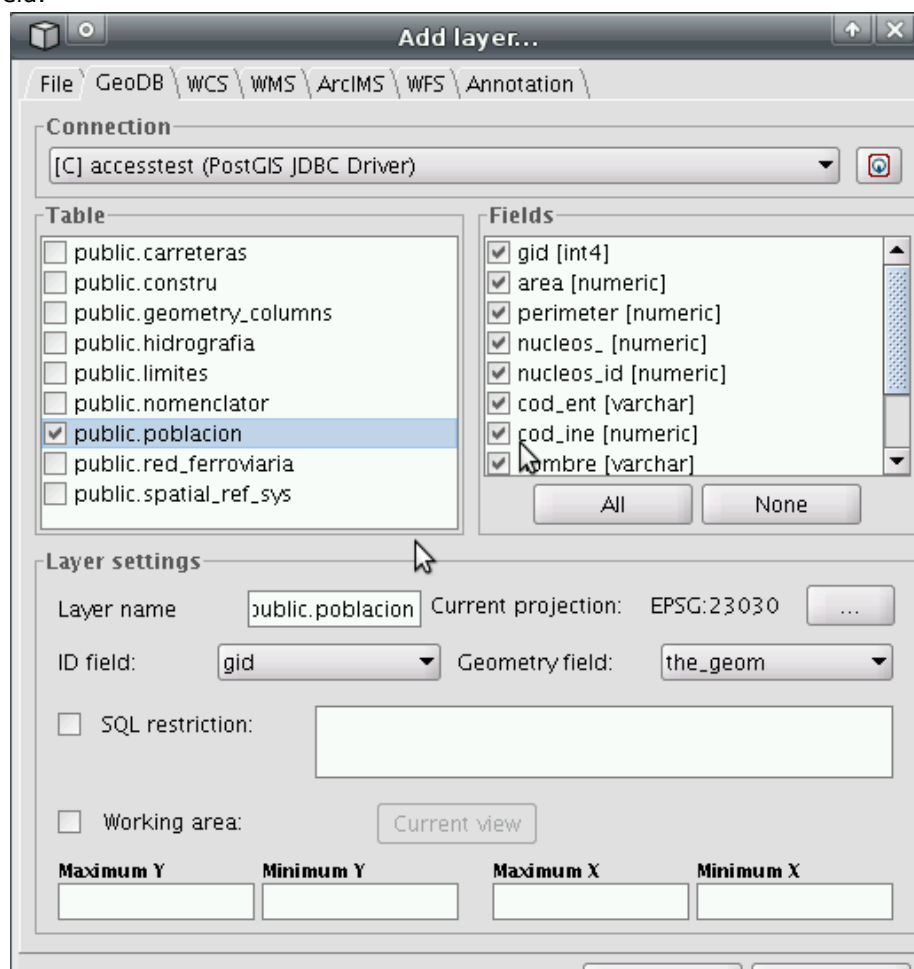
4. Note that you can do another kind of selections, for example, setting a SQL restriction or an interest area by extent.
5. After click the *Accept* button, the layer will be added to the view as another vector layer. This means that you are able, for example, to change its symbology or open its table of attributes.

This page last changed on Jun 21, 2010 by jvhigon.

Duration 30 min

- Creating a new vector layer
- New shapefile from derived geometries
- Creating hiperlinks on vector layers.

Creating a new vector layer

In this excercise we are going to create a new vector layer from scratch on a new view.

1. Create a new view, you can call it Editing.
2. Load the raster image of the town center of Valencia **Centro_2002.jp2** It is on the folder *data/ cartografia/Valencia*.
3. Use the tool *Center view to point* and the coordinates (X = 725704, Y = 4372413) to center the view in the town hall of Valencia. Then set the graphical scale to 1:1000.
4. Go to **View/New layer/New SHP** to create a new vector layer
5. Select the type **polygon** and click on Next
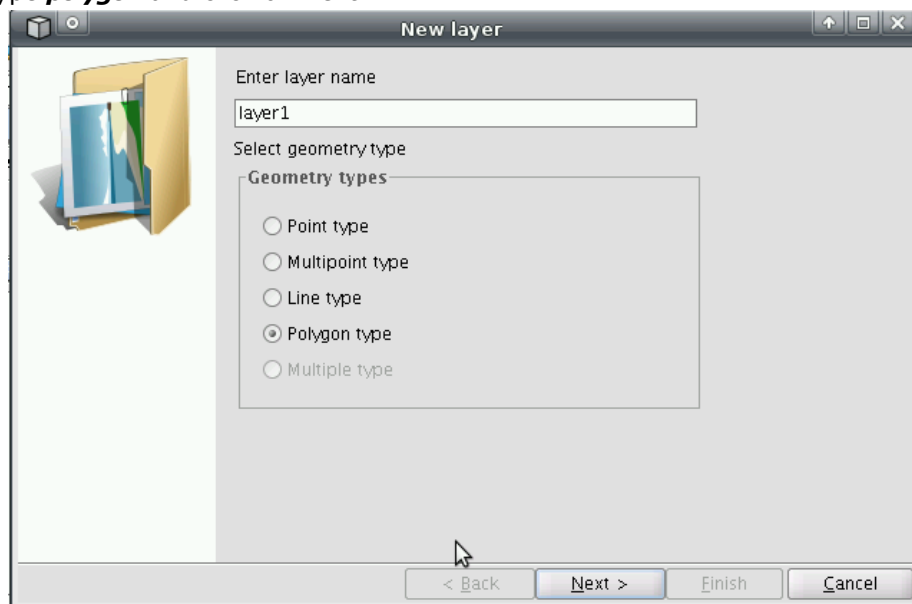
6. We are going to add a new field with the name **SoilUse** and the data type (String) and length by default.
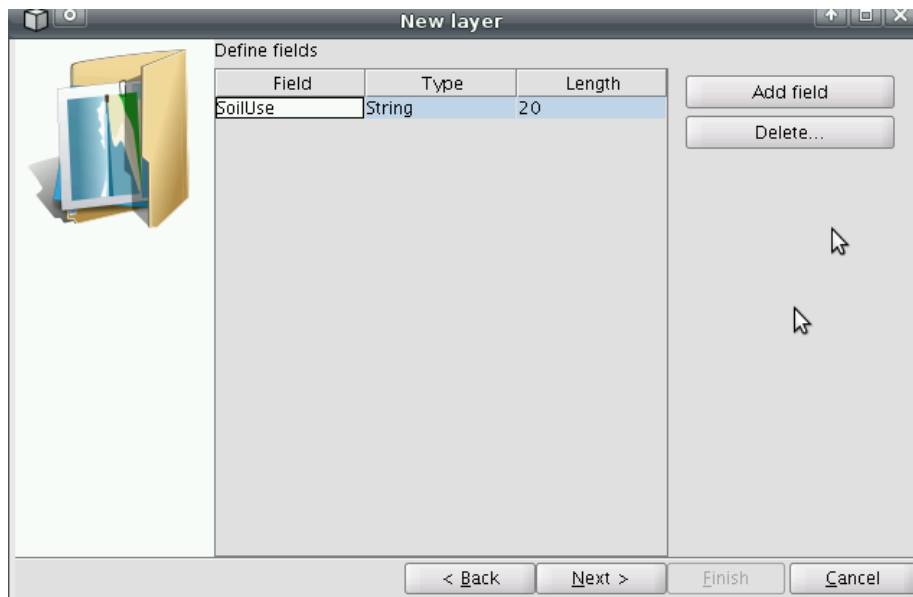
7. In the next window you have to select the name and route where the layer will be created on the live DVD. For example, you can set **CenterProject.shp** as the name, and be careful to save it into **/home/ubuntu** because it must be saved under a read and write folder.
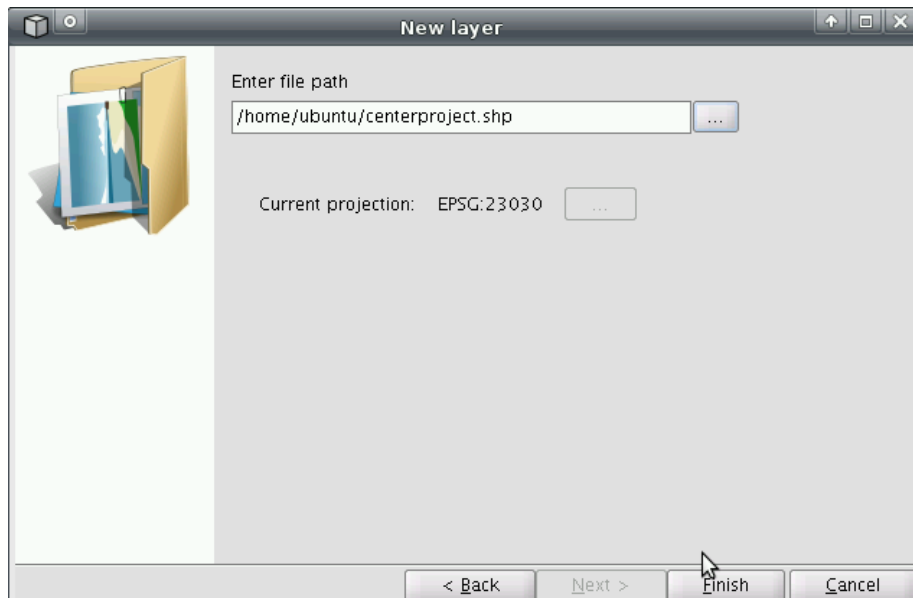
8. A new layer will be added to the TOC, on a red colour that means the layer is in edition mode (the edition console must be on the bottom of the view and the new edition menus must appear).
9. Put into active the new layer, and select the **Polyline tool**. Click on the view to define the first point of the new polyline and then select each of the consecutive points in order to define a building's base. In order to close the figure you can use the content menu's choice **Close polyline** or the **C** letter in the edition console.
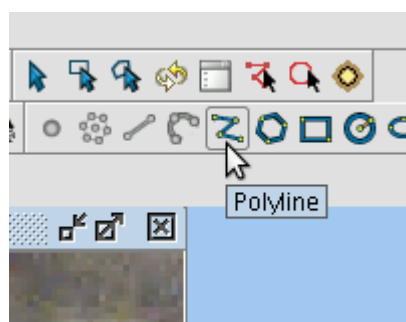
10. The new polygon is standed out with the selection colour. You can add as many polygons as you want, defining some groups of buildings. In order to define adjoining buildings you can use the **snapping** tools. For this purpose, go to the **content menu/Edit properties/Sanppings**.
11. Probably, on edition mode, you will need to change one vertex defined previously. In order to do this, go to the **Select** tool (editing tools) and then select the vertex you want to change and next on the new position for that vertex.
12. If we made some kind of mistake, we can always click on the **Undo/Redo** arrows, and by opening the command stack you will see a list of edition changes.
13. Another thing you will need to do is to fill in the attibutes table. To do that, first of all select on the view the polygon you want to fill in, then open the table and type on the selected entry the information you want to add, for example on the **SoilUse** field, you can add values like: Building, GreenArea, Public place, etc. Close the atribute table when finished the table edition.
14. After all the geometries were drawn on the new layer and all the attributes were typed, it is needed to close the editing mode, saving the changes done to the vector layer. This way, the layer name will turn into black again (before it was in red).
15. As a next step, in order to see the differences between the soil uses, you can change the layer's symbology through **content menu/Properties/Symbols**, choosing **Categories/Unique Values a**nd the field **SoilUse.** Apply the changes, and Accept that window.

New shapefile from derived geometries

By this feature you are able to create a layer of lines from a polygon layer, for example. Let's see how it works.

1. Add the layer **puertos_andalucia.shp** and **municipios_andalucia.shp** that is on the folder **/cdrom/ data/cartografia/andalucia**. Select the layer **puertos_andalucia.shp.**
2. Then go to the **Layer/Crear SHP de geometrías derivadas** (bear in mind that this tool will be avaiable only in point and line shapefiles)
3. The original layer will be the one you have selected from the TOC, and then you will need to type the new layer name such as **distancia_puertos.shp** that can be saved in **/home/ubuntu**
4. The geometry type choosen must be **lines** and the process selected should be **points to lines**. On the next window you will see all the original features, and press **Add all items** if you want to add all. If not, select the original features you want to derived, and then the plus button. If you want to add or remove some axis, click on the **plus** or **minus** buttons, after selecting the features to want to remove.
5. Clicking on **Generar** will create the new layer, adding it to the current view above all the other layers.

Creating hyperlinks on vector layers

It is possible to link text files, html, and pdf files to geometries that are on a vector layer. This feature in gvSIG isa called Hyperlinks.

1. Add the layer **municipiosAndal.shp** to the view and then apply **Zoom to layer**. We need to save a new layer (from the one added to the view) on a read and write folder because it is needed to put the layer into editing mode to add the hyperlinks.
2. So, go to **Layer/Export to /SHP** and save the new file into the folder **/home/ubuntu**.
3. Then start editing mode on that new layer, open the attribute table and go to **Table/Manage fields.** We are going to create 3 new fields: **image_link**, **html_link**, **pdf_link**, all of them from type **String**. Each of those fields will be filled with the route to the file we want to link to.
4. For example, we can link an image from Granada. In this case, the first thing is to identify the entry of the table where we have to edit in order to add the link.
5. Open the attribute table, and the filter tool to identify **NOMBRE = 'GRANADA'** . After filtering this entry, the polygon will remain selected on the view and on the table. Then go to this entry and type **/cdrom/data/cartografia/Andalucia/granada** (with no extension at all) on the field **image_link** .
6. The same way as before, we can identify the table entry for **NOMBRE = 'SEVILLA' ,** then on the field **html_link** write the url of the Town Hall of Sevilla: **http://www.s**evilla.org/impe/sevilla/portada
7. Last, we are goingo to add a link to a pdf format file. We are going to add a file for routing Jaén, writing **/cdrom/data/plantillas/ruta1.pdf**
8. Once you have edited all the related entries, close the table and **Finish the editing** mode.
9. Now it's time to set the hyperlinks on the layer properties. Go throught the content menu to the properties of the vector layer. Then click on the Hyperlink tab, and active the hyperlink.

10. For the first kind of hyperlink (image), select the field where you had done it (**image_link**), write the extension as **jpg** and choose the option **Link to image files**. Then click on the Add action, and set the other two kind of hyperlinks (html_link and pdf_link). Accept hose changes on the properties window.
11. At last, go to the view again, go to each of the the 3 entries (you can use the filter tool again): Granada, Sevilla and Jaén and in each one click on the hyperlink tool and after that click on the feature. You will be able to see the image, the web page and the pdf, each on a different window.

Note: if some of the file do not apear on the window, make sure you have edited the vector entry with the right text.

This page last changed on Jun 14, 2010 by jsanz.

8.Graphical output

8.1. Quick print tool

You can print a view semi-automatically with the tool called "quick print" (menu: View > Quick print). There you'll find a window with a few options. A map will be automatically generated and will be sent to the printer.

8.1.1. Create a view. Rename it to "Andalucia".
8.1.2. Open it and add the layer municipiosAndal.shp
8.1.3. Select the layer and configure the legend (right-click on the layer: Properties > Symbols) like this: Categories > Unique values > Classification field = "PROVINCIAS".
8.1.4. Go to menu View > Quick print and set the following paremeters: Formats = A4, Orientation = Horizontal, Title = "Andalusian municipalities", Show legend = ok, Show grid = ok, Image = by default. Then, click on Preview. The new map will be generated. If it's ok we could print it or export it as a PDF.

8.2. Making a map

We can create a completely new map or we can use a template created before.

8.2.1. Load the template called Plantilla4.gvt (menu: File > Open template).

Adding a view.

8.2.2. Insert the view "Andalucia" in the bigger rectagle (menu: Map > Insert > View).
8.2.3. Adding a grid to the view. Select the view, right-click on it and select Properties. Select Show grid and click on Configure. There you can set the parameters: interval, symbol and font.
8.2.4. Setting the view scale. Within the view properties dialog we can select three types of scales: Automatic, Maintain view scale and Specified by user. Apart from that we can do zoom and pan on the view in order to get the desired aspect (zoom in, zoom out and pan view frame buttons). Notice that the view must be selected.
8.2.5. Rotating the view. Select the view, right-click on Properties and input the degrees manually or clicking on the arrows.

Adding a legend.

8.2.6. Go to Menu: Map > Insert > Legend. Drag and drop the mouse over the area you want to place the legend. There you must select the view and the layers whose legends you want to show.
8.2.7. To modify the legend elements select the legend and go to menu: Map > Graphics > Simplify legend.

Adding other map elements.

8.2.8. Scale. To add a scale go to menu Map > Insert > Scale. Then drag and drop over the area you want to place the scale and set the parameters. Notice that the scale is dinamic: if we change the scale view, the scale symbol will be updated automatically.
8.2.9. North symbol. To add a north symbol go to menu > Map > Insert > North. Then drag and drop over the area you want to place the north, choose one of the showed symbols and select the view the north must be linked with. Notice that the north orientation is dinamic: if we rotate the view, the north will be updated automatically.
8.2.10. Locator. To add a locator go to menu Map > Insert > Locator. Then drag and drop over the area you want to place it and set the required parameters.
8.2.11. You can add other elements like text, rectangles, lines or images.
8.2.12. You can group, ungroup, align, place back and bring to front all the elements (menu Map > Graphics >...).

8.3. Printing the map

8.3.1. To print the map go to menu Map > Print. The print dialog will appear.

8.3.2. Instead of printing the map you can export it to a PDF or PS (PostScript) file (menu File > Export to...).