

# Tochnog Professional - GID users manual

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September 24, 2020

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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.gidhome.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*