

1st July 2012

GHydraulics 2.0.7: Write complete EPANET models from QGIS

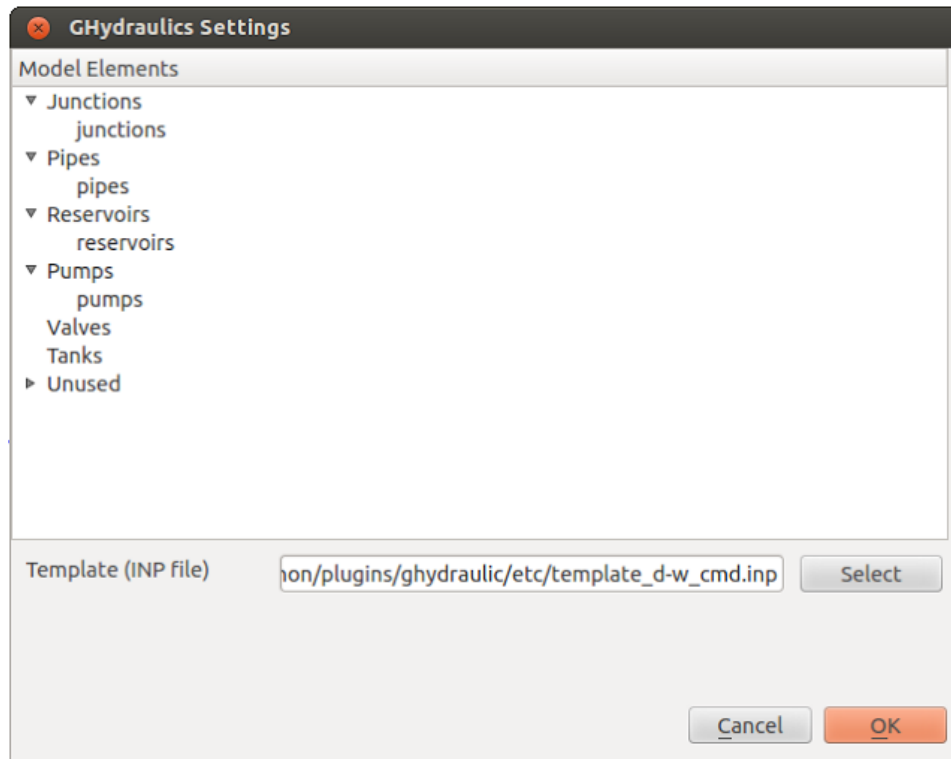
[http://4.bp.blogspot.com/--2U4JZbuOXs/T_AZxhAza6I/AAAAAAAAAN0/PM-SgcihWwl/s1600/ghydraulics_2.0.7_example_epanet.png]

[http://2.bp.blogspot.com/-9-LOMiOqEIA/T-tuveLIHMI/AAAAAAAAANY/VEkiMKi-7QU/s1600/ghydraulics_screenshot.en.png]

Starting with version 2.0.7, [GHydraulics](http://epanet.de/ghydraulics) [<http://epanet.de/ghydraulics>] is able to write complete EPANET INP files. The plugin is now available in the "new" [QGIS Plugins Repository](http://plugins.qgis.org/plugins/ghydraulic/) [<http://plugins.qgis.org/plugins/ghydraulic/>] and I would recommend that you upgrade your QGIS installation to version 1.8 in order to use this plugin repository. Besides the new functionality, several bugs were fixed, the error reporting has been improved and the default EPANET template file (a simple INP file) was changed to use the Darcy-Weisbach (D-W) head loss formula and m³/d (CMD) units. If you're upgrading from a previous GHydraulics version and would like to follow the tutorial below, please switch to the new template (template_d-w_cmd.inp) manually or start with a fresh project. The example does not (yet) include valve or tank elements, but they have been tested and should be working. If you have models to share with such elements, please let me know. The example shape files illustrate the minimum set of fields that is required to make export and analysis work.

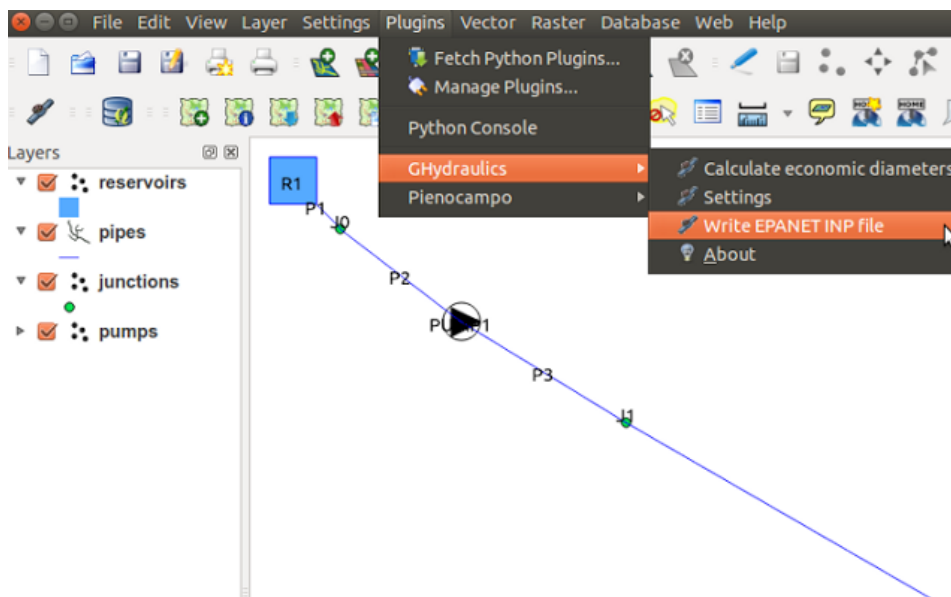
[http://4.bp.blogspot.com/-tgxI525JH6A/T_AXd2Ej3UI/AAAAAAAAANK/TXgIkP8hIDo/s1600/ghydraulics_settings_2.0.7_example.png]
[http://3.bp.blogspot.com/-vILAGGLPqQk/T_AXqHxKVOI/AAAAAAAAANs/vPjUvK240IA/s1600/ghydraulics_screenshot.en.png]

1. Download and unzip the sample data: [ghydraulics-samples.zip](http://sourceforge.net/projects/ghydraulic/files/GHydraulics%20Sample%20Data/ghydraulics-samples.zip/download) [<http://sourceforge.net/projects/ghydraulic/files/GHydraulics%20Sample%20Data/ghydraulics-samples.zip/download>]
2. Start QGIS.
3. Add junctions.shp, pipes.shp, pumps.shp, reservoirs.shp to your QGIS project.
4. Open the GHydraulics Settings: Select Plugins->GHydraulics->Settings from the menu.
5. Drag and drop junctions.shp from "Unused" to top "Junctions" item.
6. Drag and drop pipes.shp from "Unused" to top "Pipes" item.
7. Drag and drop pumps.shp from "Unused" to top "Pumps" item.



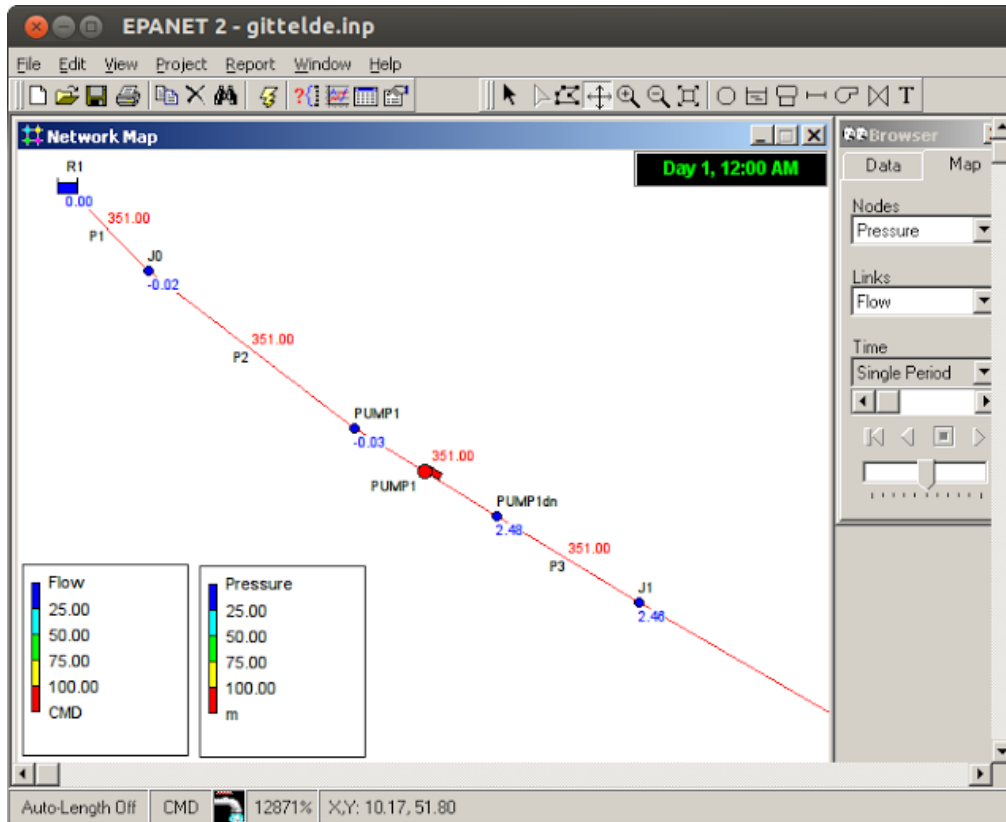
[http://4.bp.blogspot.com/-tgxI525JH6A/T_AXd2Ej3UI/AAAAAAAAANK/TXgIkP8hIDo/s1600/ghydraulics_settings_2.0.7_example.png]

8. Close the GHydraulics Settings dialog by clicking "OK".
9. Write your EPANET INP file using Plugins->GHydraulic->Write EPANET INP file from the menu.



[http://2.bp.blogspot.com/-9-LOMiOqEIA/T-tuveLIHMI/AAAAAAAAANY/VEkiMKi-7QU/s1600/ghydraulics_screenshot.en.png]

10. Open your INP file in EPANET.
11. Run your hydraulic analysis in EPANET.
12. Report problems and ideas.



[http://4.bp.blogspot.com/-2U4JZbuOXs/T_AZxhAza6I/AAAAAAAAAN0/PM-SgcihWwl/s1600/ghydraulics_2.0.7_example_epanet.png]

Once you've successfully completed this process with the sample data, you should be able to create your own models. Here are some recipes that'll help you along the way (Future blog entries will cover this in more detail):

- Knowledge about the [virtual line](http://epanet.de/en/dewaterdesign/manual/ch01s02.html#virtual_lines) concept that GHydraulics uses to overcome the topological inconsistency when dealing with pumps/valves in EPANET and GIS
- Interpolation of node elevations (field ELEVATION) from digital elevation models
- Topological editing of the network (line-node structure, snapping nodes to the end of lines)

GHydraulics is not finished yet. Future versions will add model creation (mostly the reflection of the network topology in the NODE1 and NODE2 fields of the pipe attribute table) and validation functionality.

Posted 1st July 2012 by [Steffen Macke](#)

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