Google Summer of Code 2019 (GSoC)

gvSIG Association – OSGeo

# New rules for the Topology Framework in gvSIG Desktop

## *Bonding Period – Report*


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## KEYWORDS.

- Topology
- Rules
- Framework
- gvSIG
- OSGeo
- Google developers
- Geometric algorithms
- Scripting
- Jython

## PROJECT.

- GitHub repository: https://github.com/Maureque/gvsig-gsoc2019-topology
- GitHub wiki: https://github.com/Maureque/gvsig-gsoc2019-topology/wiki/New-rules-for-the-Topology-Framework-in-gvSIG-Desktop
- OSGeo wiki: https://wiki.osgeo.org/wiki/New_rules_for_the_Topology_Framework_in_gvSIG_Desktop

## REPORT. *BONDING PERIOD* (May 6th – May 27th ).

This document describes the process and the tasks performed during the bonding period. During this period I have been preparing myself to be able to provide value in the most efficient way. Below is detailed the report on what we have been doing together with the mentors during the bonding period.
We have been doing the following tasks:

- Set up the developer environment and get ready to start coding and improving the knowledge about all the documentation related to the project.
- Introduce myself and the project on OSGeo's SOC mailing list and the mailing list used by the software community.
- Improve my knowledge about the organization's community.
- Reading all the recommended documents and watching the videos related to the GsoC and with the community practices and processes, this information can be found in the following links:
  - https://developers.google.com/open-source/gsoc/videos#ive_been_accepted_what_now
  - https://developers.google.com/open-source/gsoc/resources/glossary
  - https://google.github.io/gsocguides/student/
  - http://write.flossmanuals.net/gsocstudentguide/what-is-google-summer-of-code/
  - https://developers.google.com/open-source/gsoc/help/responsibilities
  - https://developers.google.com/open-source/gsoc/timeline
  - https://developers.google.com/open-source/gsoc/resources/downloads/GSoC2019Flyer.pdf
  - https://groups.google.com/forum/#!forum/google-summer-of-code-announce
  - https://groups.google.com/forum/#!forum/google-summer-of-code-discuss
  - https://wiki.osgeo.org/wiki/Google_Summer_of_Code_Recommendations_for_Students#What_to_expect_after_application
- Interact with mentors, introduce myself to the community and actively get involved.

- Familiarize more deeply with the code, with the mentors, with the developer manuals, learning advanced aspects of gvSIG code and scripting with Jython and with the documentation, like:
  - Scripting gvSIG 2.4. Link: http://downloads.gvsig.org/download/web/es/build/html/scripting_devel_guide/2.4/index.html
  - Jython user guide. Link: https://wiki.python.org/jython/UserGuide
  - 5th gvSIG Uruguay Conference. Material of the lecture and workshop of the workshop "Scripting: Exprimiendo / Extendiendo gvSIG" by Carlos Colombana. Link: http://www.gvsig.com/es/eventos/jornadas-uruguay/2018/comunicaciones/-/asset_publisher/zAf8UO2Aurwr/content/taller-2-scripting-exprimiendo-extendiendo-gvsig?
- Set up the wiki page to keep track of weekly progress and request account to get access to the OSGeo wiki page. OSGeo wiki link: https://wiki.osgeo.org/wiki/New_rules_for_the_Topology_Framework_in_gvSIG_Desktop
- In order to keep the code and all the information related to the project together is that we decided, in addition to the OSGeo wiki, also keep the wiki on GitHub. GitHub wiki: https://github.com/Maureque/gvsig-gsoc2019-topology/wiki/New-rules-for-the-Topology-Framework-in-gvSIG-Desktop
- Set up the repository of the project. GitHub repository: https://github.com/Maureque/gvsig-gsoc2019-topology
- Redefine with more detailed weekly milestones of the project.
- The 3 evaluation periods were added to the timeline and the description of the details was also improved.
- Reading and study on topological rules. Link:
  - http://desktop.arcgis.com/es/arcmap/10.3/manage-data/editing-topology/geodatabase-topology-rules-and-topology-error-fixes.htm
  - http://webhelp.esri.com/arcgisdesktop/9.3/index.cfm?TopicName=Topology%20rules
- See and become familiar with the main use of the topological framework, link: https://blog.gvsig.org/2019/02/12/towards-gvsig-2-5-topology/
- Coordinate how to advance in the project , organizing work with mentors and another student, Héctor Tundidor, because we will have to work closely because both projects will be developing around the same framework.
- I've also been studying about scripting in gvsig to improve my knowledge and be able to develop faster and become more familiar with the code, the topology diagram and the documentation. Furthermore I've been looking at the code of some of the rules already made and exploring geometries and use cases, such as those listed at:
  - https://github.com/gvSIGAssociation/gvsig-desktop-scripting-SetZFromRaster/blob/f7f4af4803e4c8cf0ded65f771f97a759314e12f/setZFromRaster.py
  - https://github.com/gvSIGAssociation/gvsig-desktop-scripting-GeometriesTo2D/blob/1a72ccb9ac00fb749217608bf29fdc26503cdc0c/geometriesTo2D.py
- Study the diagram. Link: http://downloads.gvsig.org/download/web/es/build/html/scripting_devel_guide/2.4/modelo_de_clases_simplificado.html#geometrias
- Topology plugin test and use of the plugin: https://blog.gvsig.org/2019/02/12/camino-a-gvsig-2-5-topologia/
- Topology rules for gvSIG desktop, link: https://docs.google.com/document/d/1th0CVKOr918ltBI9czTJsRKAYSGnY6xpiY1R2415QMU/edit?ts=5ce9c335

- ❖ Study different ways to optimize the implementation of algorithms, for a correct implementation according to the established rules.
  References links:
  - Jambrina Gabriel, Solla Viviana. *Estudio de algoritmos de localización de Reflectores de Rutas en un Sistema Autónomo de Internet. Facultad de Ingeniería, Universidad de la República, 2016*. [online]. Available: https://www.colibri.udelar.edu.uy/jspui/bitstream/20.500.12008/19029/1/2524.pdf
  - Kovalevsky, Vladimir. *Algorithms and Data Structures for Computer Topology. Institute of Computer Graphics, University of Rostock*. [online]. Available: http://www.kovalevsky.de/TopAlgShort3.pdf
- ❖ Study of topological rules scripts, each rule can take many associated actions to reach the required solution. Link: http://devel.gvsig.org/svn/gvsig-projects-pool/org.gvsig.topology/trunk/org.gvsig.topology/org.gvsig.topology.lib/org.gvsig.topology.lib.impl/src/main/java/org/gvsig/topology/rule/
- ❖ As result of everything done in the bonding period, emerged some ideas about the possibility of make other complements in the future, as for example to optimize the comparisons.

I appreciate the comments, recommendations, criticism and suggestions, your return is very important to improve.