

# The application for shelves simulation

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**Introduction:** The goal of the work was creation of simple application using Comsol Application Builder allowing shelves static simulation. The application was created as an example of possible use of Comsol for customers without deep knowledge of Comsol system and the Finite Element Method. The user interface created using Application Builder is simple and can be used after short introduction by anyone.

**Results:** The application provides a simple user interface and allows parametric design of shelves. The equivalent stress distribution can be obtained and visualized within the application. The example results are shown in Figure 2.

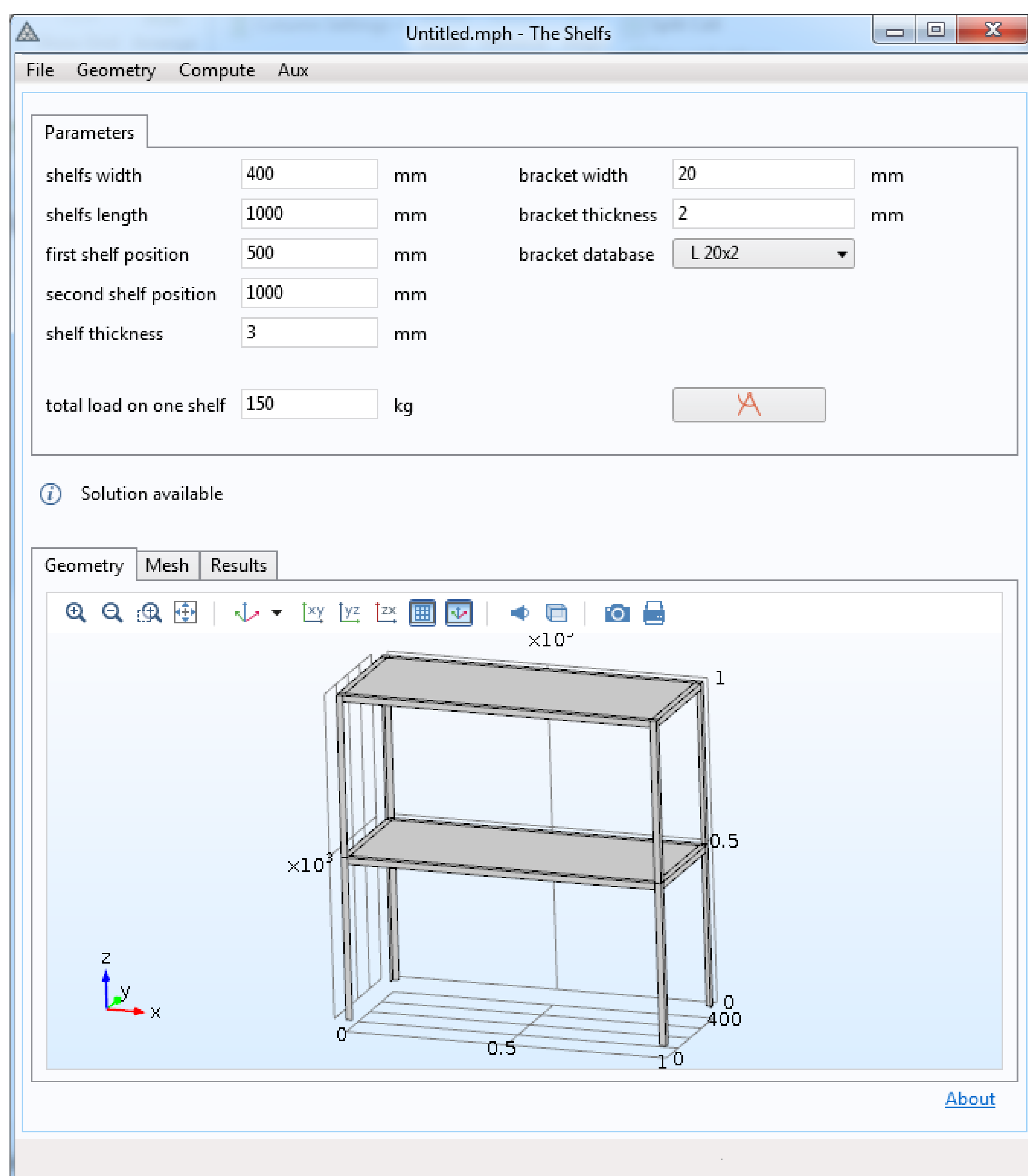


Figure 1. The application user interface

**The shelves parameterization:** The shelf dimensions, position of shelves, thickness and brackets are parameterized (Figure 1). The bracket sizes can be loaded from a text file and chosen by the user from a list. The modification of dimensions leads to information about an invalid solution, and new computations are needed (by pressing a shortcut or choosing a menu item).

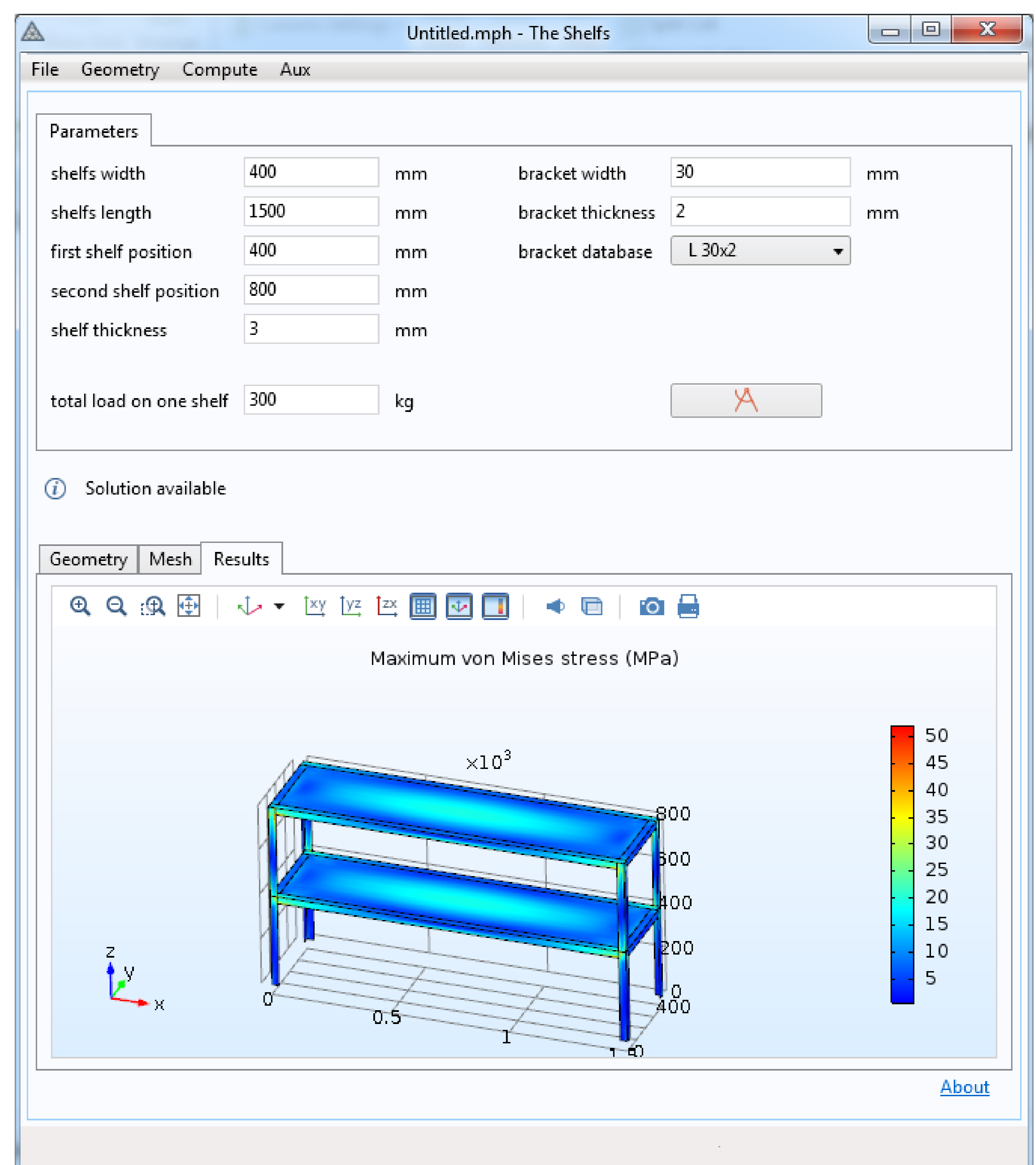


Figure 2. The equivalent stress map

**Conclusions:** The Comsol Application Builder is a very fast tool for preparing simple user interfaces but also a good way for creating complicated workflows including user codes, files management, automation of repeatable simulations.