

Space Details

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Available Pages

- OSGIS 2010 gvSIG Workshop
 - OSGIS10 Setting up the LiveDVD
 - OSGIS10 Brief introduction to the project gvSIG
 - OSGIS10 Structure and configuration of a project in gvSIG
 - OSGIS10 Visualization of data
 - OSGIS10 Selections and tables
 - OSGIS10 Visualization and query of remote data
 - OSGIS10 Editing
 - OSGIS10 Layouts
 - OSGIS10 Brief introduction to gvSIG Mobile 0.3
 - OSGIS10 Installation and requirements
 - OSGIS10 Download of gvSIG 0.3
 - OSGIS10 Description of the exercise
 - OSGIS10 Exportation of data from a gvSIG Project into the PDA
 - OSGIS10 Configuration of the device and project
 - OSGIS10 Visualization of local and remote data
 - OSGIS10 Obtaining and Searching information, making measures
 - OSGIS10 Editing a vector layer by using XML files
 - OSGIS10 Export data
 - OSGIS10 Thematic maps generation

OSGIS 2010 gvSIG Workshop

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



Welcome

This is the [OSGIS 2010](#) gvSIG workshop main page. Below this page you'll find the handout of the proposed exercises.

Lecturers

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Workshop URL


This workshop is accessible at

<http://tinyurl.com/gvsig-osgis10>

Surveys


Please, consider filling up these surveys. Getting this valuable feedback help us a lot to improve our workshops.

- [Before the workshop survey](#)
- [After the workshop survey](#)

 These links will work only during the OSGIS event

LiveDVD

This workshop is intended to be done using the gvSIG LiveDVD that will be provided to any attendant of the [OSGIS 2010 event](#).

 If you didn't attend the conference, you'll be able to download the DVD image from the [gvSIG portal page](#).

Contents of the workshop

[OSGIS10 PART I Introduction](#)

- [OSGIS10 Setting up the LiveDVD](#)
- [OSGIS10 Brief introduction to the project gvSIG](#)

[OSGIS10 PART II gvSIG as Desktop and SDI client](#)

- [OSGIS10 Structure and configuration of a project in gvSIG](#)
- [OSGIS10 Visualization of data](#)
- [OSGIS10 Selections and tables](#)
- [OSGIS10 Visualization and query of remote data](#)
- [OSGIS10 Editing](#)
- [OSGIS10 Layouts](#)
- [OSGIS10 Appendix](#)

[OSGIS10 PART III gvSIG Mobile](#)

- [OSGIS10 Brief introduction to gvSIG Mobile 0.3](#)
- [OSGIS10 Installation and requirements](#)
- [OSGIS10 Download of gvSIG 0.3](#)
- [OSGIS10 Description of the exercise](#)
- [OSGIS10 Exportation of data from a gvSIG Project into the PDA](#)
- [OSGIS10 Configuration of the device and project](#)
- [OSGIS10 Visualization of local and remote data](#)
- [OSGIS10 Obtaining and Searching information, making measures](#)
- [OSGIS10 Editing a vector layer by using XML files](#)
- [OSGIS10 Export data](#)
- [OSGIS10 Thematic maps generation](#)

[OSGIS10 Internal](#)

[OSGIS10 Workshop license](#)

Handout

You can print a handout of this workshop, but you should realize that this is a live space and the handout could be a little bit outdated, check the dates of the document.

date	file
17th of June of 2010	workshop-export.pdf

Workshop license

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Cannot resolve external resource into attachment.

OSGIS10 Setting up the LiveDVD

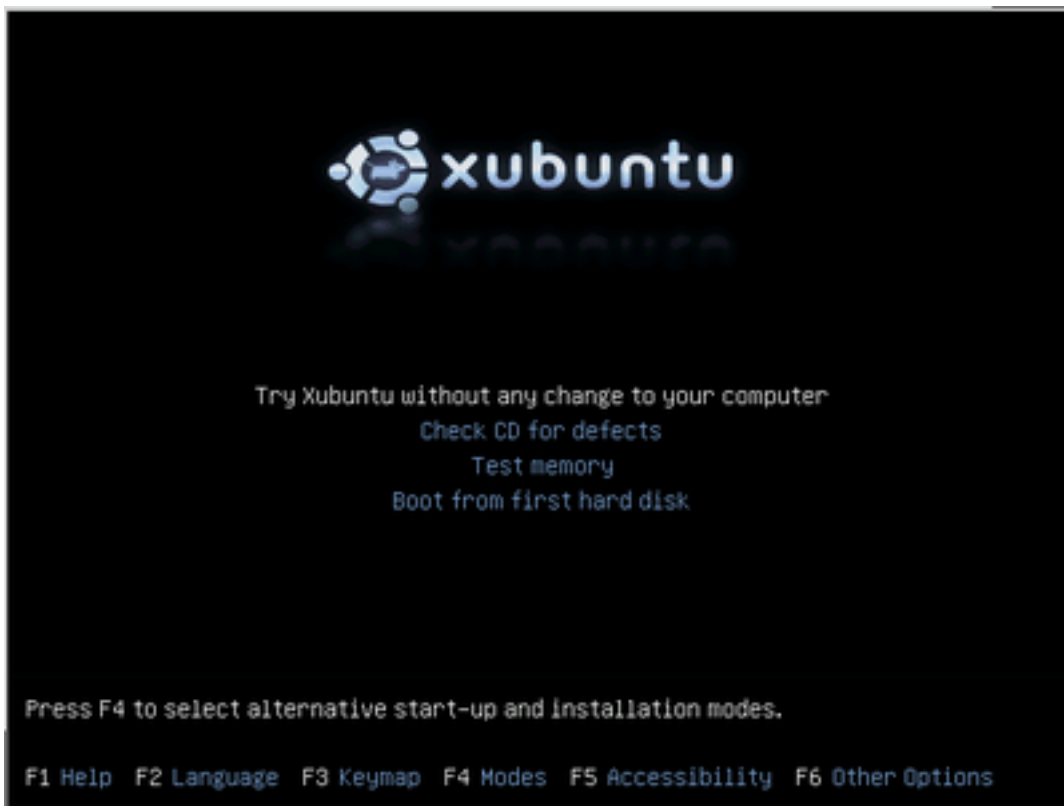
This page last changed on Jun 15, 2010 by jsanz.


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*.



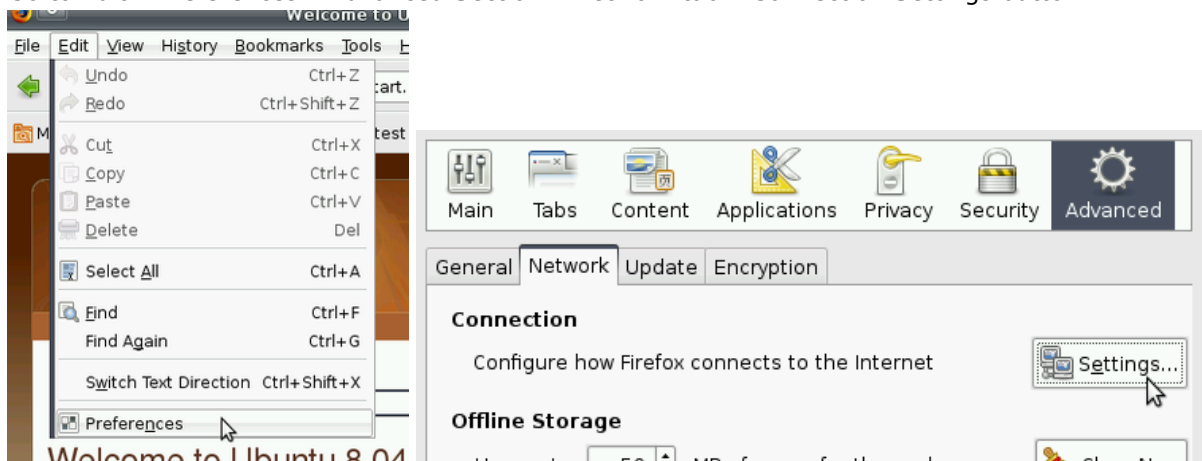
-  Press F2 to change the language, and F3 to change the keyboard. Press F1 to obtain more help.
- After a few moments the gvSIG LiveDVD Desktop should appear



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: Port:

Use this proxy server for all protocols

SSL Proxy: Port:

- 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 needs 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

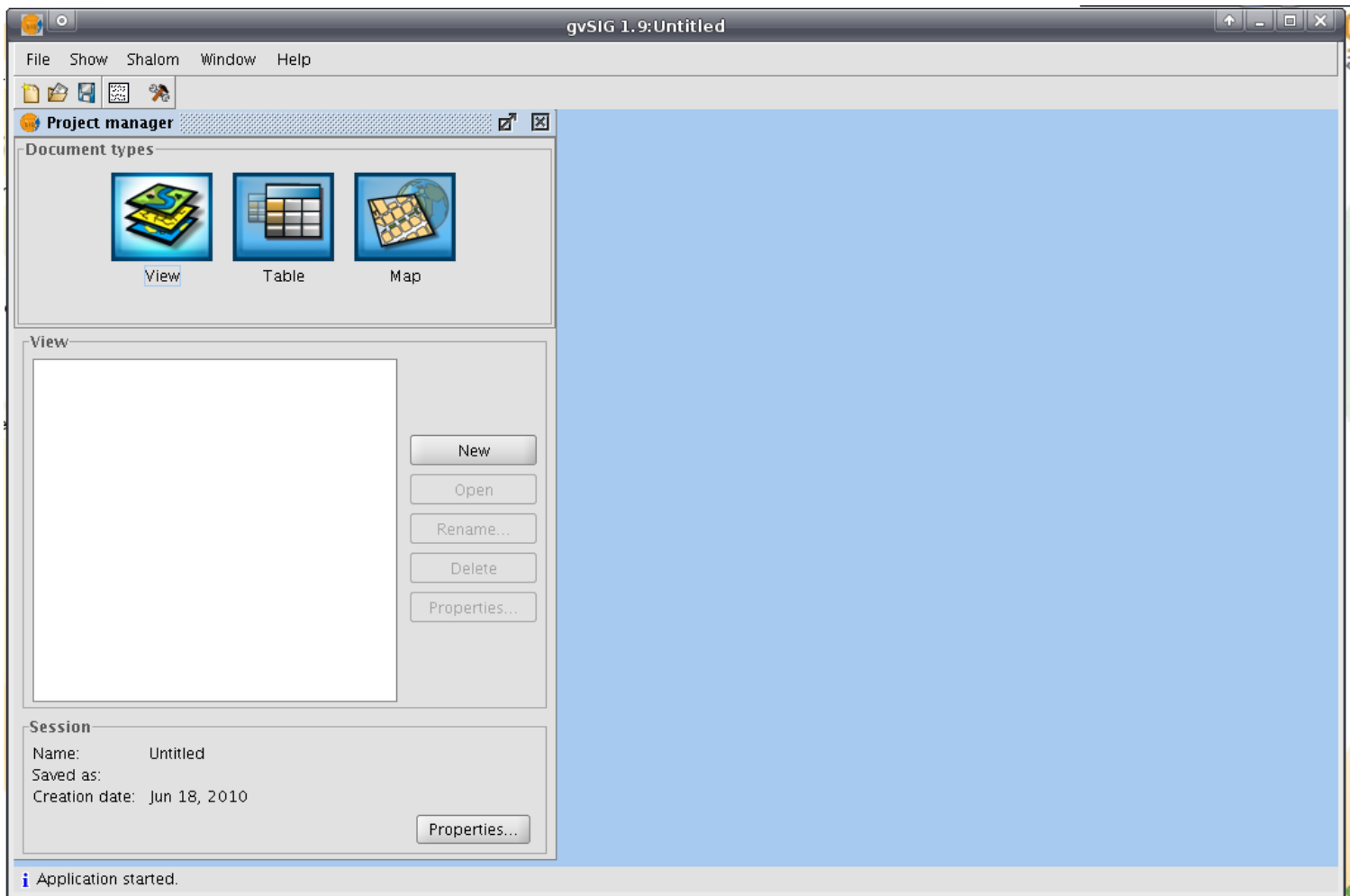
This page last changed on Jun 18, 2010 by jsanz.

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.

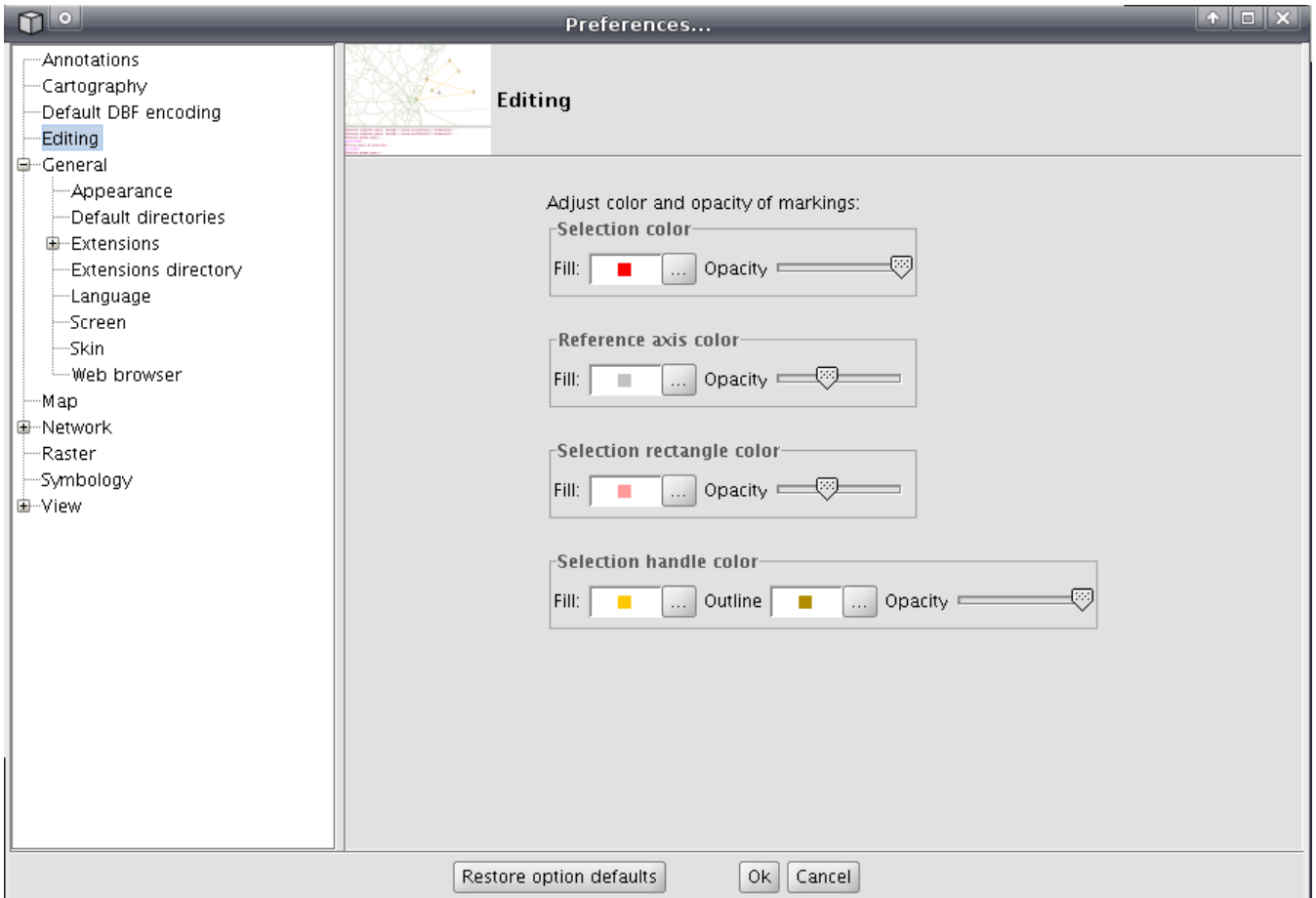


Preferences configuration

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.



OSGIS10 Visualization of data

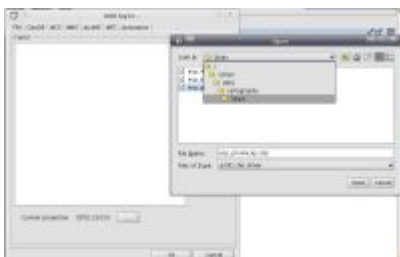
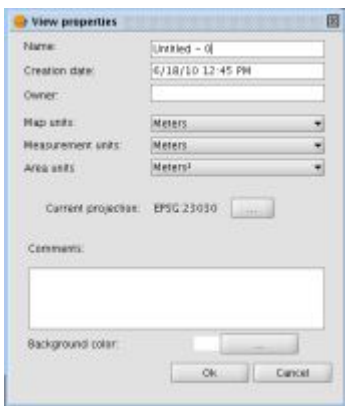
This page last changed on Jun 19, 2010 by jsanz.

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



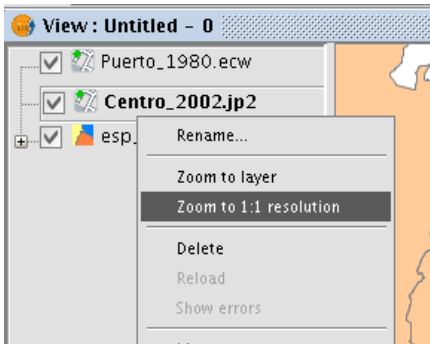
Tip

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

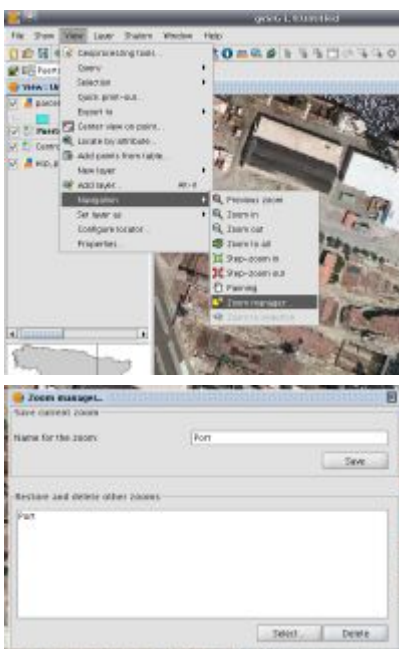


- Locator:

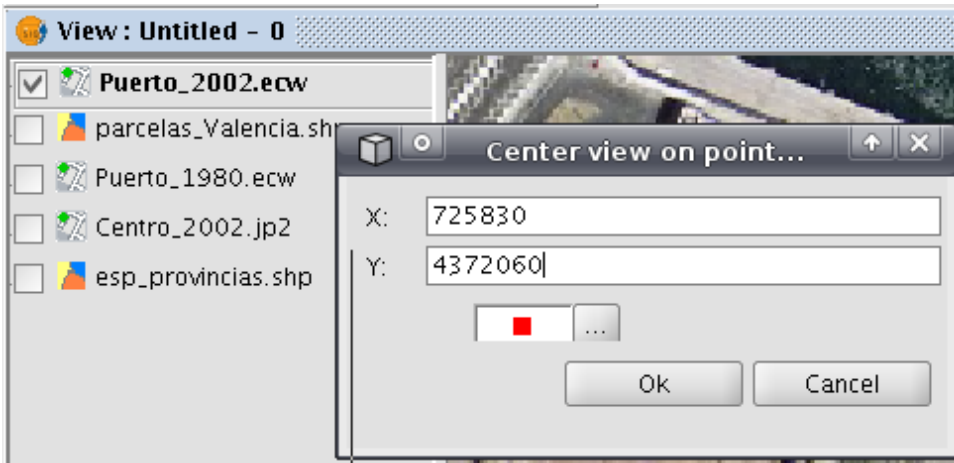
- View->Configure locator map menu
- Add layer: **esp_localizador.shp**
- Zoom to layer:
 - Add layers to the View: **Centro_2002.jp2** and **Puerto_1980.ecw** at /data/cartography/Valencia/ folder..
 - Select the layer **Centro_2002.jp2** and right-click on it; then *Zoom to layer* to navigate to the 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*



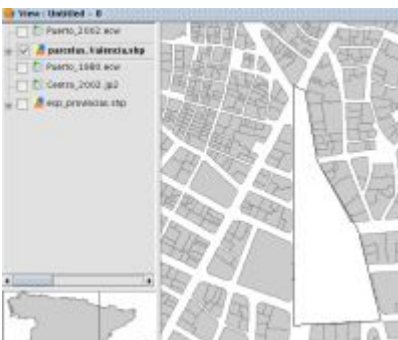
- Center view to a point:
 - Add layer: **Puerto_2002.ecw**
 - View->Center view to point menu:
 - X: 725830
 - Y: 4372060



- Zoom manager (2):
 - *View->Navigation->Zoom manager* menu; select the *Port* zoom and press *Select*.

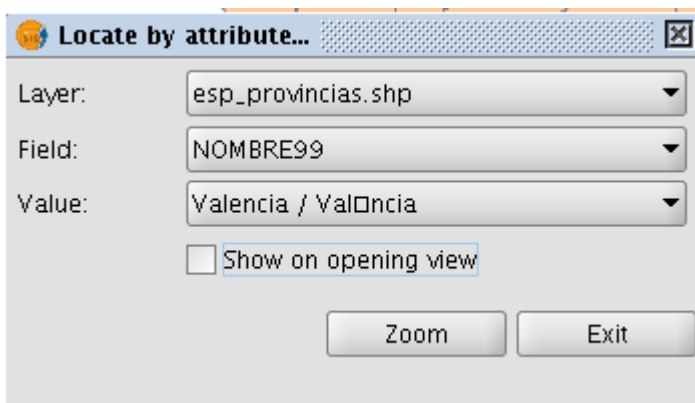
Areas and distances

- 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)



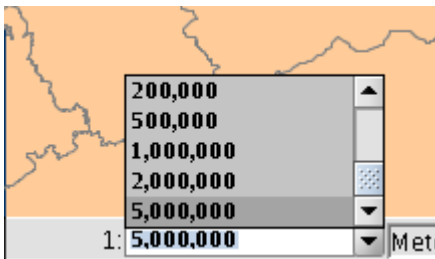
Locate by attribute

- 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.

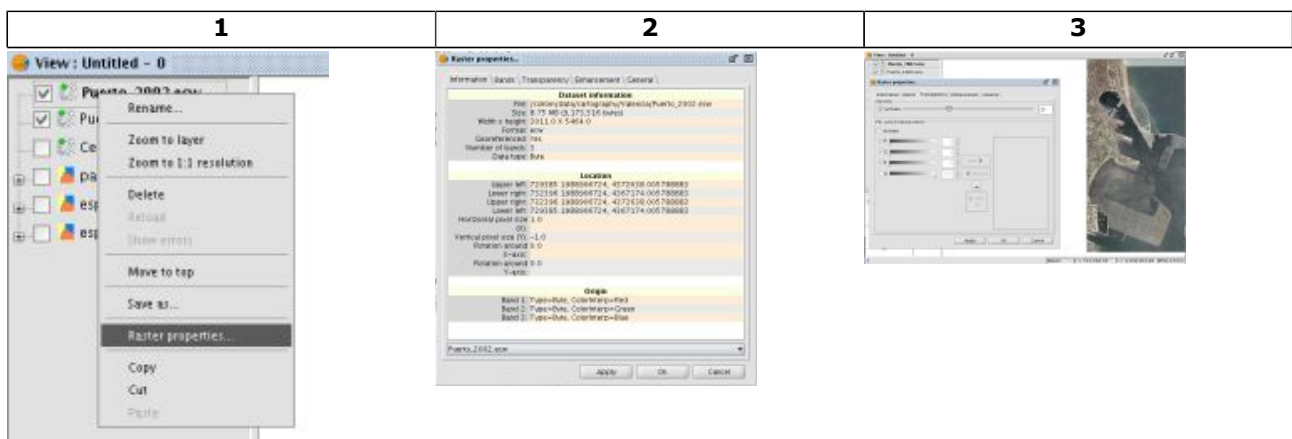


Styling

Transparency of a raster image

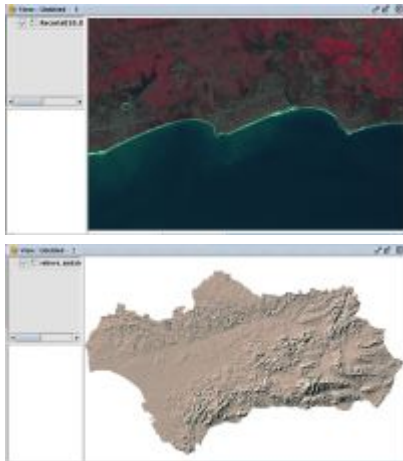
On the same view, keep only visible **Puerto_2002.ecw** and **Puerto_1980.ecw** layers, and **Puerto_2002.ecw** as active layer.

- 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 differences of the port between 1980 and 2002 are shown on the view(3).



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.

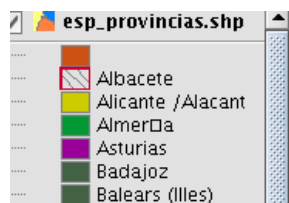


Legends and basic symbology



tip

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

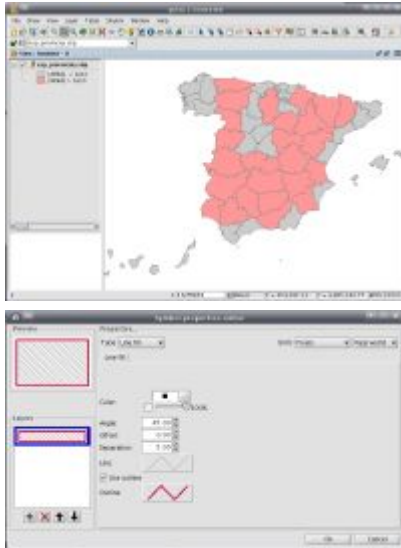


- Properties of the layer: Double-click on the `esp_provincias.shp` layer in the TOC.
- Select *Symbology* tab, then *Categories*->*Unique values*; change *Classification field* to *NOMBRE99*; press *Add all* and *Accept*.
- Modifying symbology of a polygon:
 - Access to the Properties of the layer again;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



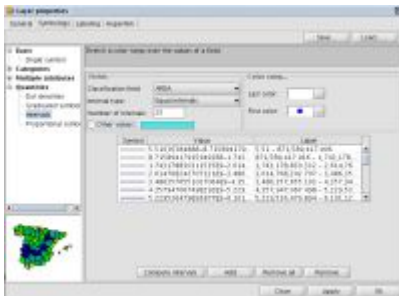
Extension

- 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.



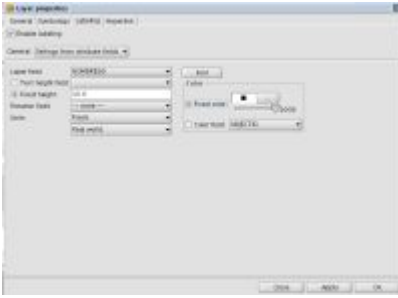
Legend by intervals

- 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**



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).

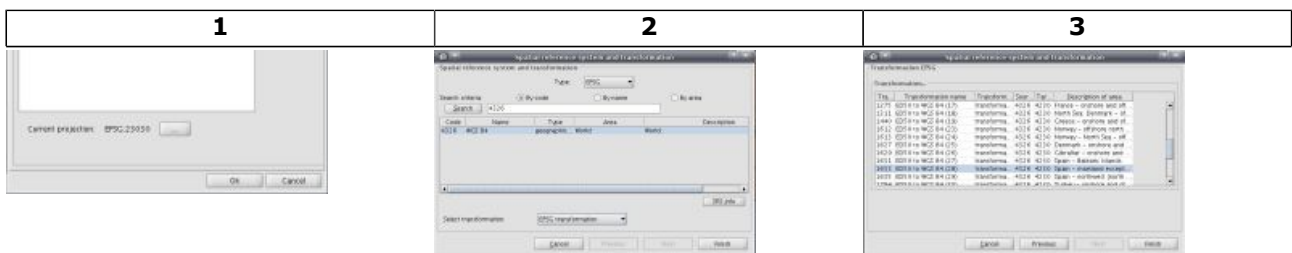
A created legend can be exported to a symbology interchange format (.sld). It can be used to share legends with other programs, but if it's used in gvSIG, some characteristics can disappear.

- Access to *Properties*->*Symbols* of the `municipiosAndal.shp` layer.
- Create a new symbology (*Catgories*->*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.



Add event layer

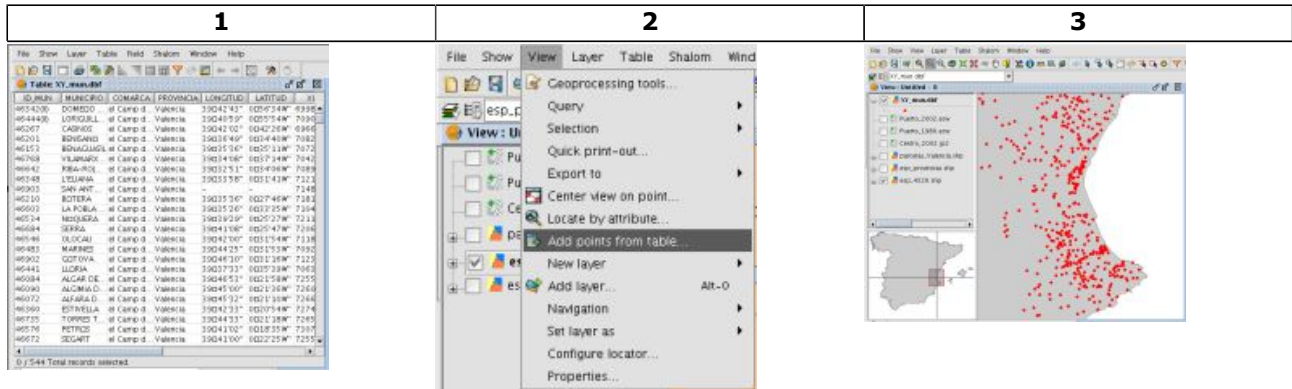
A layer of points can be added in a view from an alphanumeric table with coordinates.

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).



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 use 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.

OSGIS10 Selections and tables

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

Contents

Error formatting macro: toc: java.lang.NullPointerException

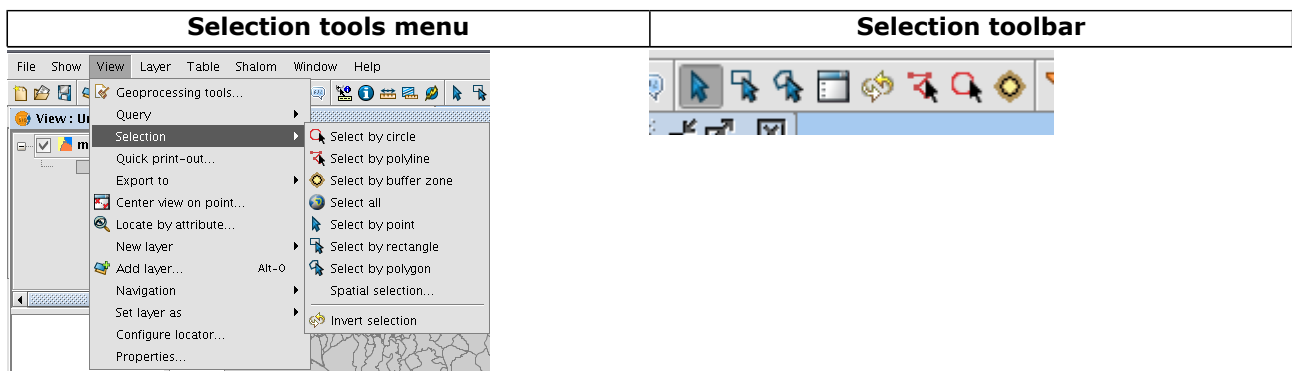
Selecting tools

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)



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.

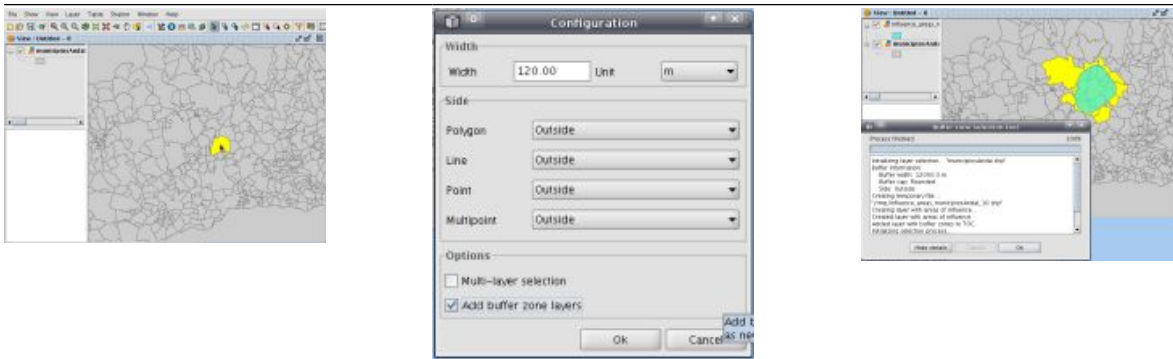
- Remove any previous selection with the *Clear selection* tool (from the toolbar)
- Activate the `municipiosAndal.shp` layer, and select a feature with the *Select by point* tool (1).
- Go to *View->Selection->Select by buffer zone*
- Write `120.00` m. (this in fact means 12000m, see side note)
- In 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
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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)

Table: Attribute table: `municipiosAndal.shp`

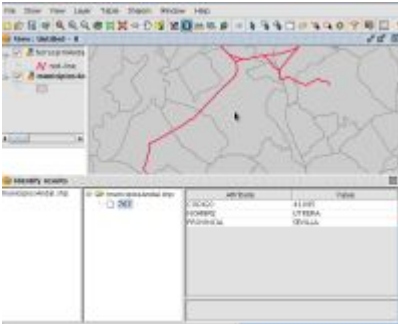
CODIGO	NOMBRE	PROVINCIA
14001	ADAMUZ	CORDOBA
14005	ALMODÓVAR DEL RÍO	CORDOBA
14020	CONQUISTA	CORDOBA
14021	CORDOBA	CORDOBA
14036	HORNACHUELOS	CORDOBA
14043	MONTORO	CORDOBA
14049	PALMA DEL RÍO	CORDOBA
14053	POSADAS	CORDOBA
14067	VILLAFRANCA DE CORDOBA	CORDOBA
14069	VILLANUEVA DE CORDOBA	CORDOBA
41006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

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.

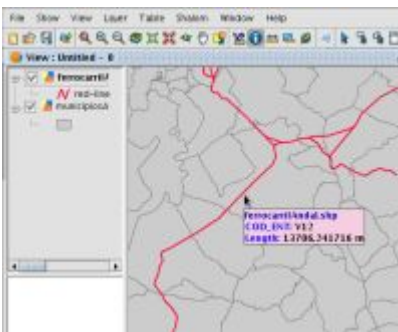


Table tools

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																									
		<table border="1"> <thead> <tr> <th>GROUP</th> <th>COUNT</th> <th>LENGTH_Min</th> <th>LENGTH_Max</th> <th>LENGTH_Sum</th> </tr> </thead> <tbody> <tr> <td>4.0</td> <td>2145.0</td> <td>0.0</td> <td>12908.29118</td> <td>2741276.43012</td> </tr> <tr> <td>3.0</td> <td>2145.0</td> <td>0.01148</td> <td>21695.07496</td> <td>4789358.48911</td> </tr> <tr> <td>5.0</td> <td>421.0</td> <td>0.01024</td> <td>21117.55708</td> <td>1682124.30216</td> </tr> <tr> <td>6.0</td> <td>786.0</td> <td>0.02151</td> <td>10495.19643</td> <td>532009.78469</td> </tr> </tbody> </table>	GROUP	COUNT	LENGTH_Min	LENGTH_Max	LENGTH_Sum	4.0	2145.0	0.0	12908.29118	2741276.43012	3.0	2145.0	0.01148	21695.07496	4789358.48911	5.0	421.0	0.01024	21117.55708	1682124.30216	6.0	786.0	0.02151	10495.19643	532009.78469
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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)

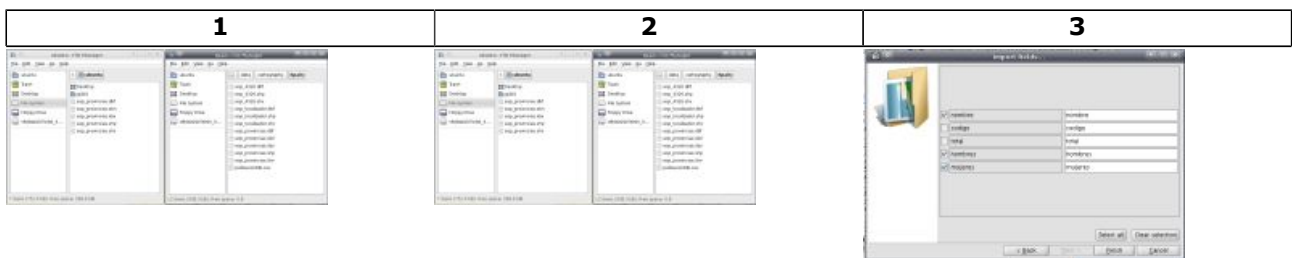



 You can remove a table join using the *Table->Remove joins* menu entry.

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)



 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}).

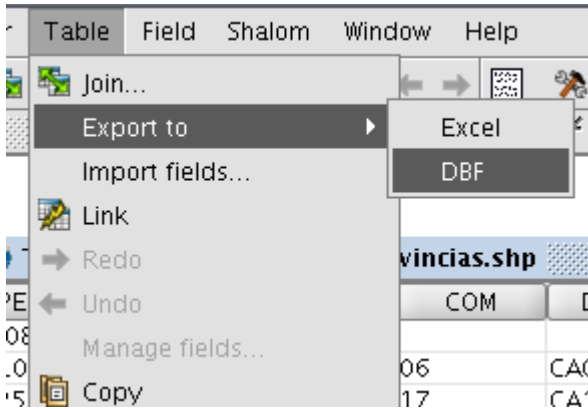


Table encoding

As you probably have noticed, the provinces shapefile shows some strange characters on the name field. This is because the character encoding 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 table *esp_provincias.dbf*, you'll see strange characters at *NOMBRE99* field
- Assign the *CP1252* encoding using *Shalom*->*Set Encoding to dbf files*
- Delete the table from your gvSIG project
- Create new View and add *esp_provincias.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																																								
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OSGIS10 Visualization and query of remote data

This page last changed on Jun 17, 2010 by [jvhigon](#).

Proxy Settings

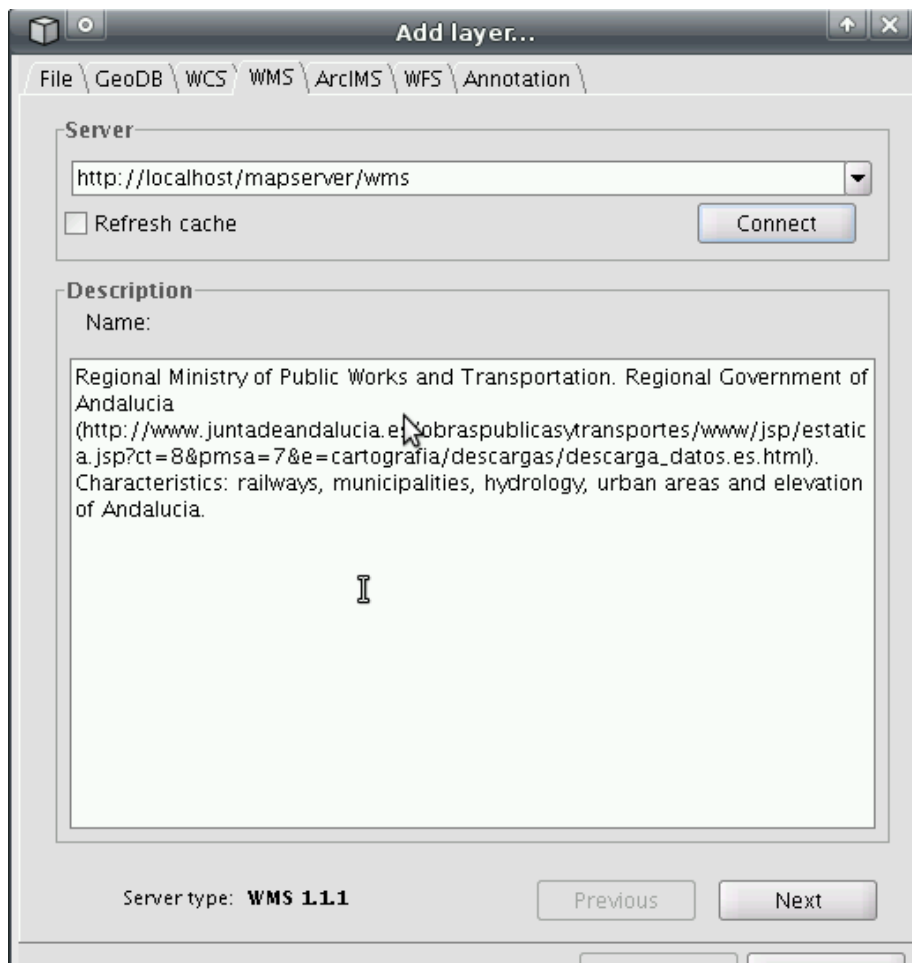
First of all, if a proxy is needed to connect internet you will have to change gvSIG settings. Go to *Window > Preferences ... > Network --> Firewall/Proxy* and set your proxy parameters.



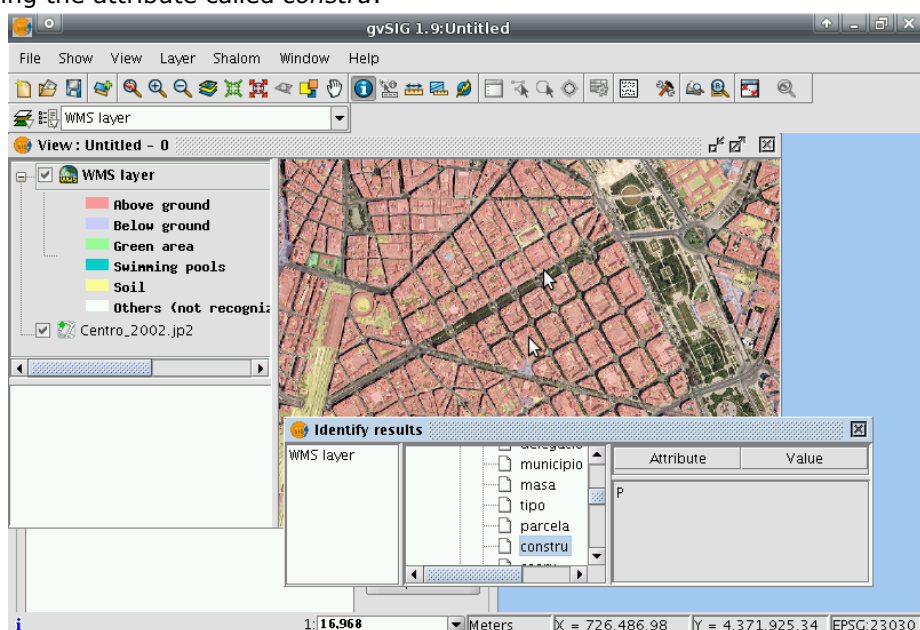
WMS - Web Map Service

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

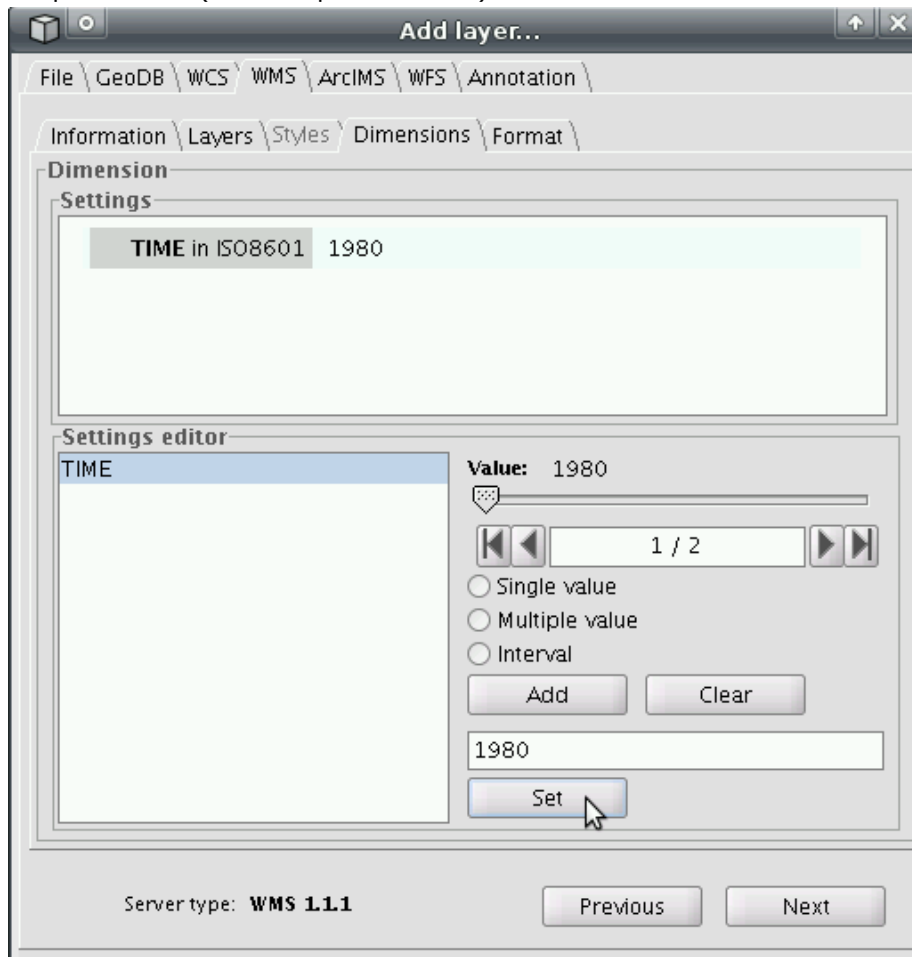
1. Copy the view *VISTA1* that already exists (on the Project Manager). We are going to add a WMS layer on this view.
2. Keep as active only the layer *Centro_2002.jp2*
3. Go to *View --> Add Layer...* and click on the *WMS* tab. Put the url: http://localhost/mapserver/wms* and click *Connect*. The service 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 cadastral reference of that plot. This link is useful in order to see the public information related to this plot published on the cadastral 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).

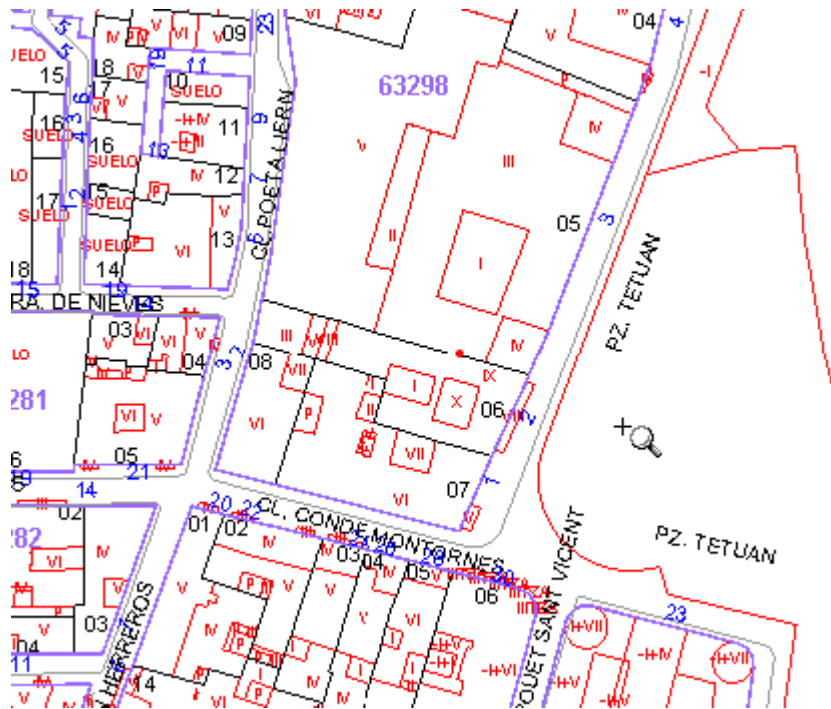


10. In order to see differences between two periods of time, load the same layer on a different time and change its opacity (70 percent for example).

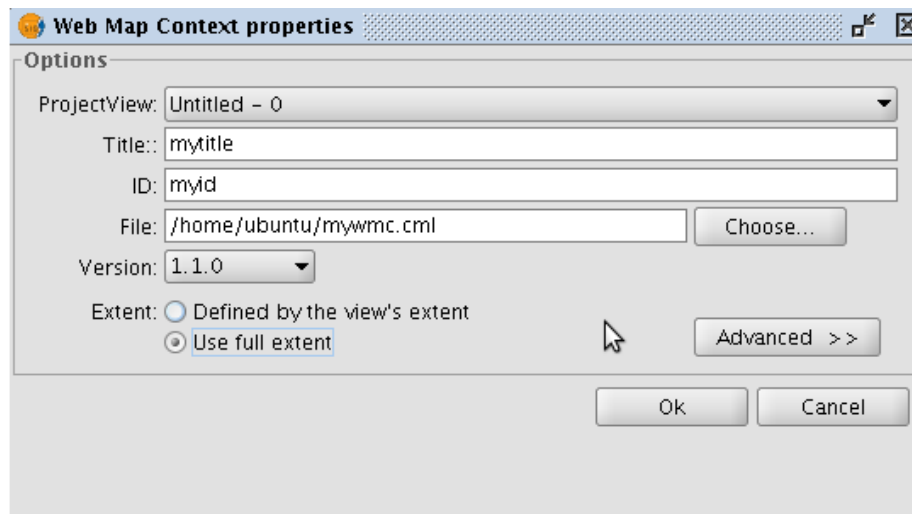
WMC - Web Map Context

Once you have a WMS layer added, you are able to export a WMC file (.*cmf* 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**.



- 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*.



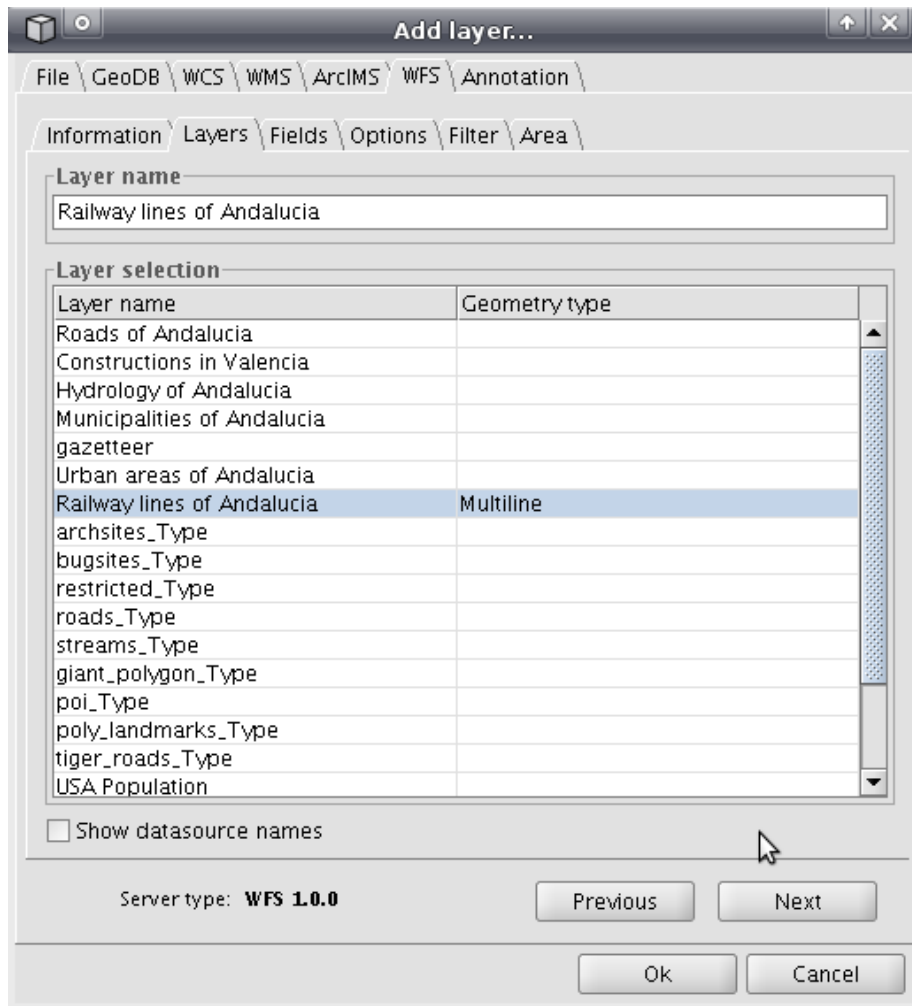
Now, the other way round: import WMC files.

- 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.

- 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 Andalusia** (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 data 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 parameters 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 service 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 then go to the tab WCS. Connect to the url <http://localhost/mapserver/wcs>
2. Once you are in, 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. Accept and then the layer will be added to the view.
4. From the context menu, you will be able to change the **WCS Properties**, like you have done to the others web map services.

Access to PostGIS Data Bases

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

In order to load a PostGIS layer you will need to follow these 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 windows, put those 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 all the field of that layer will appear on the right column. You can 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 its minimum and maximum extent.
5. After accepting the postgres access window, 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.

Catalogue search

The catalogue search service gives us the possibility of searching geographical information on the net. For that purpose, gvSIG offers an interface where the user can configure the needed parameters.

1. Open a new view, call it "Andalucia's towns". Click on the catalogue icon.
2. Paste the service url available on the liveDVD <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 then the button **Search**.
4. A window appears with the results of the geosearch, showing 5 layers that contain the keyword on their metadata. Go straight to the 3^o geodata called **Populated places of Andalucia**, and click on the **Add layer** button in order to see which kind of layer you will be able to add.
5. In this case, you'll see a WMS as Map for loading it into the view of gvSIG. Clicking on **Maps** the layer will be added.

Gazetteer

The Gazetteer service is a way of linking geographical coordinates and place names. gvSIG has a gazetteer client in which you can search for 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 (Finding by gazetteer) and the parameters window will appear (if you are not on the same view as before, remember that the gazetteer icon will not appear until you load at least one layer).
2. Connect to the server <http://localhost:8180/degree/wfs> selecting the **WFS-G** protocol.
3. Type the keyword **Sevilla** and then click on **Search**. Two results will appear displayed on the result pages. Select the first one, and click on **Localize**.
4. This way, a red point will appear on the view recentered on that place, showing the position of the place name and the name itself.
5. Once the point is on the view, the rubber icon appears for erasing the place names you added before.

This page last changed on Jun 17, 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 attributes 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** and 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*

- The geometry type chosen 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 derive, 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.
- 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 is called Hyperlinks.

- 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.
- So, go to **Layer/Export to /SHP** and save the new file into the folder **/home/ubuntu**.
- 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.
- 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.
- 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**.
- 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.sevilla.org/impe/sevilla/portada>
- Last, we are going 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**
- Once you have edited all the related entries, close the table and **Finish the editing** mode.
- Now it's time to set the hyperlinks on the layer properties. Go through the content menu to the properties of the vector layer. Then click on the Hyperlink tab, and activate the hyperlink.
- 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 those changes on the properties window.
- At last, go to the view again, go to each of 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 appear on the window, make sure you have edited the vector entry with the right text.

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 parameters: 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 rectangle (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 dynamic: 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 dynamic: 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...).

OSGIS10 Brief introduction to gvSIG Mobile 0.3

This page last changed on Jun 14, 2010 by [jsanz](#).

See attached *pdf*: ***gvSIG_Mobile_introduction_workshop_OSGIS_2010.pdf***

OSGIS10 Installation and requirements

This page last changed on Jun 14, 2010 by [jsanz](#).

- System requirements: [link](#)
- Previous requirements: [link](#)
- Manual of installation: [link](#)

OSGIS10 Download of gvSIG 0.3

This page last changed on Jun 15, 2010 by [adelrey](#).

- To download gvSIG 0.3 this link: [link](#)

NOTE: For this workshop as we have to run gvSIG Mobile 0.3 in a PC, we will use the version of gvSIG 0.3 for Tablet PCs for Windows XP: [link](#)

OSGIS10 Description of the exercise

This page last changed on Jun 16, 2010 by [adelrey](#).

The exercise will consist of updating the shape file "services" as if we were in situ with gvSIG Mobile, by the location and editing of a new service (a restaurant) in the street "La Paz" in the center of Valencia.

We need to register this new service with the number of the official Cadastre Reference (*REF_REG*), that we will take from the WMS of this Public Administration of Spain.

The data we are going to use is:

- Ortophoto of Valencia center: ***vlc_centro_23030.ecw***
- Point shapefile with the services in the center of Valencia: ***services.shp***
- Line shapefile with the services in the center of Valencia: ***streets.shp***
- Web Map Service of the National Cadastre of Spain: <http://ovc.catastro.meh.es/Cartografia/WMS/ServidorWMS.aspx?>
- We will edit the attributes of the new point through a custom form by using a *xml* file called ***SERVICES_Valencia.xml***

OSGIS10 Exportation of data from a gvSIG Project into the PDA

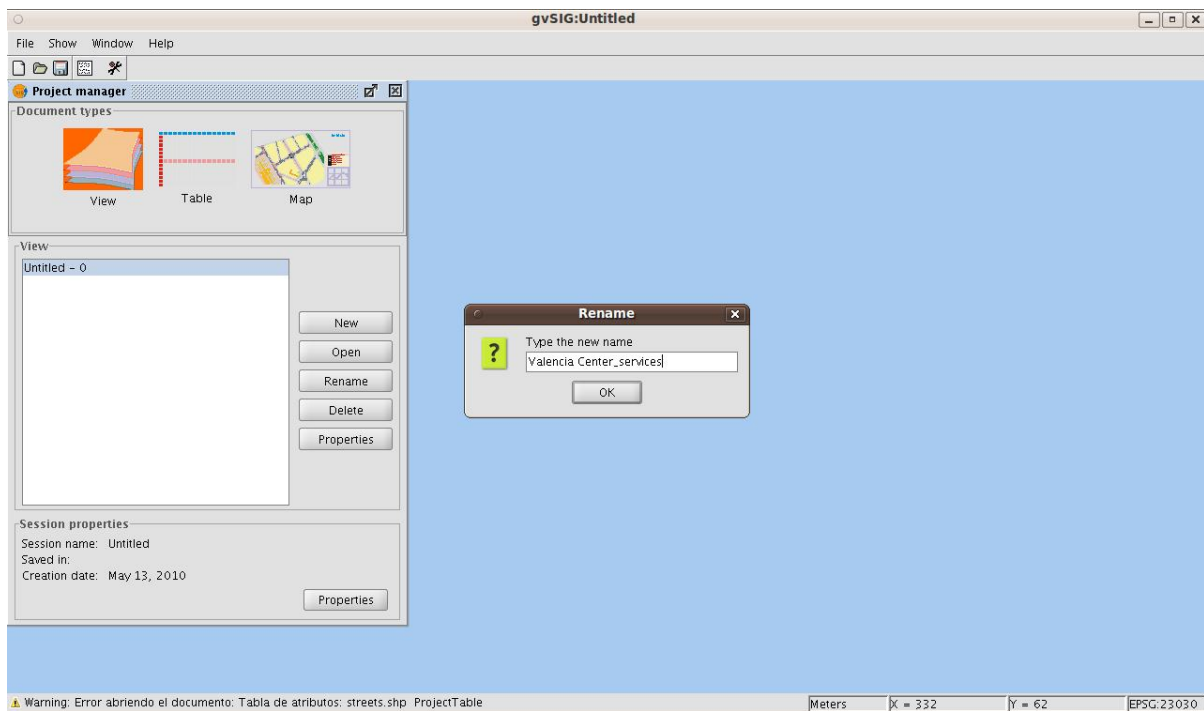
This page last changed on Jun 15, 2010 by adelrey.

1.- Extension to synchronize with gvSIG Mobile

To download this extension click [here](#). Currently this extension works under gvSIG 1.1.2 version. To install the gvSIG 1.1.2, the version gvSIG 1.1 have to be previously installed (to download this version click [here](#)). After the gvSIG 1.1. instalation we can install the gvSIG 1.1.2 version (to download this version click [here](#)).

2.- gvSIG Project and add data

2.1.- We create a new project with gvSIG called: **Valencia Center-services.gvp**

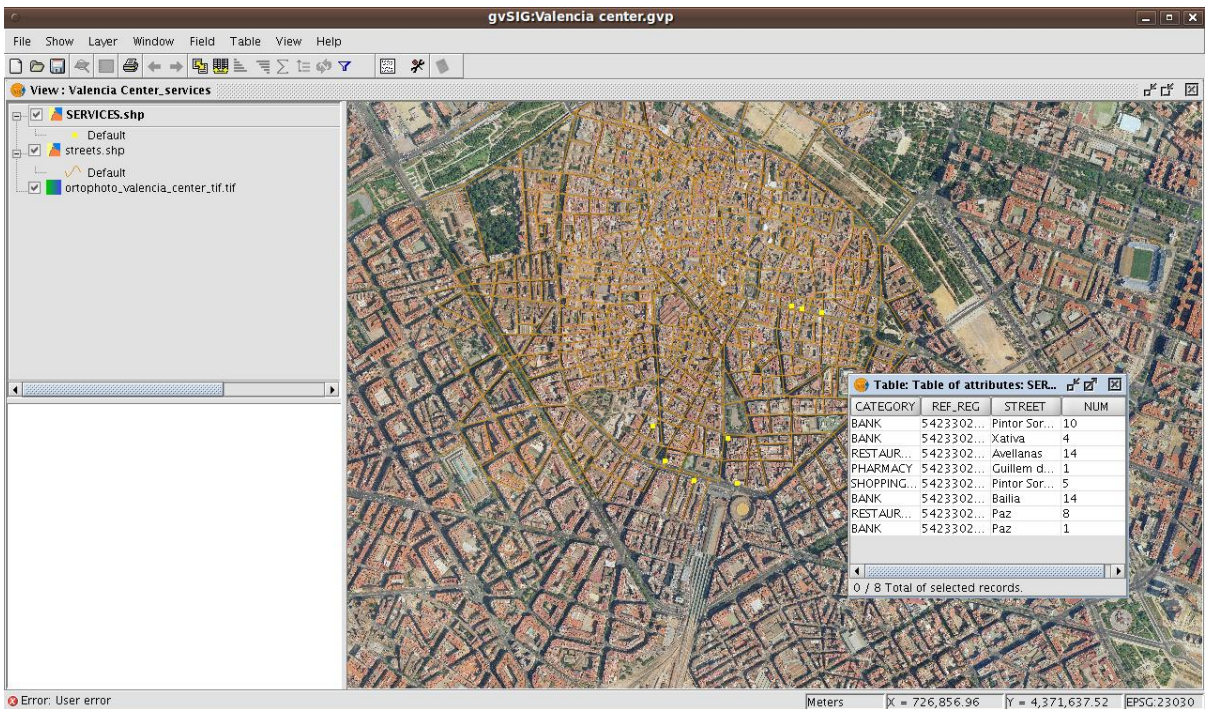


2.2.- We **add data** to the new window:

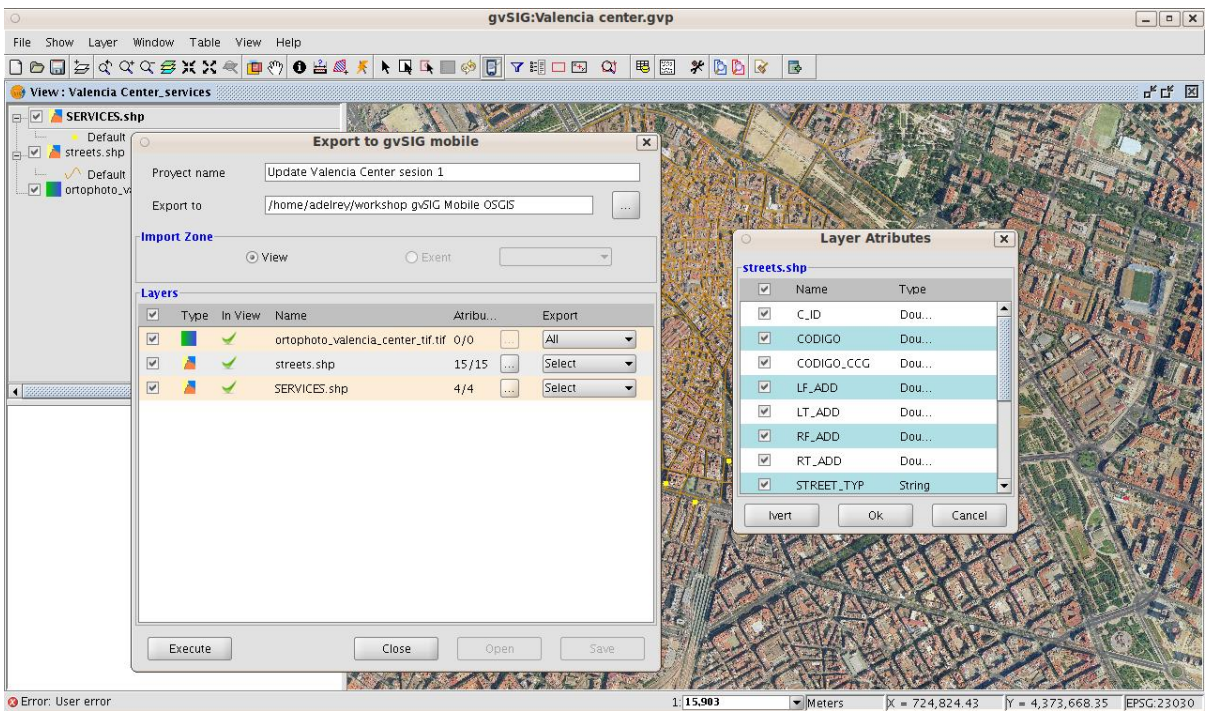
- an ortophoto of the center of Valencia, tiff format: **ortophoto_valencia_center_tif.tif**
- a shape file with the streets of Valencia : **streets.shp**
- a point shapefile with information about the current services in Valencia center.: **SERVICES.shp**

The structure of the table of shape file of the services of Valencia is the following one:

- CATEGORY
- REF_REG
- STREET
- NUM



2.3.- To carry out the job at the field, we should select just the information we need through the extension to export data.



We can select area to export by using:

- Active view.
- Frame.

To export to gvSIG Mobile we can:

- Select layers to export according to their location in the View and the area to be exported.
- Full layers can be exported.
- Clip by rectangle.
- Select geometries to export.

- Select attributes to export.
- Generate gvSIG Mobile export project. (gvm)
- Export simple symbols.
- Export viewing scales.

Project name: **Update Valencia Center sesion 1**

Path: **the default path of the workshop**

The result is a folder with the name/Update Valencia Center sesion 1, that contains the shapes files and the ortophoto and also a gvSIG Mobile project (.gvm):

- **SERVICES_select_points.shp**
- **streets_select_lines.shp**
- **Update Valencia Center sesion 1.gvm**

2.4.- To put this information in the PDA we have to copy this information through a program like: **ActiveSync**. For this workshop we have already copy this information to the Live DVD.

OSGIS10 Configuration of the device and project

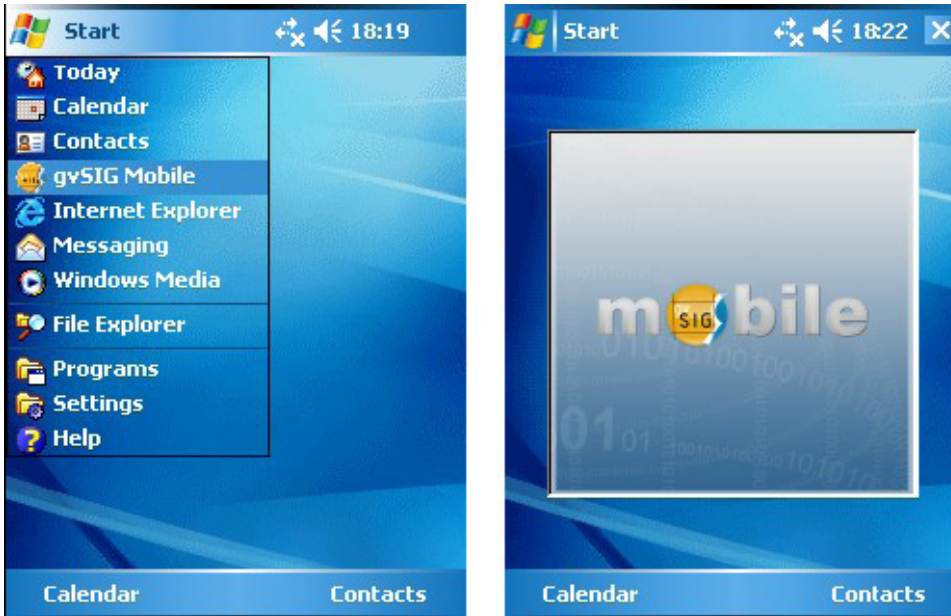
This page last changed on Jun 16, 2010 by adelrey.

1.- Start gvSIG Mobile for Windows XP

Just to click the *gvSIG Mobile.bat* file that is in the folder: gvSIG MobileXP_OSGIS.

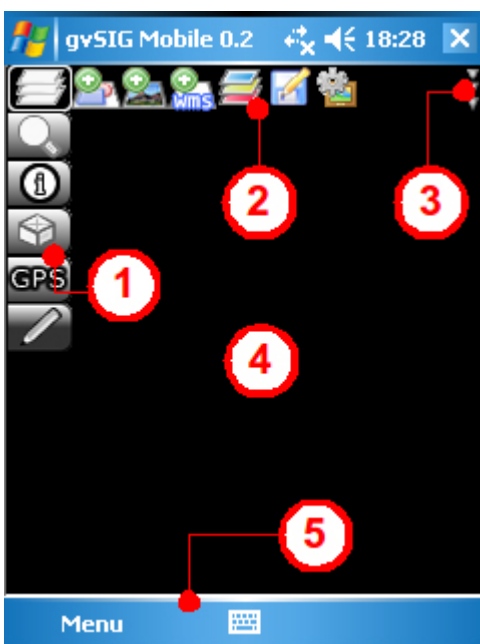
2.- Start gvSIG Mobile from a PDA

We start gvSIG Mobile from the PDA Start Menu.



3.- Main Toolbar

The application has a vertical **Main Toolbar (1)** with icons representing groups of functions, and a horizontal **Secondary Toolbar (2)**, which shows the specific tools of whichever icon is selected on the main toolbar.

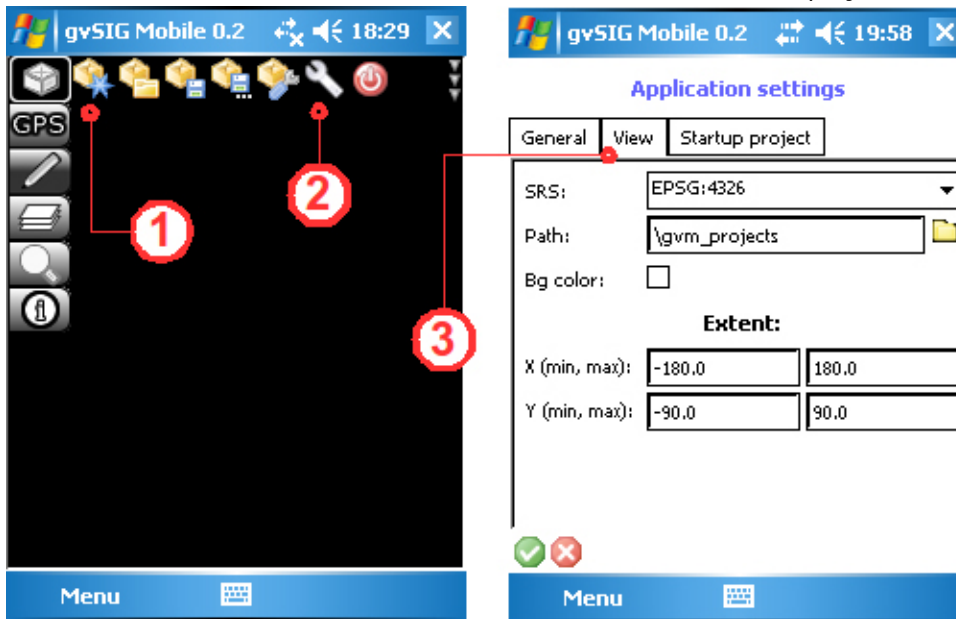


Main Toolbar:

- Project Management
- GPS Tools
- Editing Tools
- Layer Management
- Navigation Tools
- Information Tools

4.- Set up the default settings of the device

Through the **Project Management Function**, we are going to set up the default settings of the device, for example the language, the path to the project files, the spatial reference system, the background colour of the view and the maximum and minimum extends of the project.



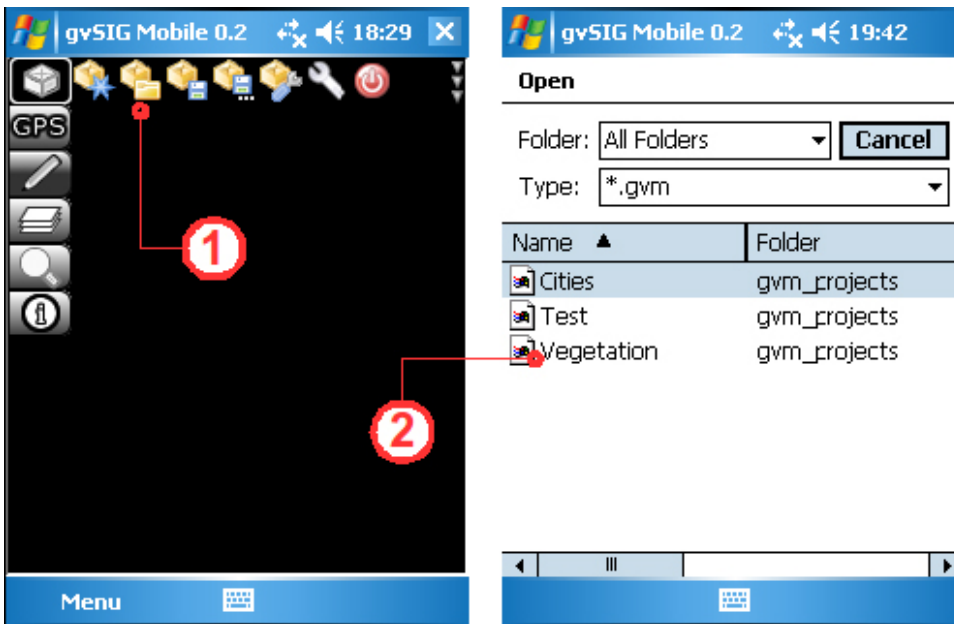
In our case:

- The SRS will be: [EPSG:23030 \(UTM Hayford Elipsoid ED-50\)](#). For example the EPSG: 4326 correspond to WGS84.
- The path: *by default*
- Language: [English](#)

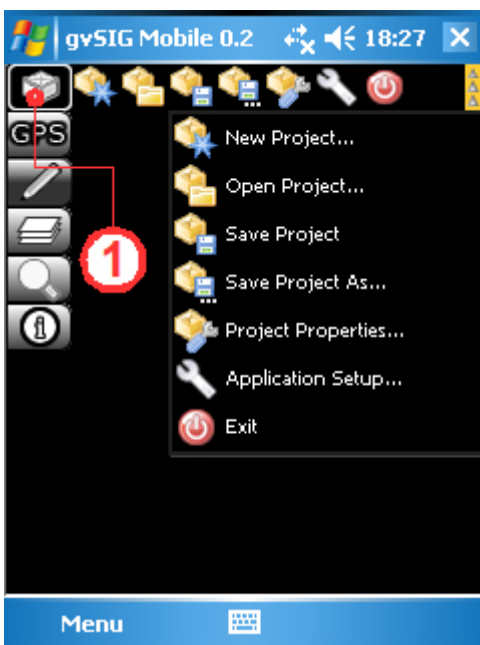
The default settings of the application can be different from the properties of the view. For example, we can set up a default SRS for the application and change this SRS from the view of the Project.

5.- Open a existing project

We open the gvSIG Mobile project created before: **Update Valencia Center sesion 1.gvm** by clicking Open Project

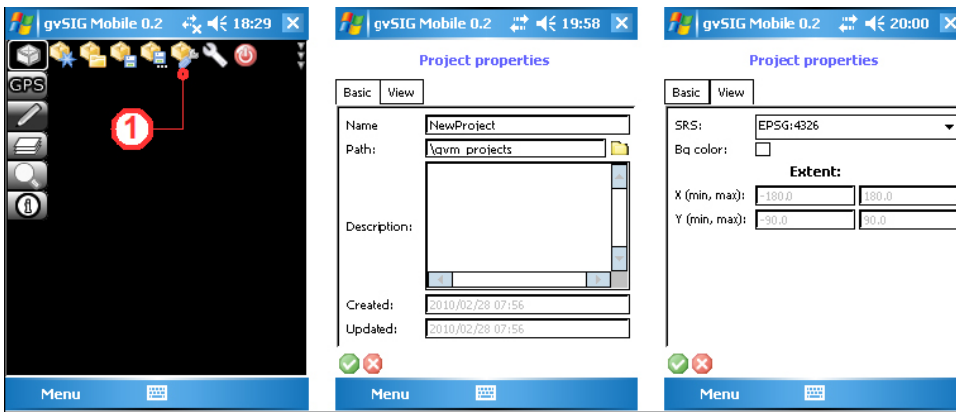


6.- Open a new project and set up the properties of the project



1.- We click *New project*.

2.- We can set up the properties of the project by clicking *Project Properties*.



As I said before, the default settings of the application can be different from the properties of the view. For example, we can set up a default SRS for the application and change this SRS of the view of the project.

In our case:

- SRS: EPSG: 23030
- Name of the project: **OSGIS.gvm**
- Path: OSGIS

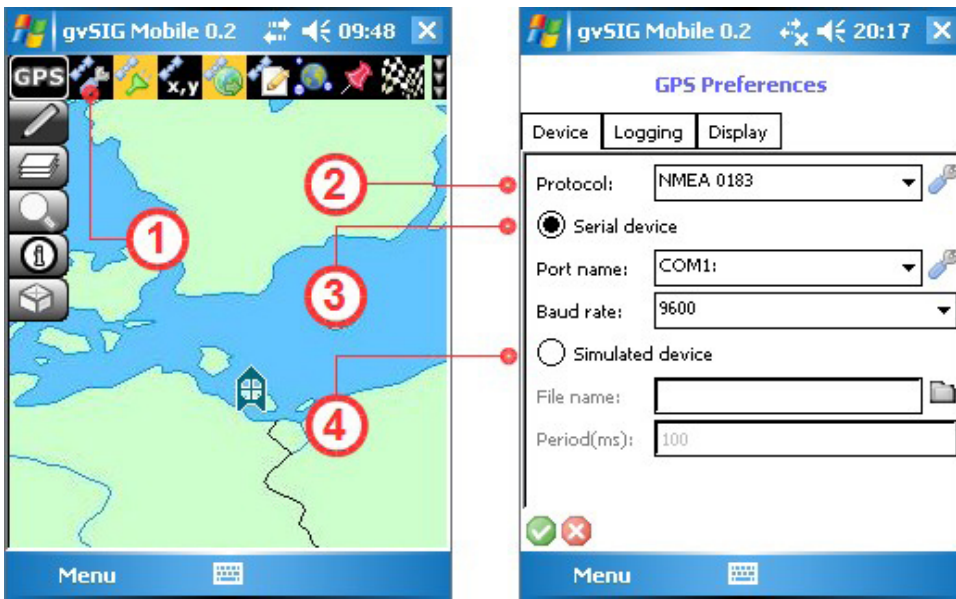
7.- GPS Configuration

As we are making this exercise by using gvSIG Mobile 0.3 for Windows XP and here there is no GPS signal, we are going to make this exercise without GPS. However I will explain how to set the GPS device in case we could go to the field.

We can set up the properties of GPS by the *GPS Setup option*.



We can decide if the GPS signals are to be received from an active GPS (Serial Device) or whether the GPS device will be simulated by using data from a text file containing NMEA GPS data (Simulated Device). In our case if we could go to the field we would use a Serial Device. (3) y (4)



As a simulated exercise, we will define the GPS preferences as:

- Protocol: From the drop-down list we select NMEA 0183 (At present only this protocol is supported but it is been working to give also support to the NTRIP Protocol)
- Port name: COM 2
- Baud rate: 9600

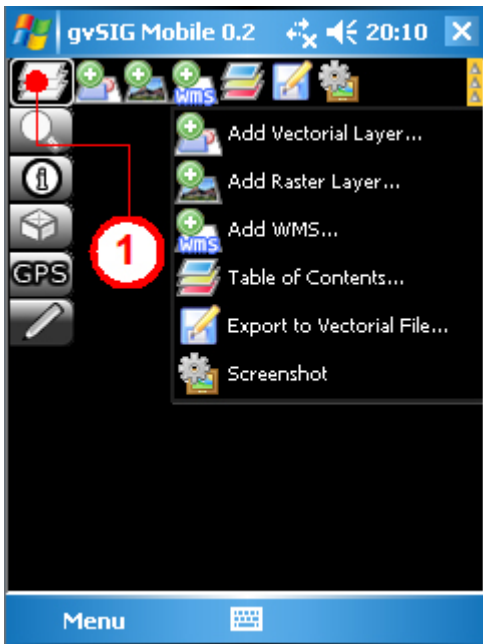
I would like to comment that the *Logging* tab is used to specify the format and files names for the waypoints and trackpoints . Two formats are currently supported: GPX and CSV.

The *Display* tab is used to control how GPS icon is displayed. There are options for recentering the view based on the GPS position displaying the GPS icon or a combination of these two options.

OSGIS10 Visualization of local and remote data

This page last changed on Jun 16, 2010 by adelrey.

1.- Layer Management Function



1.1. Add raster data

gvSIG Mobile supports:

- ECW
- PNG
- JPEG (with .wld file)

We add the ortophoto of Valencia center: ***vlc_centro_23030.ecw***

1.2. Add vector data

gvSIG Mobile supports:

- 2D and 3D point and multipoint shape files
- 2D and 3D Line and polyline shape files
- 2D and 3D polygon and multipolygon shape files
- Multigeometry version 2.x and SFP (Simple Features Profile) version 3.2
- GML (Geographic Markup Language) files
- MultiGeometry version 2.1 KML (Keymap Markup Language) files
- Point and track GPX (GPS exchange) files

We add the two shape files we selected from our gvSIG Project: ***Update Valencia Center sesion 1.gvm*** .

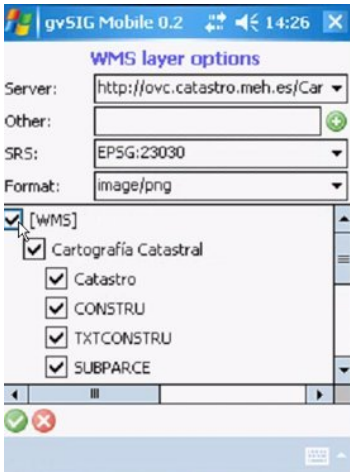
...../Update Valencia Center sesion 1

- Line shape file with the services in the center of Valencia: ***streets_select_lines.shp***
- Point shape file with the services in the center of Valencia: ***services_select_points.shp***

1.3. Add remote data

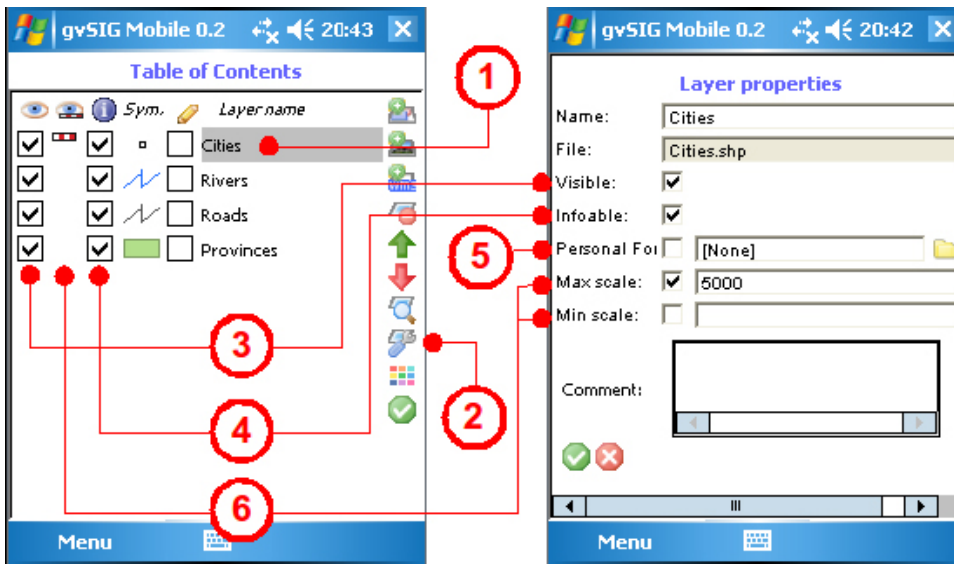
At the moment gvSIG Mobile 0.3 supports WMS but the next version gvSIG 1.0 will also support the WFS protocol.

We add the WMS of the Cadastre National Service of Spain, that it is in the list by default.



- We select :
 - Server: <http://ovc.catastro.meh.es/Cartografia/WMS/ServidorWMS.aspx?> from the list.
 - SRS, in this case EPSG:23030
 - The format of the image: png/jpj
 - The layers we want to use: we will select all layers.

1.4.- Change the properties of the layers through the Table of Contents



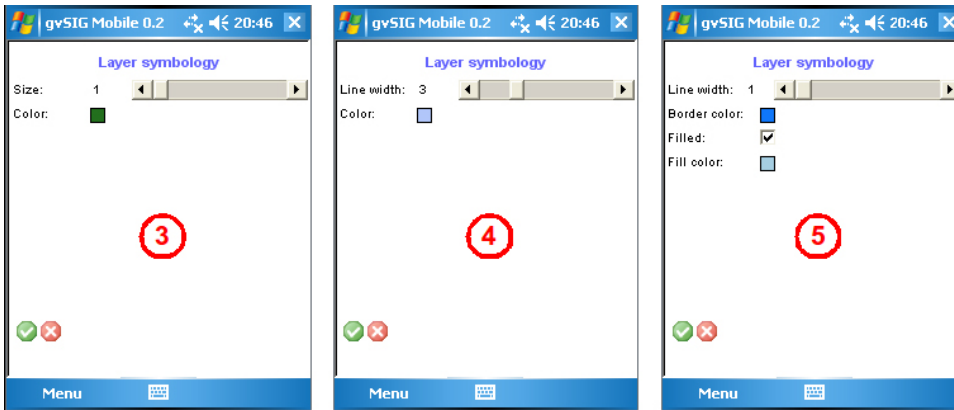
Another feature of the Table of Contents is that the properties of any of the layers in the project can be viewed and configured by

the button (2) *Layer properties*. We can change the following properties:

- **Name**
- **File**
- **Visible.** Indicates if the layer is visible in the project or not (3)
- **Infoable.** Indicates if the attributes associated to the layer can be viewed.
- **Personal Form:** a custom form based on a XML file can be used to display the attributes of the specific layer. By ticking the check box you can provide the path where the .xml file is.
- **Max scale.** Indicates the maximum scale of the layer (6)
- **Min scale.** Indicates the minimum scale of the layer (6)
- **Comment.** A space for providing information about the layer.

From the Table of contents is also possible to add new layers to the project. This window shows all the layers that are currently loaded in the project.

1) We are going to change the symbology of the layers:

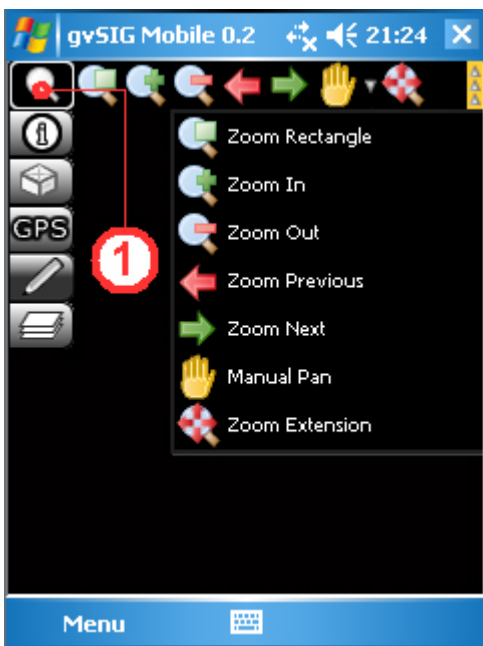


- the colour and line width of the line shapefile **streets_select_lines.shp**
- the colour and size of the point shapefile **services_select_points.shp**

2) We can change the order of the layers, delete the layers, etc.

3) We are going to associate the custom form **SERVICES_valencia.xml** to the shapefile **services_select_points.shp**

2. Navigation Tools



gvSIG Mobile's various navigation tools allow the user to view the project's graphical information at varying levels of detail, making the browsing of different locations easy and convenient.

Zoom Rectangle

This tool allows a zoom area to be defined by drawing a rectangle around the area of interest.

Zoom In

It zooms in to the View by a fixed amount, thereby increasing the level of detail each time the button is clicked.

Zoom Out

It decreases the level of detail by reducing the display scale each time the button is clicked.

Zoom Previous and Zoom Next

The Zoom previous returns to the previous display in the View, while the Zoom next button advances to the next display.

Pan and Recenter

By using the Pan tool to drag the map around, the user can interactively recenter the map without changing the scale. Clicking on the map with the

Recenter tool, causes the View to be recentered on the point clicked by the user, also without changing the scale.

Zoom Extension

Clicking the Zoom Extension button will result in the View zooming out to the full extent of all the different layers in the project.

OSGIS10 Obtaining and Searching information, making measures

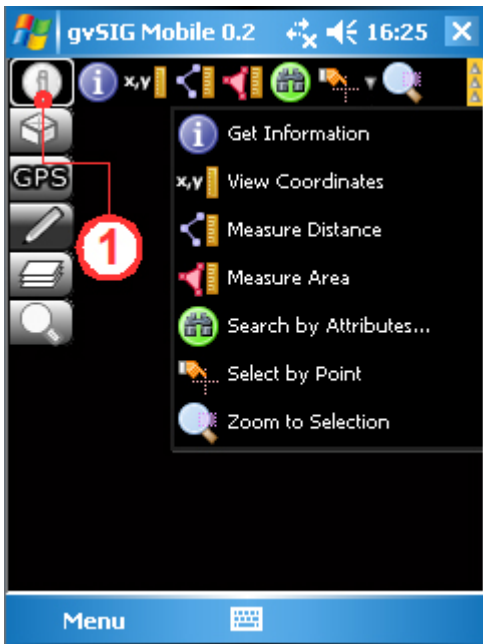
This page last changed on Jun 15, 2010 by adelrey.

1.- Obtain information about a feature

In our case, we are going to obtain information about this two files:

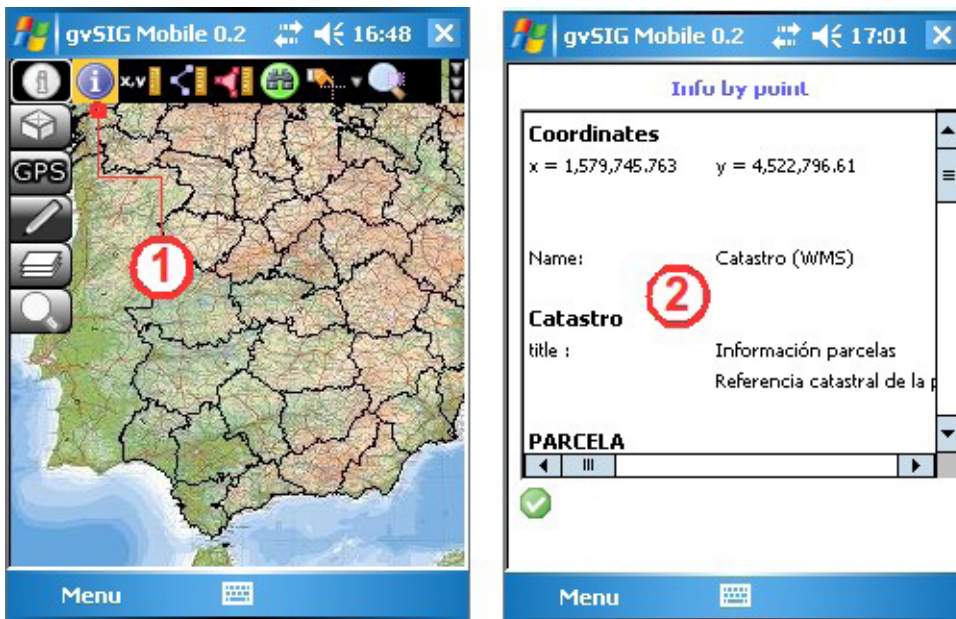
- **street_select_line.shp** (without associated custom form)
- **services_select_point.shp** (with an associated custom form)

For that goal we are going to use the *Query tool (1)*, that is used to display information about features in the project's layers.

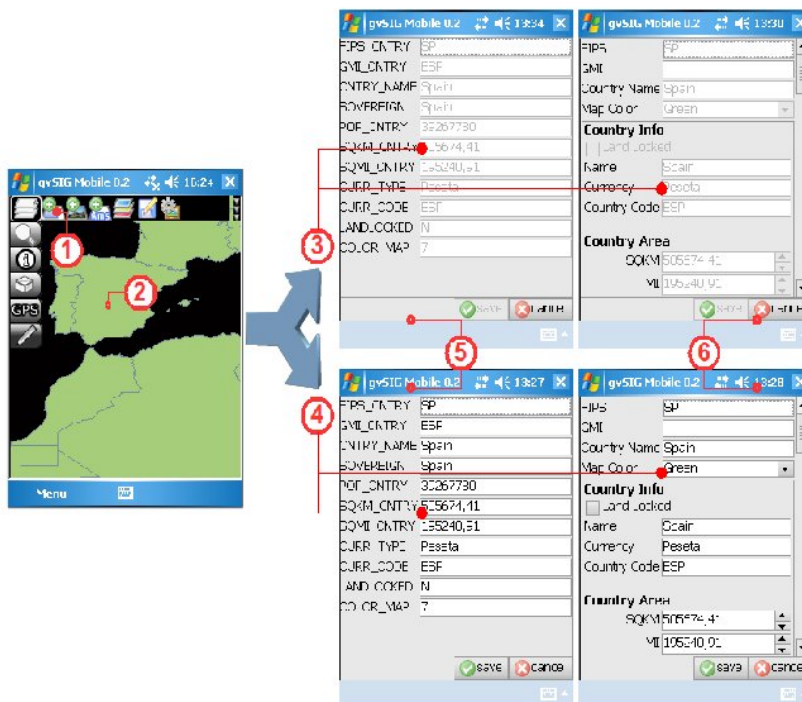


Using the *Get Information button*, click on a point in the View to obtain information on the feature(s) at that position. This opens the *Information by point form (2)*, which displays information on the features intersecting the point that was clicked. Note that the query button retains its active or inactive state until clicked again (clicking the button toggles between these two states). With the button in its active state the View can be queried multiple times.

If the position queried contains no features, then nothing will be displayed. If the layer being queried is a raster layer, then the information will be displayed in the format shown in the figure below.

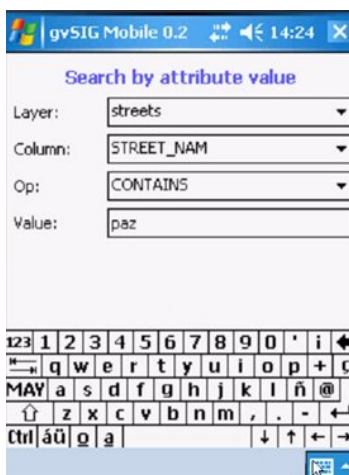
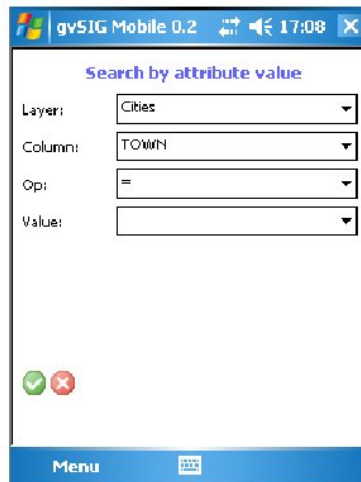


However, **if the queried position contains at least one vector layer with editable attributes, then a form is displayed.** If the first layer intersected by the query point has a personal form, then this is the form that is displayed. If the layer is not editable, the information displayed in the form cannot be changed and is displayed in a grey colour (3). However, if the layer is editable, then the fields in the form can be edited and will be displayed in black (4). The figure below gives examples of the same information displayed in both a *Standard Form* (5) and a *Personal Form* (6). Note that this figure illustrates the forms displayed when the *Get Information* tool is used to query a vector layer.



2.- Search by attribute

We are going to make a search in order to locate the street La Paz, where the exercise will be carry out. For that goal we are going to use the *Search by Attribute* tool (1).



By Clicking the Search by Attributes button (1) opens the Search by attribute value form, which contains the following fields:

- Layer. Select the layer to query from the list of layers in the project.: **street_select_lines.shp**
- Column. Select the attribute column in which to conduct the search. **STREET_NAM**
- Op. Select the query operator: **CONTAINS**
- Value. Enter the value to search for in the selected attribute column: **PAZ**

The selected street will be highlighted in yellow colour and we will make a zoom to the selection by clicking the last button.

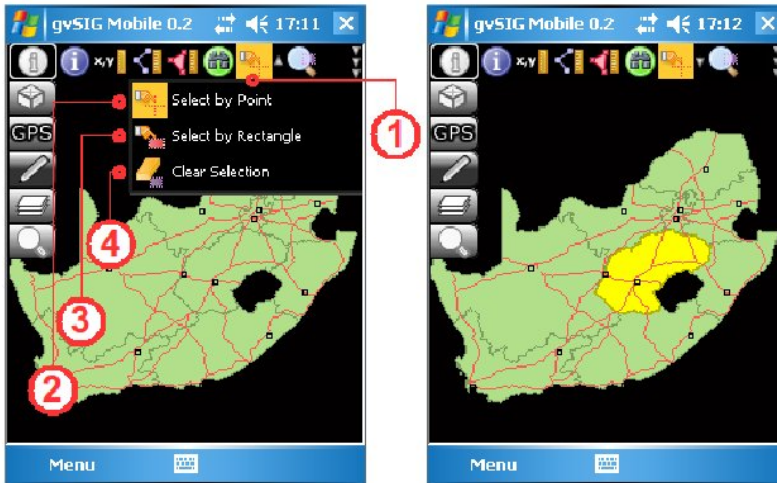
3.- Select features

We can also select geometries (1) in a vector layer. When using this tool, only one vector layer must be marked selectable (infoable) in the Table of Contents.

We can make three types of selection:

- **Select by point.** (2) Select a geometry (feature) by clicking on it in the View. The selected geometry will be highlighted in yellow.
- **Select by rectangle.** (3) Select a set of geometries by drawing a selection rectangle in the View. Geometries wholly or partially within the selection rectangle will be selected. The selected geometries will be highlighted in yellow.

- **Clear selection.** (4) Deselect all geometries and restore their original colour.



4.- Making measures

We can make measures to obtain coordinates, distances and areas.

OSGIS10 Editing a vector layer by using XML files

This page last changed on Jun 16, 2010 by adelrey.

1.-Editing tools

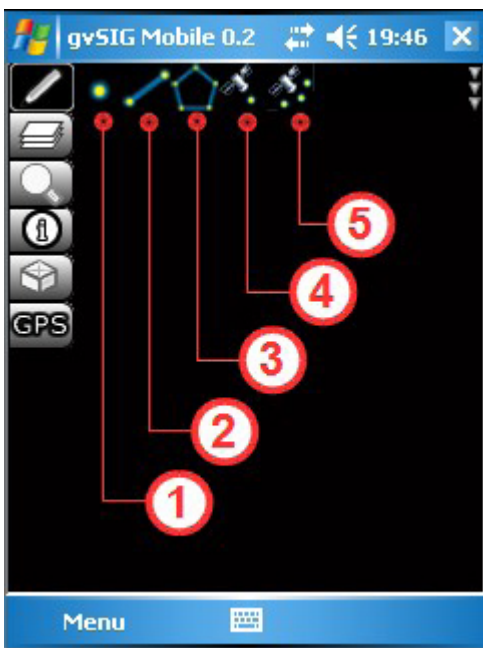
These editing tools are used to create new geometries in previously loaded vector layers. Three types of geometries can be created:

- Points: Created with the Point tool (1).
- Lines: Created with the Line tool (2).
- Polygons: Created with the Polygon tool (3).

There are also editing tools for creating geometries using information from a GPS:

- Waypoint :Add points with the Add vertex using GPS tool (4).
- Add a trail of points with the Add vertexes automatically using GPS tool (5). Points are captured according to a specified time interval.

With the editing tools, vector layers can be updated with new data created by the user. Any new geometries automatically inherit the attributes of the layer being edited. These attributes can be entered once the geometry or feature has been digitized.

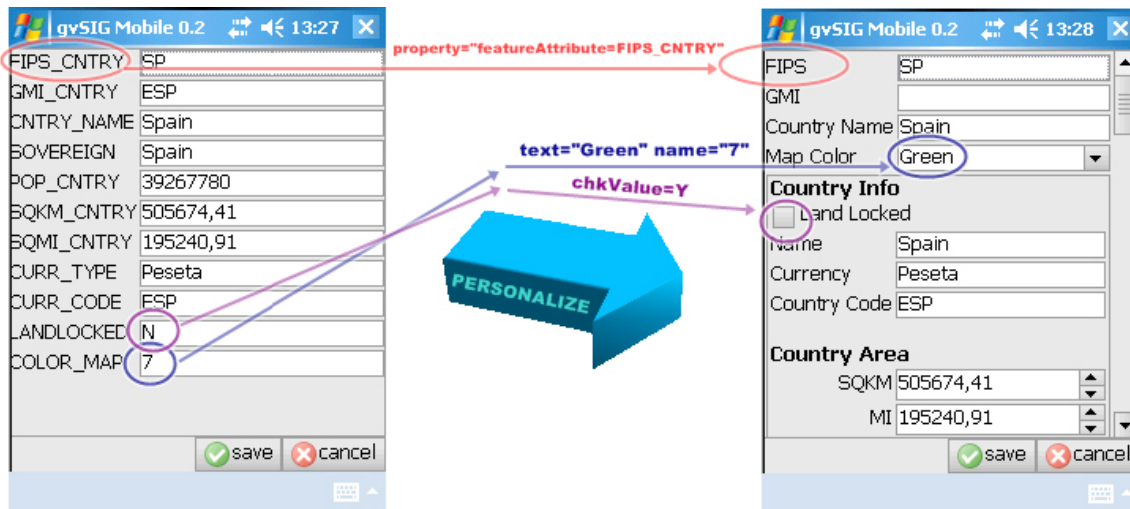


2.-Create a custom form

Personal forms are used to view, edit and insert alphanumeric data, exactly as with a generic form. A personal form can display data in tabular format, define ranges of integers to be met by the values contained in the fields, or even display icons along side labels.

Personal forms in gvSIG Mobile are based on **Thinlet GUI toolkit**, that is a **User Interface tool**. It is a Java class, which interprets an XML file to display information on screen with a specific design, handle user input, and perform basic associated operations. It separates the graphical display (defined in an XML file) from the methods of the application (which are written in Java).

gvSIG Mobile already has generic application methods that interpret forms and execute the most common field operations, and present data in an appropriate way.



2.1. How can we create a custom form?

This process is explained in the manual attached on the LiveDVD of gvSIG Mobile 0.3. (page 64).

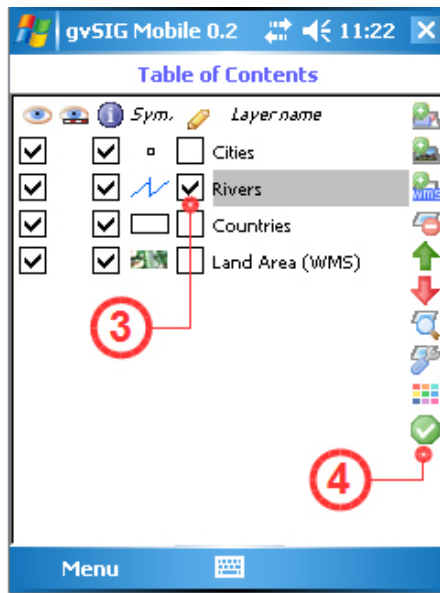
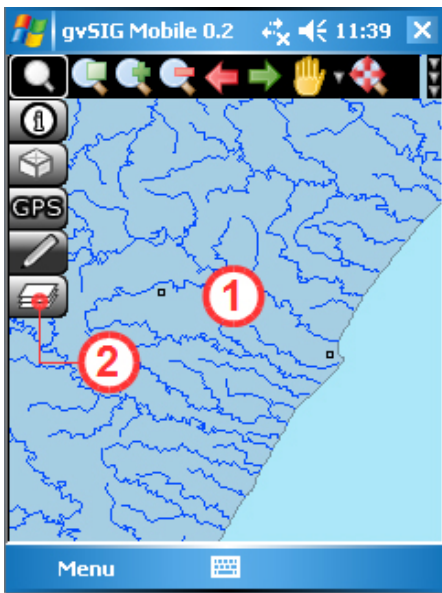
In this exercise we are going to use the file **SERVICES_Valencia.xml**, that it has been designed previously at the office and associated to the **services_select_points.shp** file.

The general steps are:

- **Step 1: Create a new XML:** Use a text editor to create a new text file with an extension of XML, for example "form.xml".
- **Step 2: Select the components to appear on the form:** Decide which components are needed to represent the desired attributes. The types of components that are available are as follows:
 - **Text field:** A text box to enter data associated with an attribute of a feature.
 - **Password field :** A text box that hides the text entered by the user.
 - **Text area :** A box in which to enter several lines of data associated with an attribute.
 - **Text label :** A label used to name an attribute, or to display information on the form.
 - **Checkbox :** A selection box associated with an attribute that allows only two values, namely selected or not selected.
 - **Combo box:** A component that displays a drop-down list of values. Values can be selected from the list or a new value can be entered in the text box part of the
 - **Numeric ranges :** A box in which to enter number within a particular range. The box has buttons to increase and decrease the number*
- **Step 3:** Design the layout and grouping of the attributes: If attributes of a feature need to be grouped, or if grouping is needed to structure the form then the following components can be used:
 - **Tree :** Attributes are displayed in hierarchical form using a tree structure.
 - **Tab:** Tabs can be used to group attributes, which can be displayed using any of the component types described above.
 - **Panel:** Groups of related attributes can be displayed on separate panels. A panel can contain any of the component types described above.
- **Table:** A table is used to display several attributes that can have multiple values. $n \times m$ (n samples of m values).
- **Step 4:** Write the XML file: Once the components have been selected and the layout has been designed, the XML code can be written.

An easier way of having a fast custom form is to take the **SERVICES_Valencia.xml** created as a template and update it to the features we need to carry out our job.

3.- Edit the point shape file



Once we have select the street La Paz we are goin to edit it . The procedure is as follows:

- **Step 1 - Enable Editing:** Once a layer has been loaded into the View(1), editing of the layer is enabled in the Table of Contents (hereafter referred to as TOC). The TOC is opened from the Layers toolbar (2). To enable editing tick the checkbox (3) below the **pencil icon** of the layer **services_select_points.shp** . Return to the View by clicking the *Accept button* (4) to close the TOC.
- **Step 2 - Select the drawing tool:** Select the appropriate drawing tool from the Editing toolbar (1). Note that if the layer being edited is a point layer, then only the *Add point* (2), *Add vertex using GPS* (5) and *Add vertexes automatically using GPS* (6) tools can be activated. For line layers only the *Add line* (3) and the GPS buttons mentioned above can be activated, while for polygon layers only the *Add polygon* tool (4) is available. For layers that support multiple geometries, for example GML layers, any of the drawing tools can be activated. When a tool is selected and activated for editing it is displayed with a yellow background. As we have not GPS, we edit the layer by using the edit tool (*Add a point*) (1)
- **Step 3-- Add New Geometries:** In our case , once the *Add point tool* (1) is activated, new points are added to the editable layer by clicking at the desired positions in the View (2). As many points as is needed can be digitised in this manner. New points are generated with the same attributes as in the layer being edited, except that these attributes are empty.
- **Step 4_ Select the custom form.** In the TOC we indicated previously that the **service_select_points.shp** has an associated custom form **SERVICES_Valencia.xml**.

- **Step 5_ To get information about the WMS:** We need to have the information about the REF of the new point, so we go to the TOC, we change the order of the layers by setting up that the WMS is on the top. After that with the *Get Information tool* from the *Information Management toolbar* we get this information. We can copy this value from the PDA by using *Ctrl+C*.



NOTE: This way to copy the data only works by using gvSIG Mobile in the PDA, in our case we have to introduce manually the value.

- **Step 6_introduction of attributes.** To enter attribute data for a new point first activate the *Get Information tool* from the *Information Management toolbar*, then click on the new point to bring up the *attributes form*. We have to enter the following attributes:
 - CATEGORY: (*CATEGORY table register name*): Restaurant (we select this value from the scroll bar)
 - REFERENCE: (*REF_REG table register name*): By using *Ctrl+V* we paste the value that we have copied before. NOTE: This way to copy the data only works by using gvSIG Mobile in the PDA, in our case we have to introduce manually the value.
- **Step 7_Save the layer.** To disable editing, tick the checkbox (3) below the pencil icon of the layer *services_select_point.shp*.
- **Step 8_To check that the file has been updated.** With the *Get Information tool* from the *Information Management toolbar*, click on the new point to bring up the attributes currently updated.

4.- Limitations when editing layers

- The layer must be a vector layer.
- Only one vector layer can be edited at a time.
- If the original vector layer contains a single type of geometry (points, lines or polygons) then only the same type of geometry can be added.
- It is not possible to create new attributes that are not already in the layer being edited. Each new geometry only inherits attributes already existing for other geometries in the layer.
- It is not possible to modify geometries that existed in the layer before editing was enabled. However, it is possible to edit their attributes.
- To cancel any changes made since editing was enabled, simply uncheck the Editing checkbox in the TOC and click the cancel button when asked to save changes. The layer will return to the state it was in prior to any editing.
- Generating of points and track points from a GPS is only possible if the GPS is enabled and working properly.

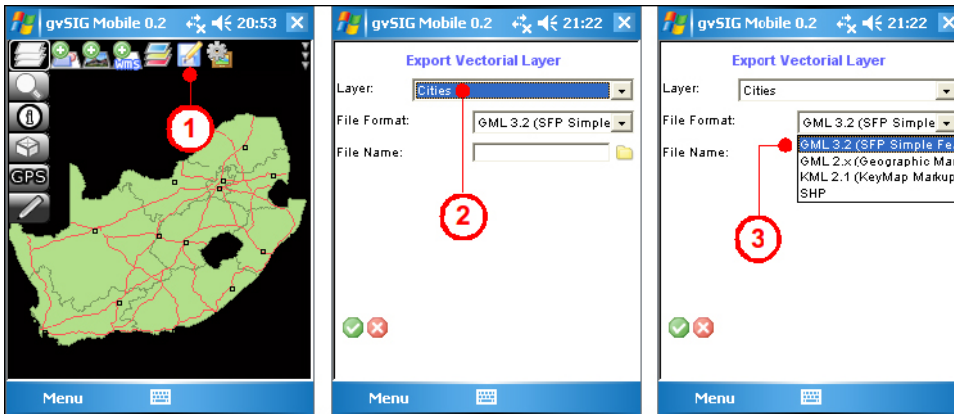
OSGIS10 Export data

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

1.- Exporting the results

We can export the result of our shape file into the following formats:

- GML 3.2
- GML 2.x
- KML 2.1
- SHP



We are going to export the results as:

services_select_point_update.KML

OSGIS10 Thematic maps generation

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1. Creation of a thematic map

We are going to create a thematic map of the file *services_select_point.shp* by range of value. For example by the NUM value selected from the scroll bar.

