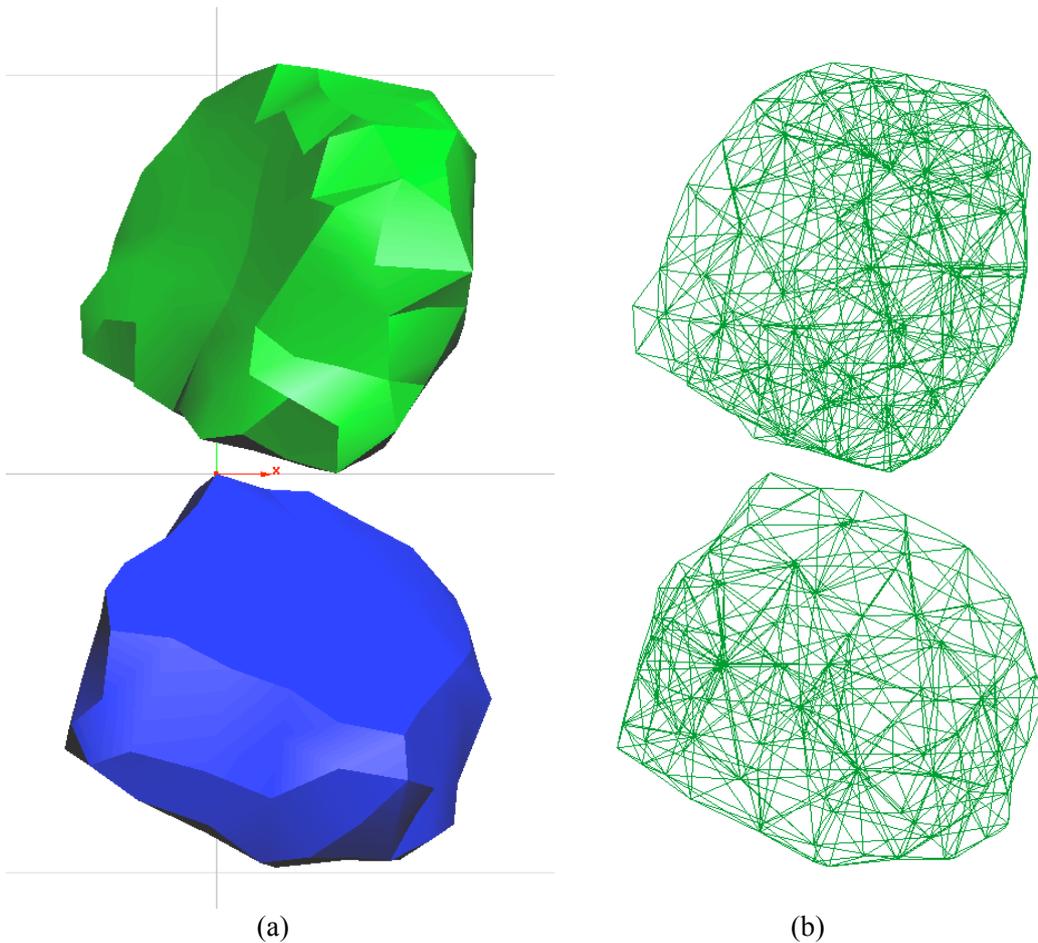


TUTORIAL FOR THE EXAMPLE: TWO ROCKS IMPACTION

JIANGSHENG XIANG

These two rocks (see Figure 1a) were chosen from the shape library in VGW (see \VGW_QMULIC\DEV\3D). (We actually use only one rock geometry, that has been copied and transformed).



(a) (b)
Figure 1 some snapshots of two rocks from Gid (a) geometry (b) elements

The purpose of this short tutorial is to show you the steps you will need to follow to create the input file .Y3D for the program Y3D (see \VGW_QMULIC\DEV\Y3D).

1. A laser scanner was used to scan real rocks and generate surface meshes (.stl).
2. The surface meshes were imported into GID (for details, see <http://www.gidhome.com/>. We recommend spending time familiarising yourself with the versatile range of options for building primitives and meshes with GID). Using GID, the sphere, cube, and box were drawn.
3. A generic template for collating all the input information (B3D.gid) has been set up along side GID to store all the assigned boundary conditions and material properties. At this stage, while working in the GID environment, you have a chance to change material properties, particle centre initial positions, nodal initial velocity, etc through GID acting as a GUI (graphics user interface).

4. As Y3D has improved capability and handles quadratic tetrahedral meshes, we take advantage of GID we take advantage of GID's ability to generate quadratic tetrahedral elements.
5. After we obtain the quadratic elements, we can export correctly formatted meshes with the chosen property and boundary information by Clicking Files->Export->Calculation file. The exported completed template file ending in .B3D should have a file name chosen to convey the type of problem. In this case it is tworock.B3D.
6. As there are a few settings that Y3D requires that that could not be assigned from within GID, a translator program, GID_gen, takes as input the .B3D file, requests the final problem definition information before outputting the .Y3D file needed for input to Y3D.
7. By double clicking GenInputY3D.bat, the input file tworocks.Y3D will be produced.