

Version Control System on gvSIG Desktop, advanced cartographic editing in open source software



Version Control System (VCSGIS)

**Version Control System on gvSIG
Desktop, advanced cartographic editing
in open source software**

Multi-user editing
Versioning

Initial problems

Multi-user editing

Working with SHP files or other formats based on files

Working with databases

Initial problems

Multi-user editing

Working with SHP files or other formats based on files

- Only one user can simultaneously modify a file (shape)

Initial problems

Multi-user editing

Working with SHP files or other formats based on files

- Two users edit different features in their local copy.

Which is the correct SHP file?

Initial problems

Multi-user editing

Working with databases

- High speed connections are required.

Initial problems

Multi-user editing

Working with databases

- Two users can edit different features simultaneously
- Two users edit the same features simultaneously...

What change remains?

Initial problems

Versioning

Working with SHP files or other formats based on files

- We can organize our data in folders.
 - Each folder would represent a version.
 - It contains a complete copy of that version.
 - Complex and uneasy to maintain.

Initial problems

Versioning

Working with databases

- Backups for each version
 - Easy to implement.
 - Uneasy to recover a version
 - High data volume

Initial problems

Versioning

Working with databases

- Using specific tools of the database manager.
 - Administrators specialized in each database manager.
 - Tools dependent on the database manager for their management.

Version Control System - VCS

- How can we solve these problems?
 - Multi-user editing
 - Versioning.
- What solutions have been implemented in other contexts or areas?

Version Control System - VCS

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Version Control System

Version Control System - VCS

- There are several version control systems
 - SVN – centralized
 - Git – decentralized
 - Mercurial
 - ...
- But... Which one can we use?

Are the existing ones useful for us?

Version Control System - VCS

Problems of the existing version control systems

- Oriented to text files.
 - They usually are inefficient with binary data.
 - The cartographic information is in binary format, not text.
- Decentralized systems replicate all information.
 - Replicating cartographic information requires replicating large volumes of data.
- They are not integrated into desktop GIS.
 - They require use of external tools that are not related to the tools used for editing.

Version Control System - VCS

Problems of the existing version control systems

- SVN, Git, Mercurial, Bazar...
 - If we can't use them...

What other options do we have?

VCSGis for gvSIG Desktop

Centralized Version Control System

Designed to manage map data

Integrated into a desktop GIS



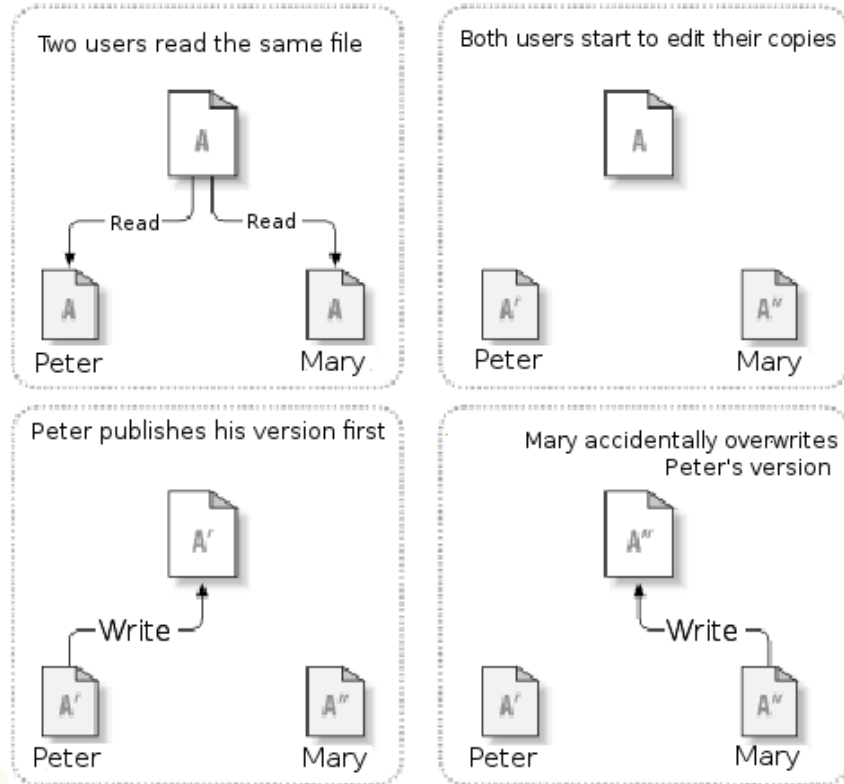
Version Control System - VCS

- **Version Control System** (VCSGIS) allows to edit vector layers and recover the situation of the geometries in a concrete time.
- It's a software based on the centralization of information to be shared between users, which, unlike a normal server, remembers the changes that have been made to their data.
- It not only stores information: it stores the information and the modifications that users make on it.
- VCSGIS focuses on geographic information.
- The VCSGIS repository uses a central database (Oracle, PostGIS) that contains all the data.
- Each user has their own working copy, locally. They can get the latest version from the repository, work on it locally, and when they have finished the changes they can commit them to the repository.



VCSGIS

- Problem...





VCSGIS

- **Solution rejected:** block

The repository only allows one person to change a file

The problem with the lock-modify-unlock model is that it is a bit restrictive, and often becomes a trouble for users: Sometimes users lock files and forget to unlock them, blocking access to be edited by the other users; unnecessary locks that prevent working simultaneously; false sense of security ...

- **Adopted solution:** Copy-Modification-Merge model

In this model, each user client reads the repository and creates a personal working copy of the layers or tables so that the users work in parallel, modifying their private copies.



VCSGIS

- It allows:
 - Editing disconnected from the server.
 - Concurrent editing.
 - Conflict resolution (commit / update / merge / revert)
 - Versioning, access to previous versions of the data.
 - Export, see the cartography of a specific date.
 - **Integrated with a desktop GIS, gvSIG Desktop**



VCSGIS

- **Integrated with a desktop GIS, gvSIG Desktop**
 - Integrated with vector editing.
 - It allows to include topological reviews.
 - Data models, alphanumeric editing
 - Advanced search tools.
 - Data entry forms



gvSIG 2.6.0.3207 devel : Sin título

Archivo Capa Mostrar Vista Mapa Herramientas Ventana Ayuda

Administrador de complementos

Gestor de proyecto

Documentos \ Informes \

Tipos de documentos

Vista Tabla Mapa

Vista

Sin título

Propiedades de la sesión

Nombre de la sesión Sin título

Guardado en

Fecha de creación 19-ene-2021

Propiedades

Simbología

VCSGIS

Transformaciones

H2 Spatial

Oracle

Topología

Scripting

Desarrollo

Información rápida

Reporte por punto

Dibujo rápido

Administración

Inicializar repositorio

Inicializar copia de trabajo

Añadir a la copia de trabajo

Obtener copia local (checkout)

Exportar

Mostrar cambios

_VCS Show revisions

Servidor VCSGIS

Registrar copia de trabajo

Mostrar entidades del repositorio

Mostrar hooks del repositorio VCSGIS

Inicializar repositorio



VCSGIS

- Changes

gvSIG 2.6.0.3212 nivel : Sin título

Archivo Selección Mostrar Layer Vista Herramientas Ventana Ayuda

Vista: Sin título

VCSGIS Cambios

Copia de trabajo copiaTrabajo1

Copia de trabajo Repositorio

Seleccionar	tabla	operación	etiqueta	Código
<input checked="" type="checkbox"/>	PINTURA_V...	Add entity		
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	fd3ce76fa...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	6	084994d7...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	38	649382eb...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	99cd4ed9...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	cb3ff827d...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	00e4a4ca...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	1	05db5df4...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	33ef5bab...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	e309bba2...
<input checked="" type="checkbox"/>	PINTURA_V...	Insert	0	1c354030...

39379

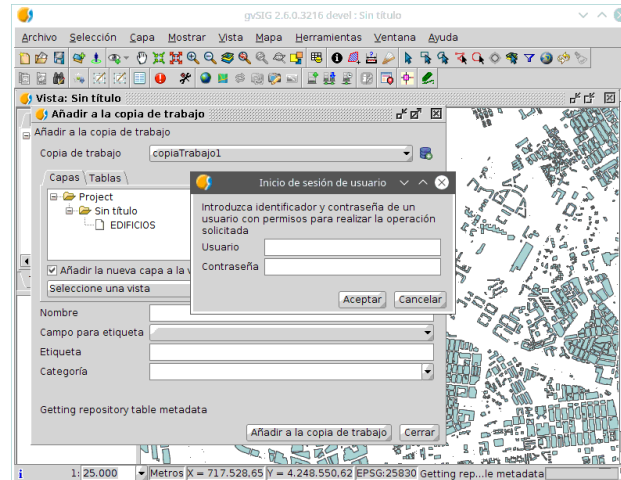
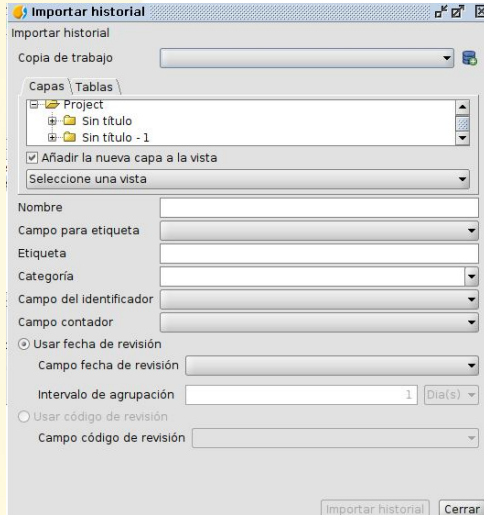
Fecha de entrada en vigor 19/01/21

Comentario Carga_inicial



VCSGIS

- Typical workflow, very summarized:
 - 1) Update Working Copy (Show changes of remote layer)
 - 2) Edit (make changes), review (Show changes of local layer) and submit the changes made
 - 3) And if there is another user... in case of editing the same elements, when submitting the changes, they will be notified of the changes that are in conflict, they will be able to decide which changes they accept and which they do not.



Revisiones

Copia de trabajo: copiaTrabajo1

Tabla: PINTURA_VIAL_40000

Fecha	Fecha de e...	Revisión	Usuario	Mensaje
12 feb. 2021	12 feb. 2021	0		Carga_inicial

Latest final version: gvSIG 2.5.1
Next version: gvSIG 2.6 (with VCSGIS)





VCSGIS

**That's not just a Version Control System
That's not just a Desktop GIS**

It combines both things in one application...

...to allow us to maintain and prepare the cartographic information that we will later publish or exploit.

Integrated with the gvSIG Suite

gvSIG Desktop
gvSIG Online
gvSIG MApps