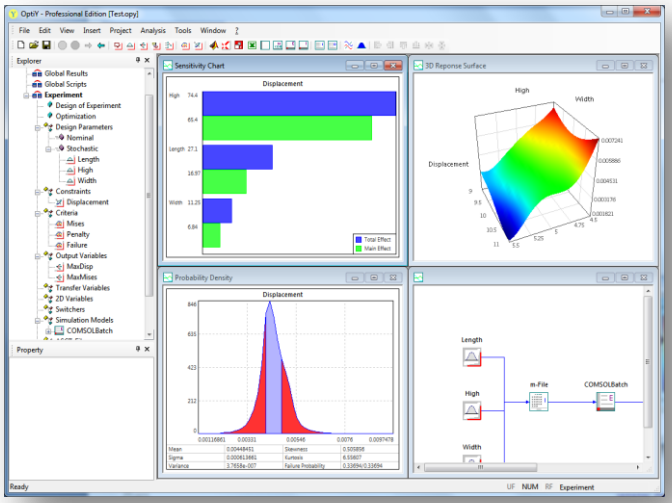
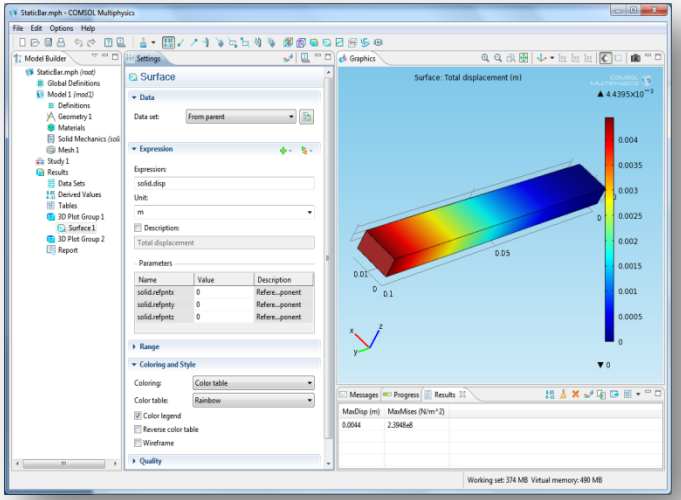
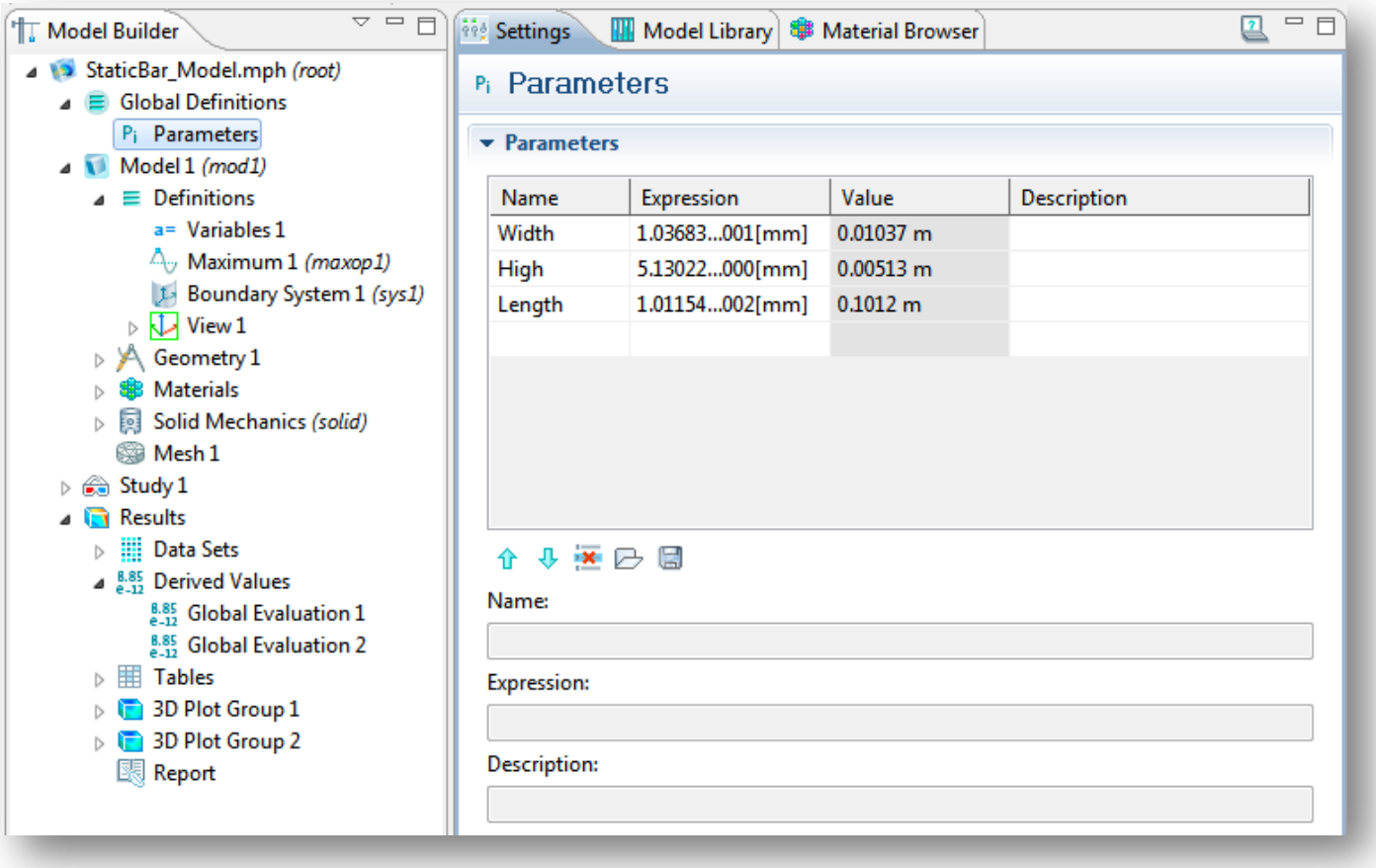
Coupling Tutorial
OptiY® – COMSOL Multiphysics®

OptiY GmbH - Germany



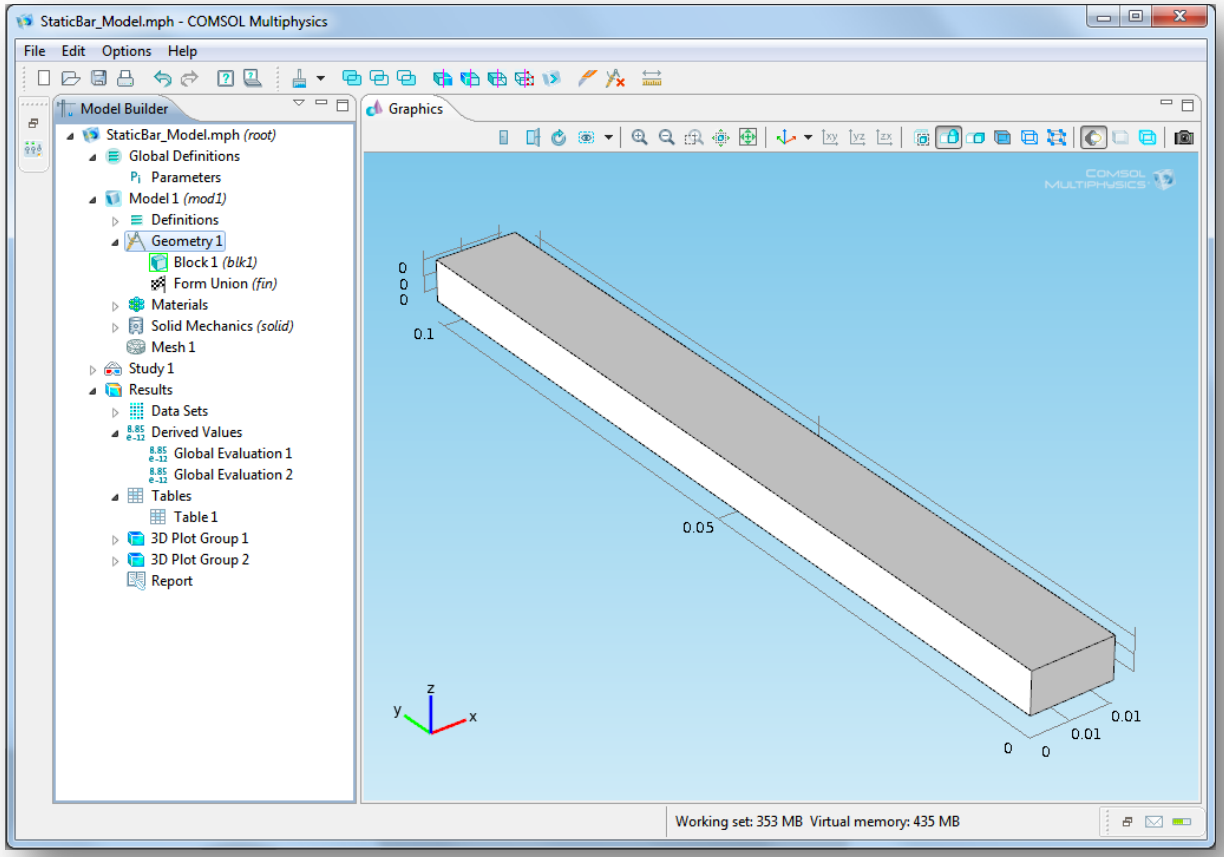


COMSOL Step1: Define Global Parameters

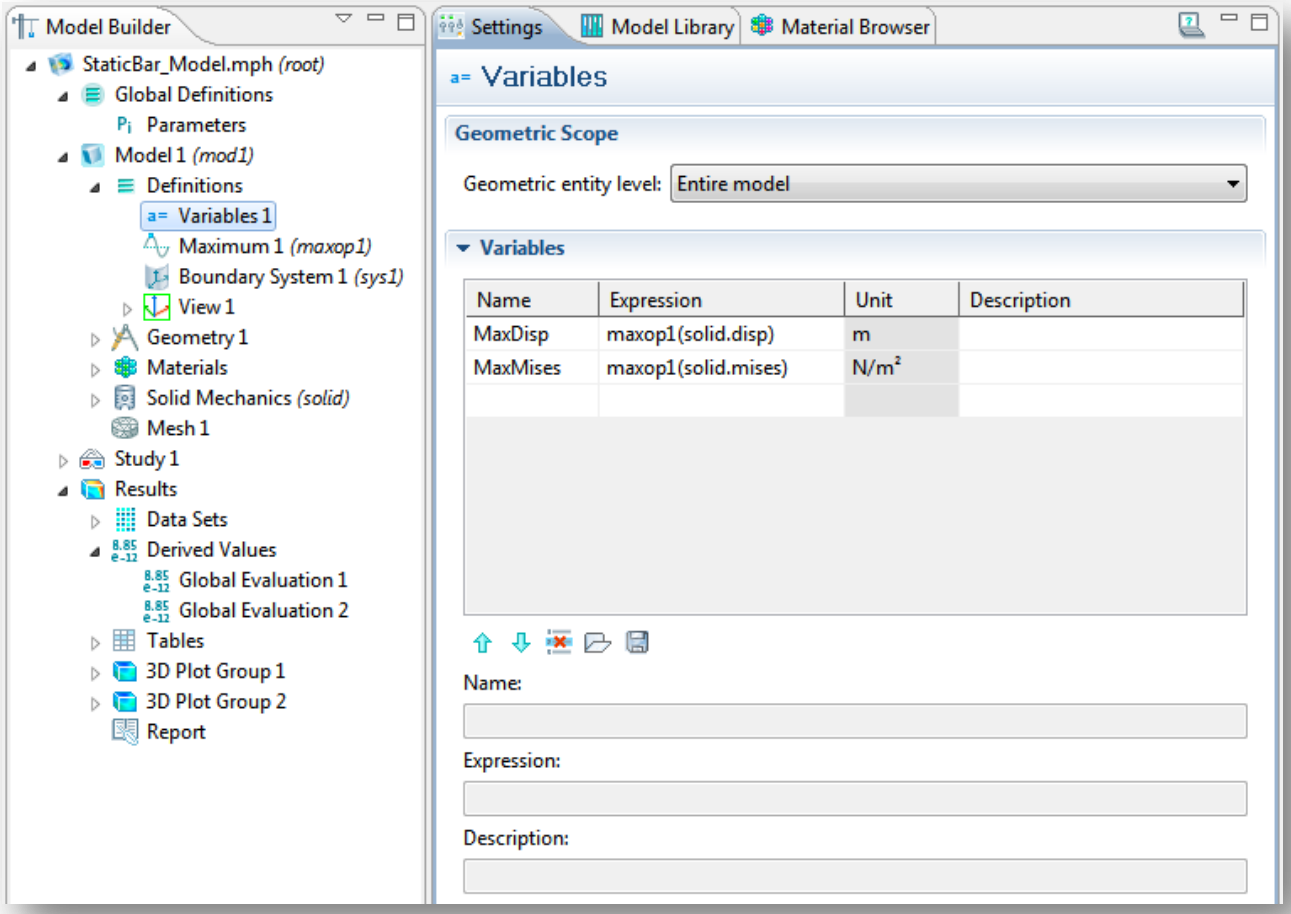


COMSOL Step 2: Build Geometry and Set Material

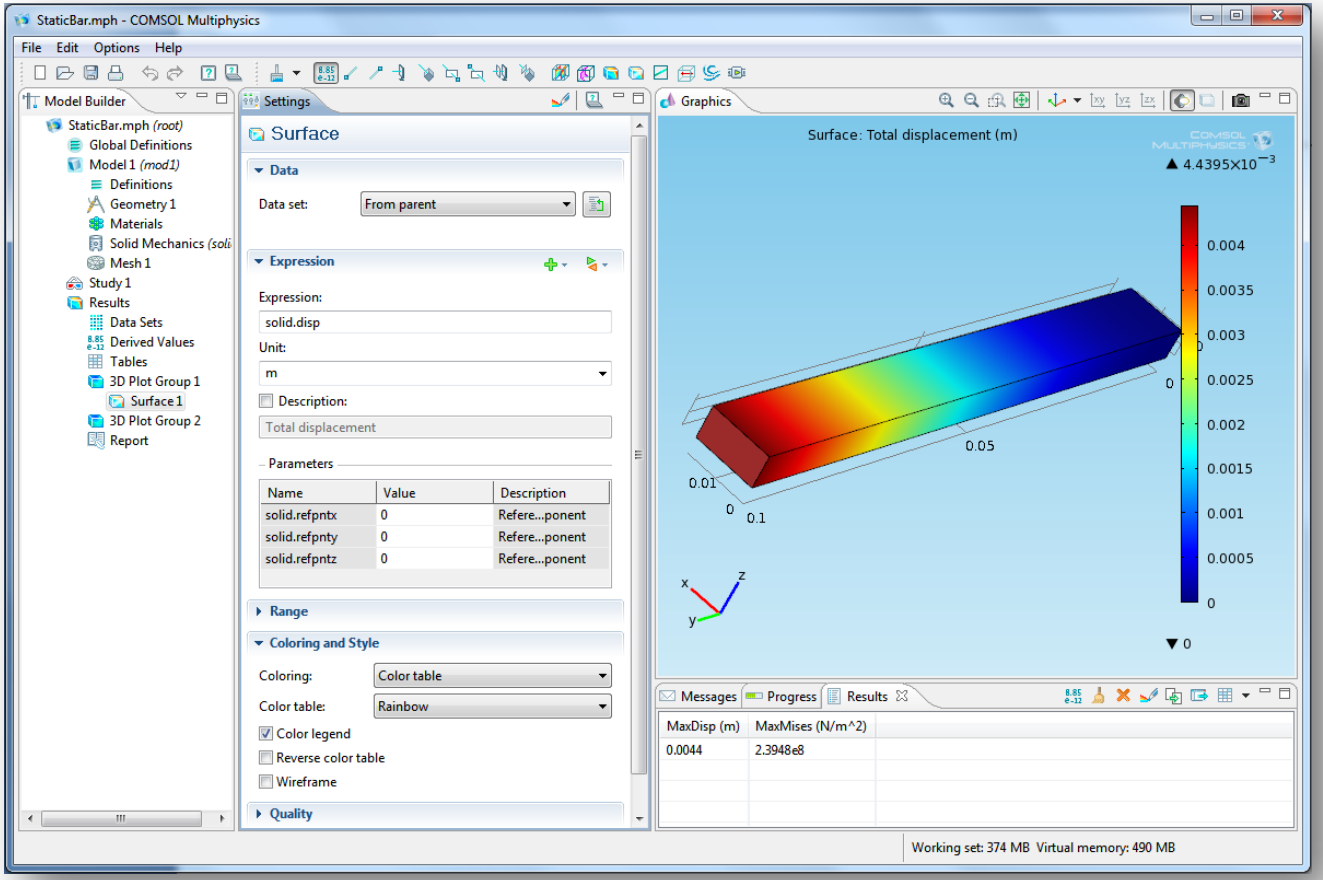
Use the defined parameters for building the model geometry and setting the material properties to get a parameterized model



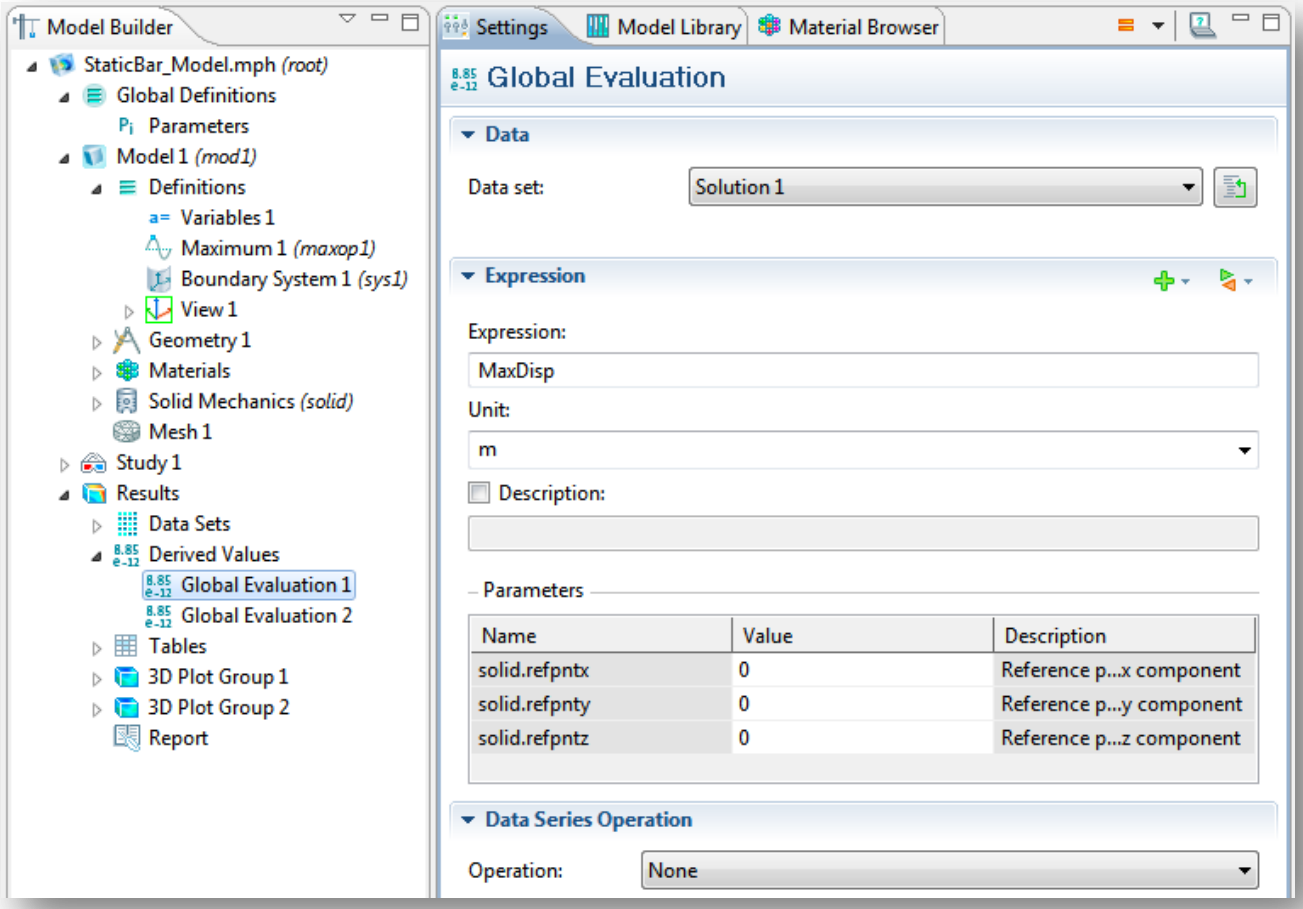
COMSOL Step 3: Define Variables for the Model



COMSOL Step 4: Setting Study and Computing



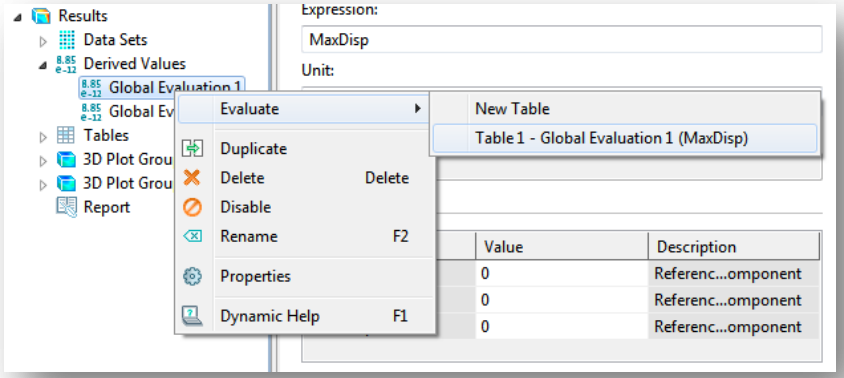
COMSOL Step 5: Define Derived Values

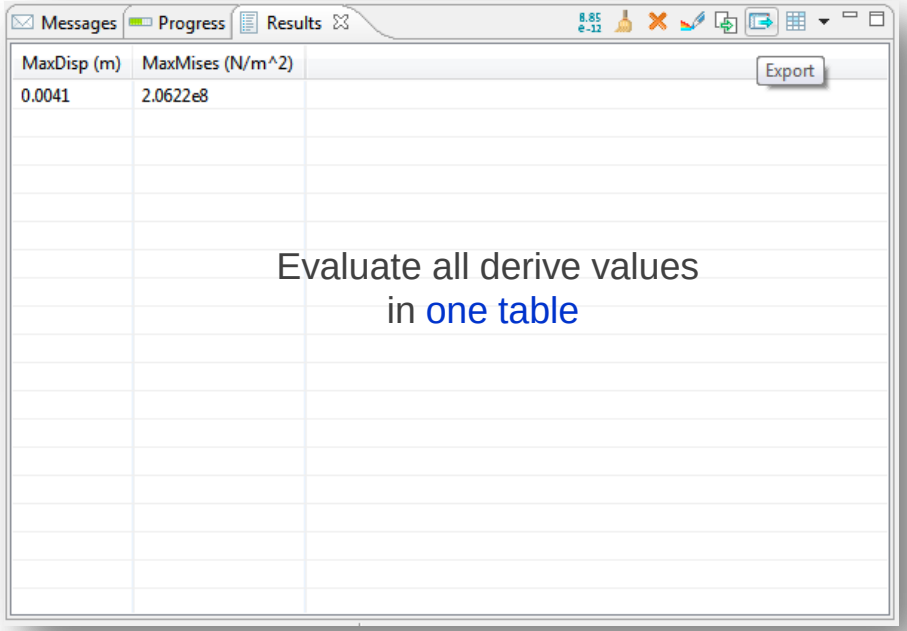


Design Evaluation:

- Volume Integration
- Surface Integration
- Line Integration
- Point Evaluation
- Global Evaluation: based on the defined model variables

COMSOL Step 6: Evaluate All Derived Values in one Table

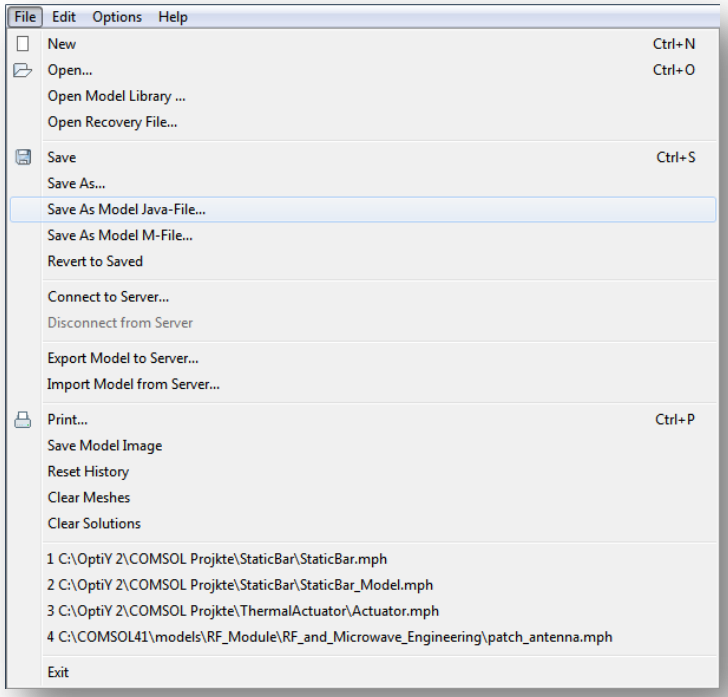




Export the table
to a text file (e.g. Results.txt)

```
% Model:
% Version:              COMSOL 4.1.0.185
% Date:                 May 13 2011, 09:59
% Table:                Table 1 - Global Evaluation 1 (MaxDisp)
% MaxDisp (m)            MaxMises (N/m^2)
0.004096222910633273     2.06215840477051E8
```

COMSOL Step 7: Save The Model to Java File



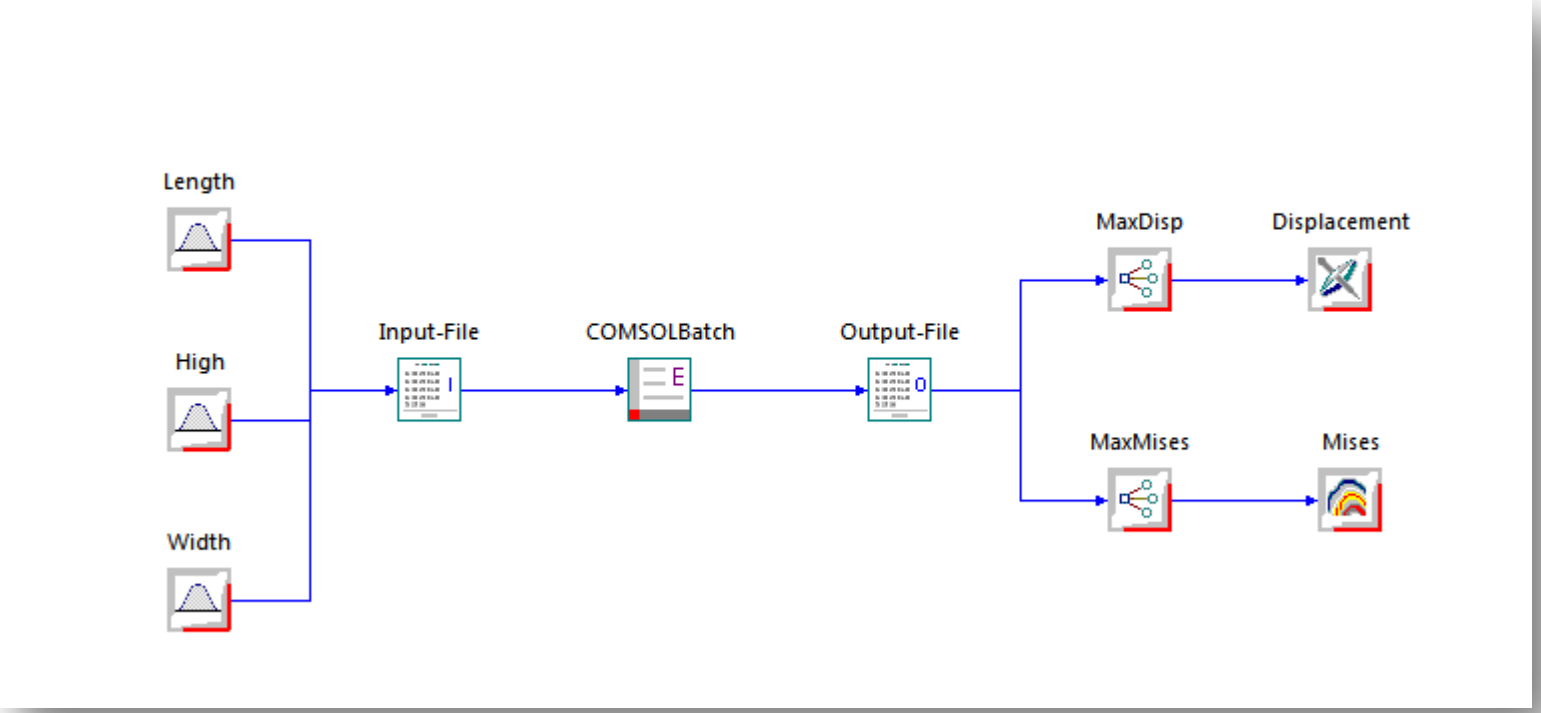

```
import com.comsol.model.*;
import com.comsol.model.util.*;

/** Model exported on May 12 2011, 16:17 by COMSOL 4.1.0.185. */
public class StaticBar {

  public static void main(String[] args) {
    run();
  }

  public static Model run() {
    Model model = ModelUtil.create("Model");

    model.modelPath("C:\\OptiY 2\\COMSOL Projkte\\StaticBar");

    model.param().set("Width", "1.036830E+001[mm]");
    model.param().set("High", "5.130229E+000[mm]");
    model.param().set("Length", "1.011540E+002[mm]");

    model.modelNode().create("mod1");

    model.geom().create("geom1", 3);

    model.mesh().create("mesh1", "geom1");

    model.physics().create("solid", "SolidMechanics", "geom1");
```

Check for important parts of the Java file (e.g StaticBar.java) required in OptiY:

- Setting the model parameter
  Model.param().set("Width", "10[mm]")
- Check computing codes to avoid unnecessary multiple computing
- Save the table to a text file
  model.result().table("tbl1").save("Results.txt");

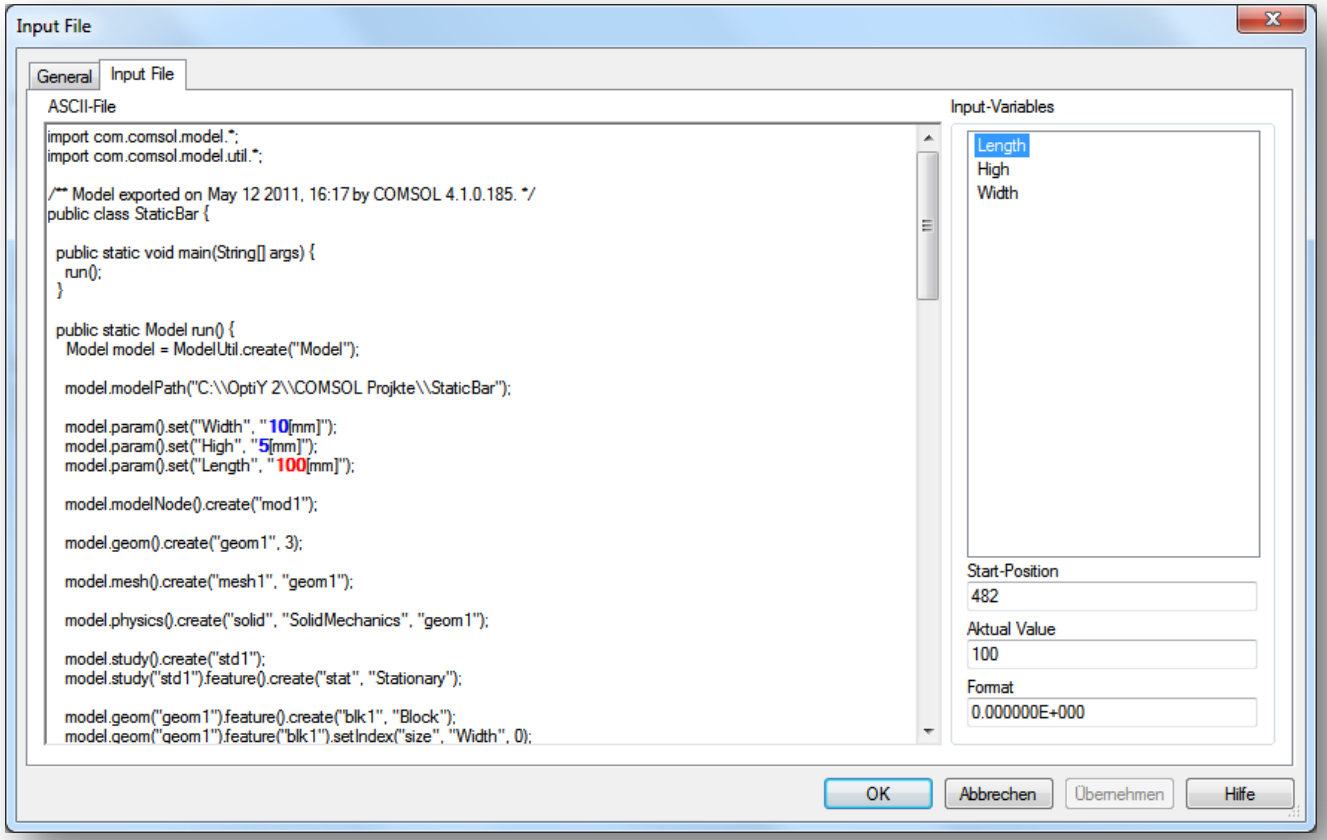
OptiY Step 1: Build the Workflow

Watching the video “Design of Experiment” on http://www.optiy.eu/Demo.htm



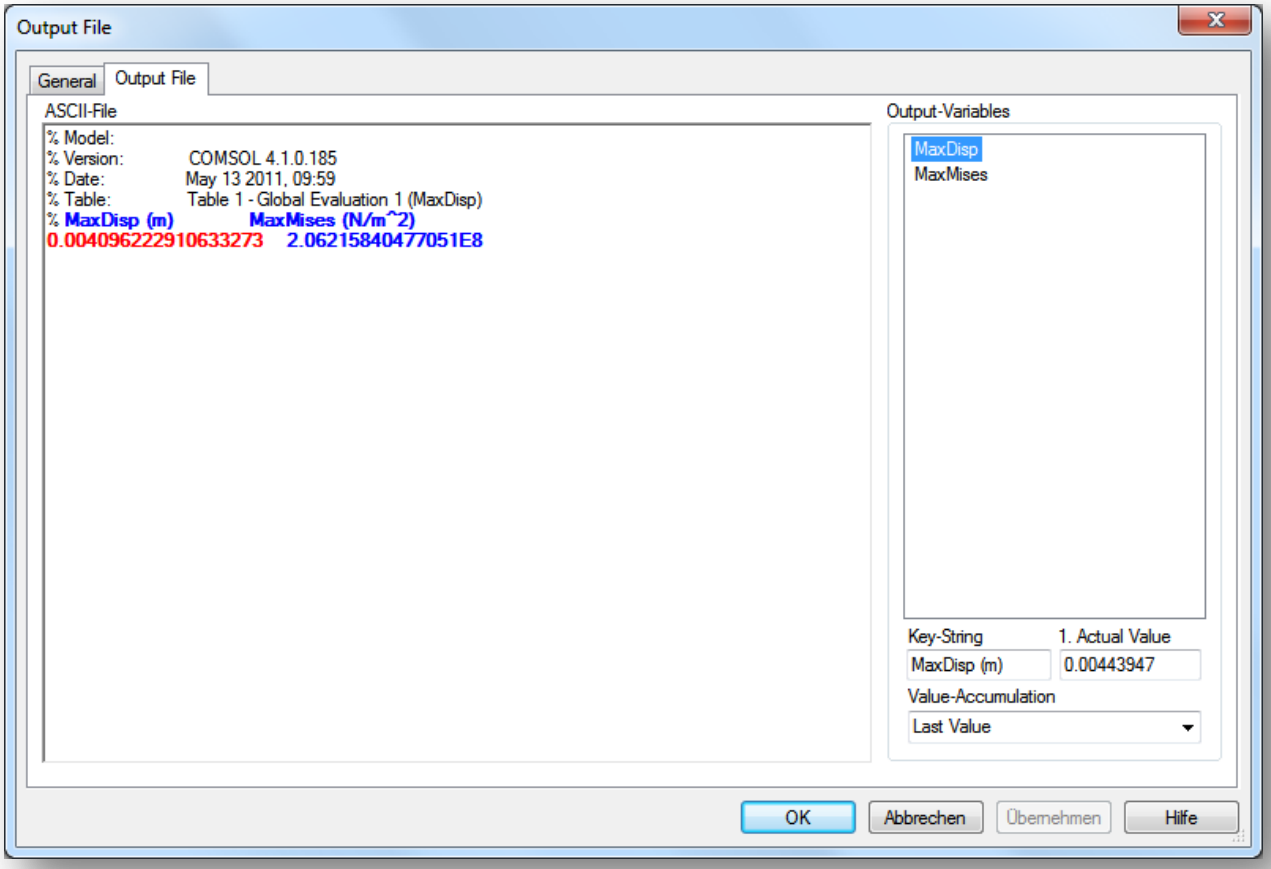
OptiY Step 2: Load the Java File to Input-File

Assign the OptiY input-variables to the COMSOL model parameters

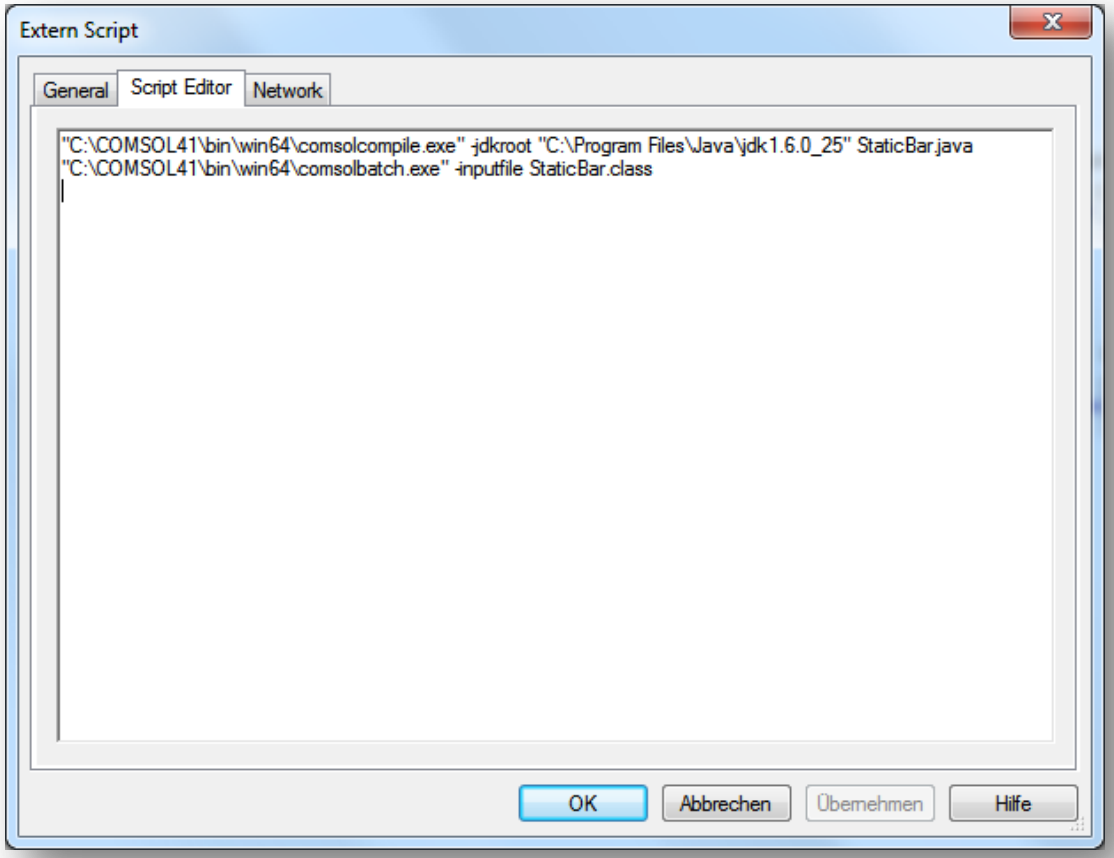


OptiY Step 3: Load the Text File to Output-File

Assign the OptiY output-variables to the COMSOL results



OptiY Step 4: Setting Extern Script



- Java Development Kit (JDK) is required additionally. Free download from www.oracle.com and install it on the computer

- Root path of JDK: "C:\Prgram Files\Java\jdk1.6.0_25"

- Use comsolcompile.exe to compile the Java File (StaticBar.java) to Class File (StaticBar.class)

- Start computing the model (StaticBar.class) in batch mode using comsolbatch.exe