

Tochnog Professional - GID users manual

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1 Conditions

All conditions from <http://www.tochnogprofessional.nl/disclaimer/conditions.pdf> apply.

2 Introduction

This manual discusses how to use the pre-post processor in combination with Tochnog. GID is copyrighted by CIMNE (the International Center for Numerical Methods in Engineering in Barcelona, Spain). See <http://www.gidsimulation.com>. You don't pay anything if you only use a limited amount of nodes and elements. Usage of GID with an unlimited amount of nodes and elements costs only a nominal amount.

3 Distribution files and installation

Suppose that *giddir* is the directory where you installed GID. Make sure that the *giddir* is writable for you.

Make in *giddir* in the *problemtypes* directory a new directory *tochnog.gid*. Together with the tochnog professional distribution, you obtain in the directory *partners/gid/tochnog.gid* interface files between gid and tochnog. Copy all those files to the *giddir/problemtypes/tochnog.gid* directory. For windows, copy the *tochnog_windows.bat* to *tochnog.bat*. For linux, copy the *tochnog_linux.bat* to *tochnog.bat*. For linux, take care that the *tochnog.bat* and *tochnog.bas* files are executable (do a `chmod +x` if required).

4 Generate mesh with GID preprocessor

- Choose in GID 'data' then 'Project type'. Choose tochnog.
- Generate geometries in GID.
- Assign conditions. This will in fact not generate a boundary condition, but instead it will generate **geometry_list** records which contains node numbers. You can generate ten lists of node numbers on points; these will be given index 1 ... 10. You can generate ten lists of node numbers on lines; these will be given index 11 ... 20. You can generate ten lists of node numbers on surfaces; these will be given index 21 ... 30. You can generate ten lists of node numbers on volumes; these will be given index 31 ... 40. This option is only needed if you have a calculation with very irregular geometries; mostly you do not need this and can directly use geometries in tochnog to impose boundary conditions, loads etc.
- Assign materials. This will later be used to generate **element_group** records for Tochnog. You can either set no material numbers at all, or you can set material numbers for the complete structure. It is not allowed to set only some materials numbers for a part of the structure only. You should use all of GROUP1, GROUP2, etc. as much as you need. You should not skip any group (so by example do not use only GROUP1 and GROUP3).
- Generate a mesh in GID. This will later be used to generate **element** and **node** records for Tochnog. Use GID 'generation' and 'generate' to get a mesh. Use GID 'generation' and 'mesh view' to see the mesh.

- Use 'Save as...' in the 'File' menu to save to a *problemname.gid*.
- Use the GID 'calculate' menu to start the calculation. The above data will be written to the *problemname.gid/problemname.dat* file.

The gid calculate will not start a real calculation. You should finish the file with an editor and then run tochnog in the usual way. Typically you can include in the real tochnog input file the mesh generated by gid with an **include** record.

5 Plot results with GID postprocessor

Use **control_print_gid** to generate plot files for GID. By example, if the input file is named *problemname.dat* then the gid PLOT files are *problemname_flavia.msh* and *problemname_flavia.res*. Do the following in GID to visualise the results:

- Click in GID 'file' , 'postprocess'
- Click 'files' , 'open' and then open *problemname_flavia.msh*