Vouch V1 Beta1

Release Notes

1. Introduction

Vouch enables the User to conduct various safety tests as described in ASTM F963,or the metric equivalent BS EN 71-1:2005, on his/her digital models.

V1 has the following tests included:
- Small Parts Cylinder test
- Small Parts Cylinder Test scaled to 110%
- Rattle Gauge
- Supplemental Rattle Gauge
- Small Ball

2. Support and Bug Reporting

Telephone support is available Monday through Friday from 9:00 AM to 6:00 PM CST/CDT pm, excluding US holidays:

(214) 324-0030

Support questions and bug reporting can be emailed in to:

bugreport@vouchsoftware.com

3. System Requirements

Vouch V1 is intended to run on a PC based workstation without too many particular requirements. The following are minimum recommendations:
- 10 Mb free space for installation
- 1280 x 960 or higher screen resolution
- Windows XP professional 32 or 64 bit
- 2Gb RAM is minimum but 4Gb is recommended

4. Installation and Licensing

- Follow this link to download Vouch:
  http://www.vouchsoftware.com/download/download.html
  Then go to **Download Vouch Beta** and **Run** or **Save** the executable.

- When the installation executable starts to run you may see the following warning dialog:
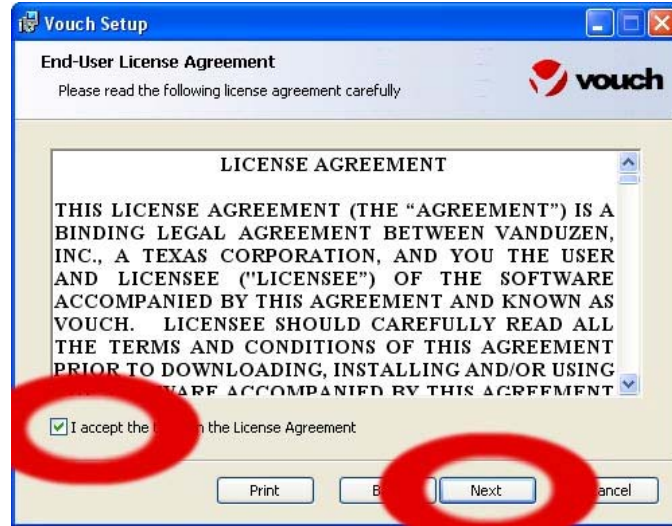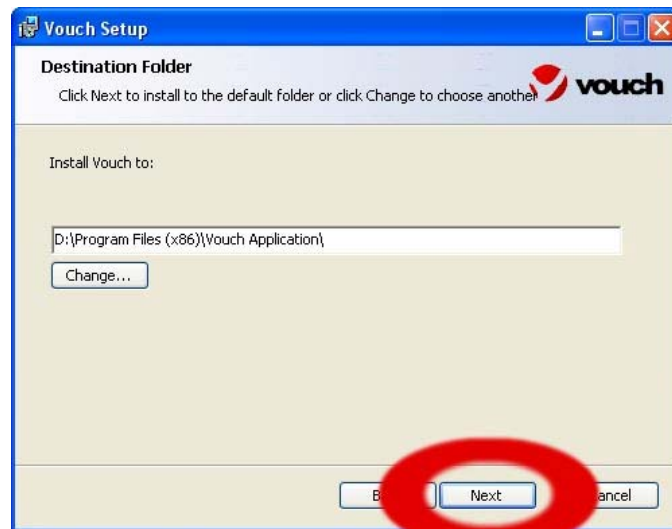

  Select **Run**.

- The Vouch Setup will start running. Select **Next**:
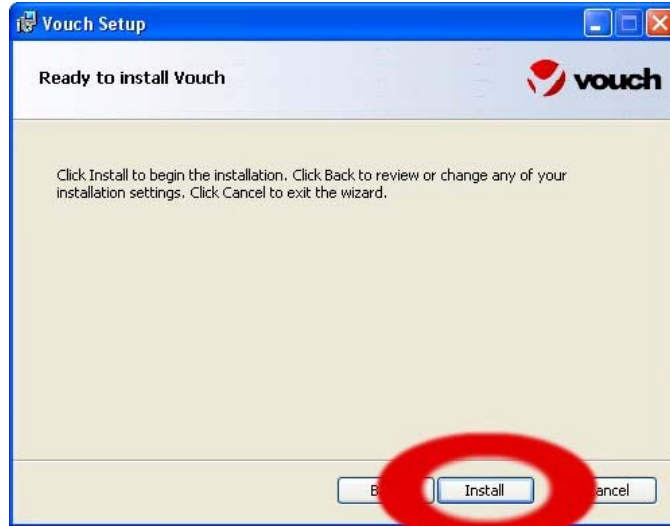

- The End User License Agreement dialog will appear, tick the accept box and then select **Next**:
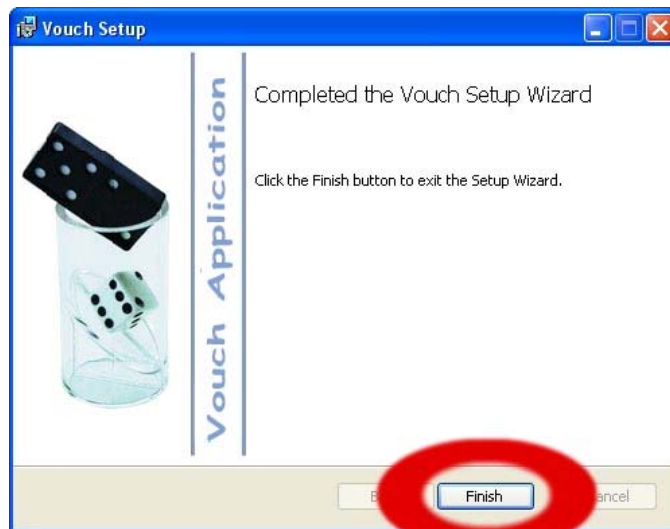
- The Destination Folder dialog will appear. You may change the installation location if you wish. Then select **Next**:

- The Ready to Install dialog will appear. Select **Install**:

- Vouch will install on your computer. Once complete, the Complete dialog will appear. Select **Finish** to exit the installation process:
-

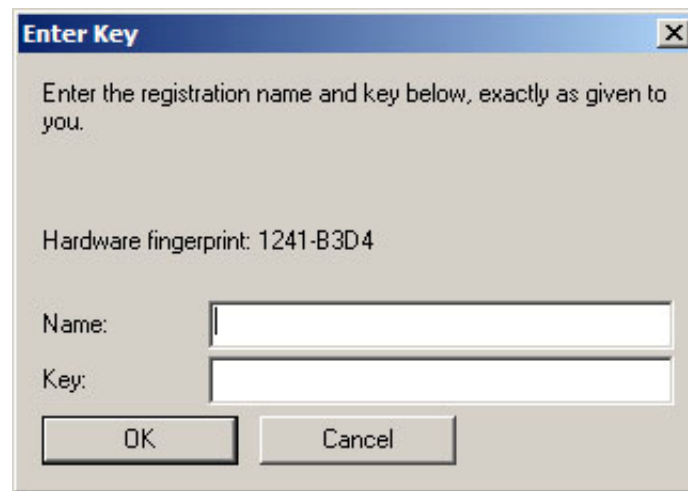- To start Vouch, use the desktop icon:

- The first time Vouch is run, the following message will appear:

The User may choose **OK** to start and use Vouch without licensing for 30 days. After 30 days, Vouch will stop working until licensing is obtained.

- To obtain a license, when the Reminder dialog box appears select **Enter Key** and the following dialog appears:


- Copy the Hardware fingerprint and e-mail this information to licensing@vouchsoftware.com.
- It is also possible to access the Hardware fingerprint when Vouch is running as a trial version by going to **Help** / **About Vouch** and registering there.
  - Once the User receives an email with the license key, complete the Enter Key dialog by entering your name and copy/ paste the key.
  - Choose **OK** and Vouch will start in fully licensed mode.

4. UI Basics

The basic screen looks like:
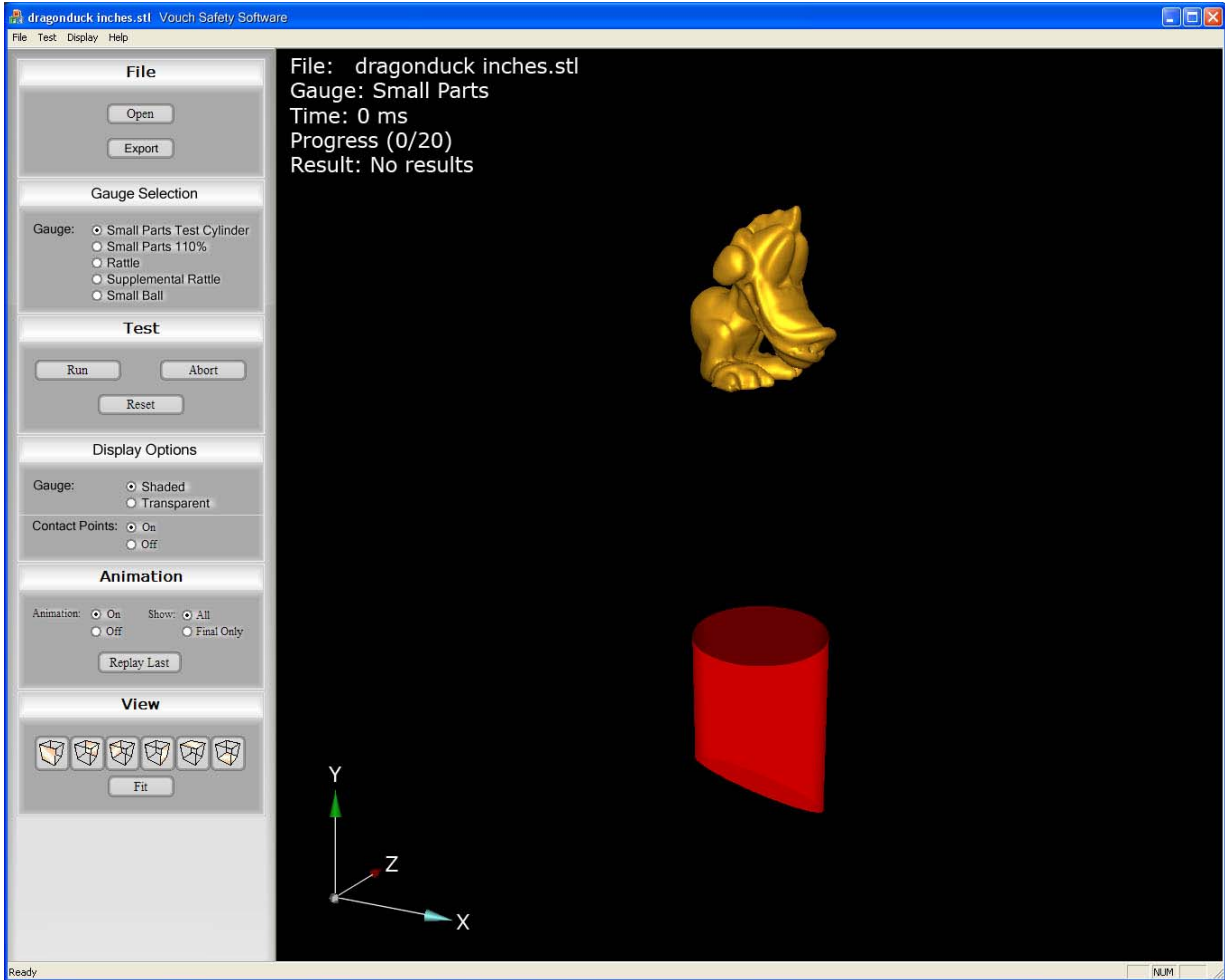
The UI is broken into 3 main areas:
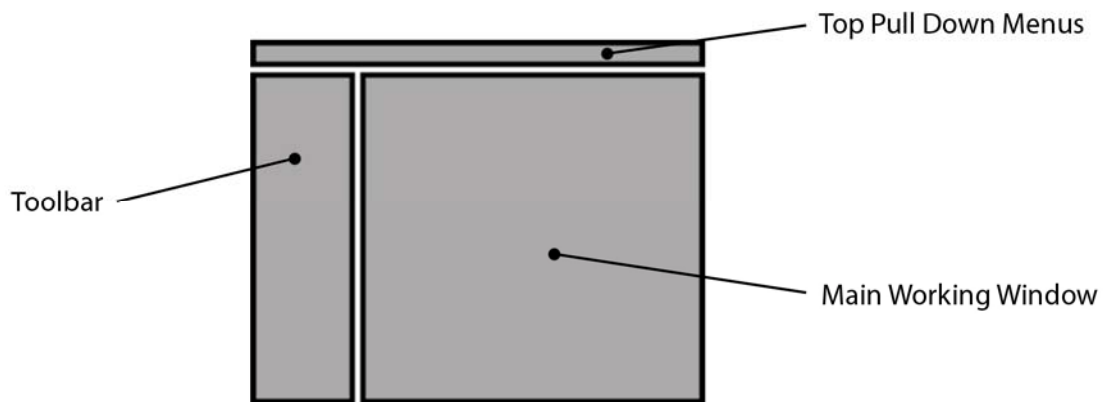
4.1 The Main Working Window

The Main Working Window consists of four main items:
1. The model to be tested. This is always shown solid rendered.
2. The test Gauge. This can be shown solid or transparent rendered.
3. The Triad, located in the bottom left corner.
4. The Textural Information, located in the top left corner.

Note there is no perspective projection in the Main Working Window.

4.2 Mouse Control When in the Main Working Window

LMB: Rotate
MMB / scroll wheel: Zoom
RMB: Pan

4.3 The Toolbar

The Toolbar is broken into Tool Boxes. Tool Boxes contain a collection of tools, each related to a common task in the use of the software. A more detailed description of each tool is included elsewhere.
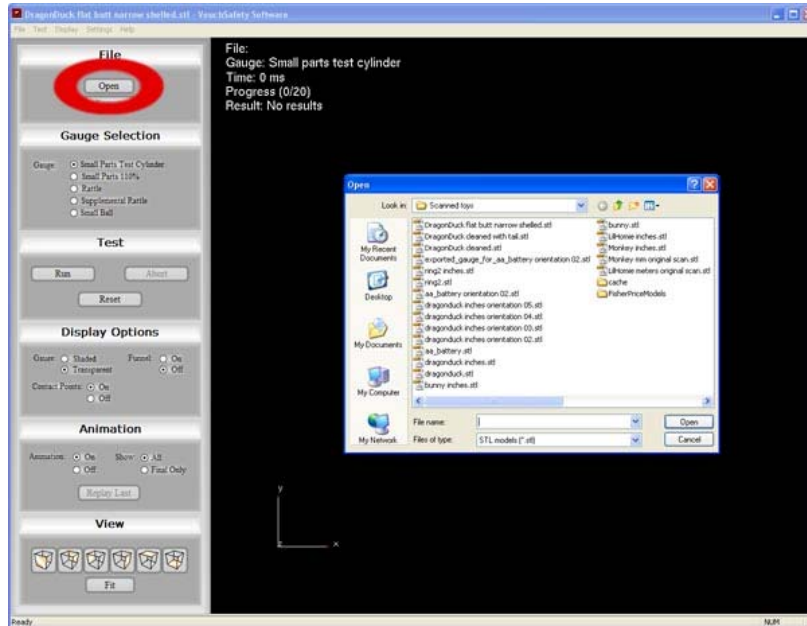
5. Import Formats

Vouch V1 only imports STL files of models built in inches. There are plans to include other formats and units in the future.
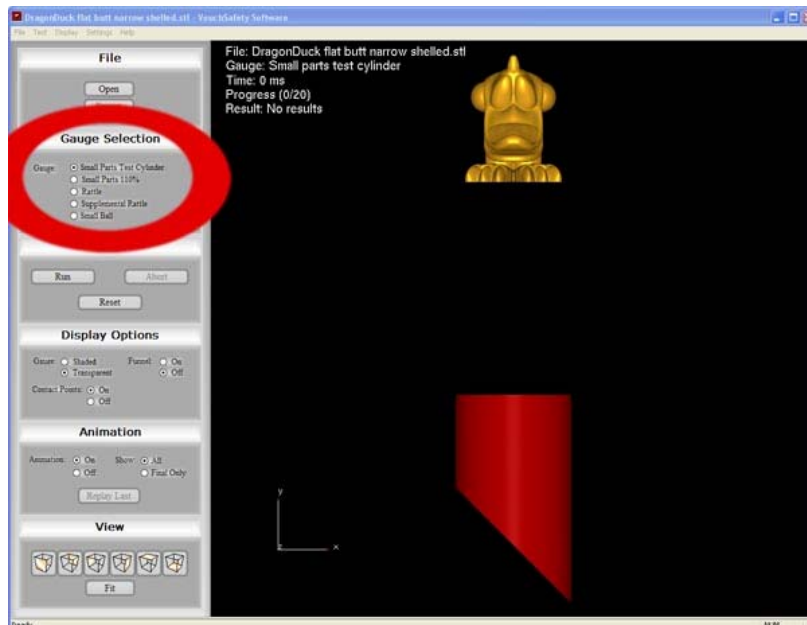
6. Basic Workflow

6.1 Import the Model
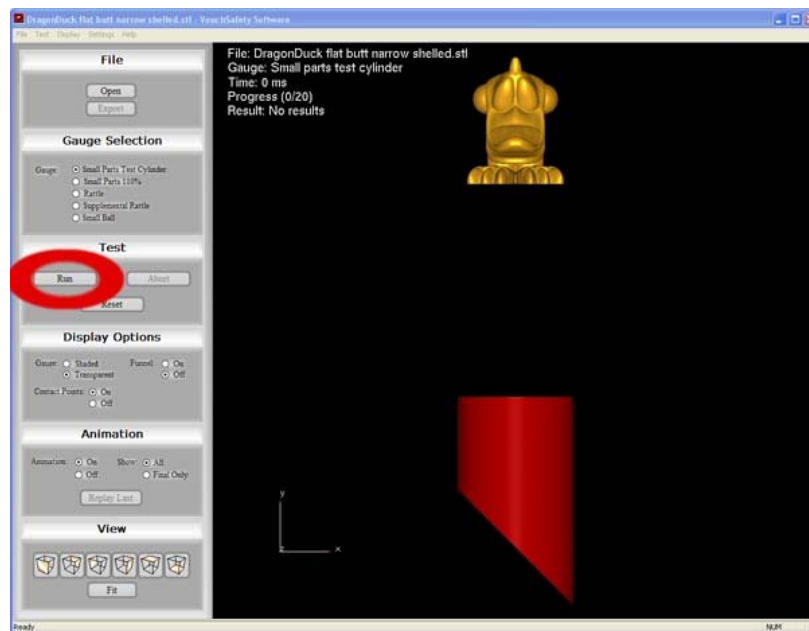
Choose **Open** in the File Tool Box:

6.2 Choose a Gauge

Choose which Gauge to use from the Gauge Selection Tool Box:

6.3 Run the Test

Choose **Run** from the Test Tool Box:

6.4 During the Test

During the test you will see the model fall into the Gauge, in this case the Small Parts Test Cylinder. A complete test is broken up into various attempts. For each attempt, Vouch will try to fit the model into the Gauge. If the model reaches the failure criteria for that Gauge then Vouch will stop the test and report a failure. If Vouch cannot reach a failure criteria in that attempt, then Vouch resets the initial orientation and tries another attempt. Vouch will continue for a user defined number of attempts (20 by default). If no failure is found at the end of all the attempts then Vouch will report a Pass.
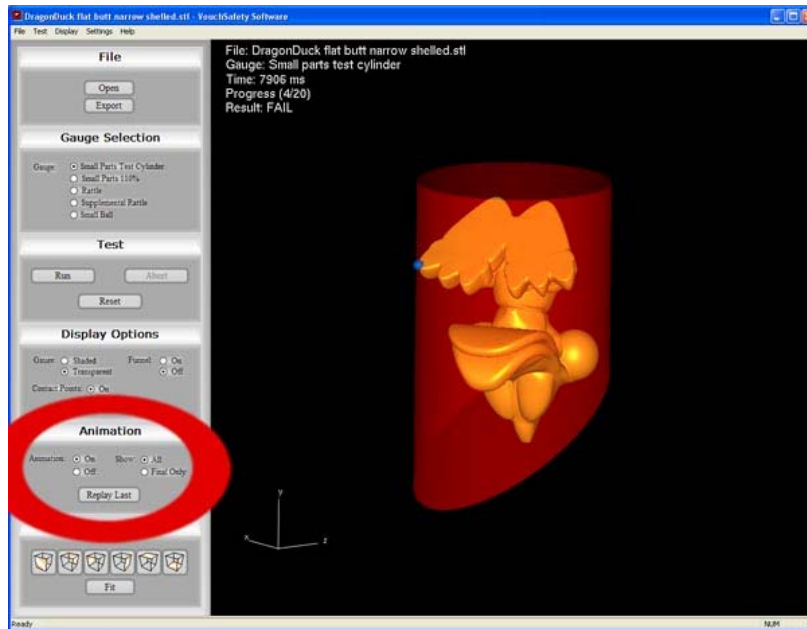
You will also see the Contact Points that occur between the model and Gauge throughout the test.

6.5 Test Results

For this model and this Gauge, the following failure occurs:
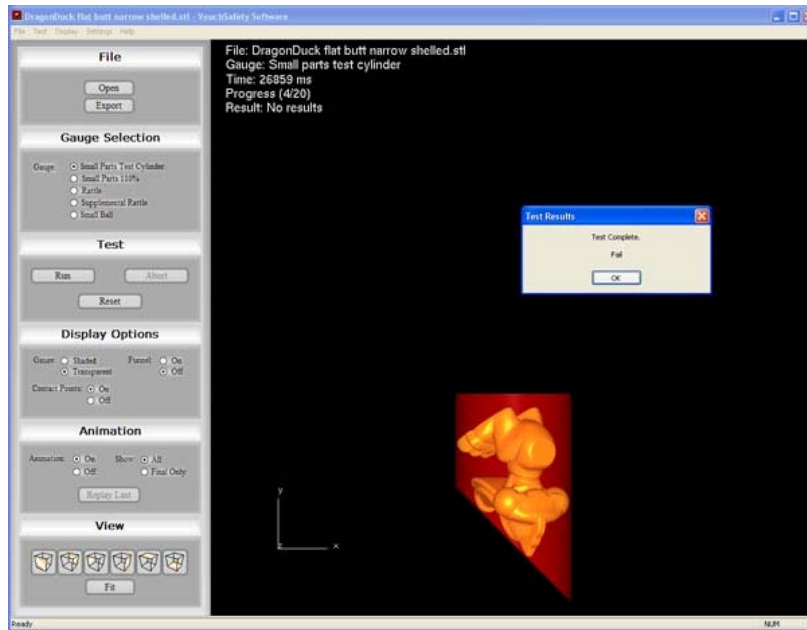
Once the User hits Yes, then animations of either all the attempts or just the failure can be replayed. This is controlled through the Animation Tool Box:


6.6 Exporting the Test Gauge

To help the designer change the model to fix any failures, Vouch has the ability to export the Gauge in the failure orientation relative to the initial import orientation of the model. The gauge is exported in STL format.

7. The Accuracy Settings Dialog

On the Top Pull Down Menus is Settings / Accuracy. This brings up the Accuracy Settings Dialog:
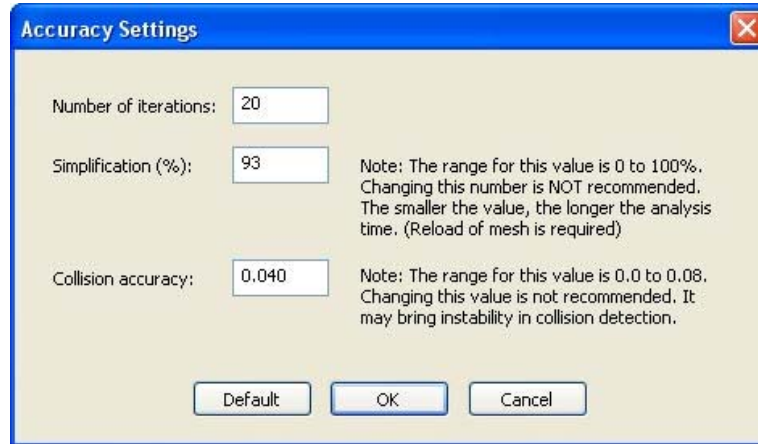
7.1 Number of Iterations:

This controls the number of drops conducted in a Test. If the Test has not failed before this number of drops have been completed, then Vouch will terminate the Test. The greater the number of iterations, then the greater number of initial orientations for the drop will be tested. The default is 20.
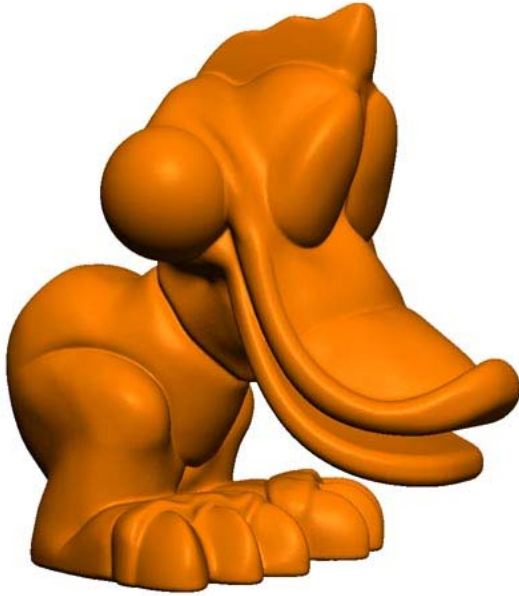
7.2 Simplification(%):

Vouch automatically performs a simplification (otherwise known as decimation or reduction) of the model. This is to speed up the test. The more polygons in a model, then the slower the test will perform.

Even though the analysis is using this simplified model, the full detail model is being used for the graphical animation.

As you can see in the next set of images, the simplification process does change the geometry of the model being analyzed. By choosing a lower level of simplification, then the model is more accurate. But the trade-off here is the speed of the test. Lower levels of simplification can dramatically increase the time taken, without necessarily increasing the accuracy of the result.
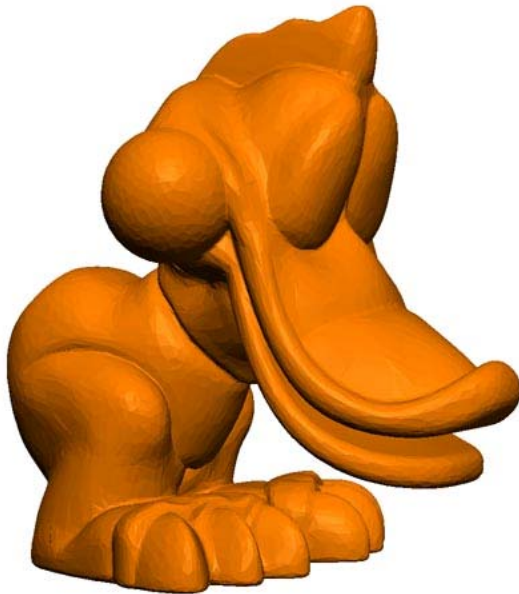
The effect of various levels of Simplification are shown next. (Please note the times and images are intended to be representational as Vouch is still in development):
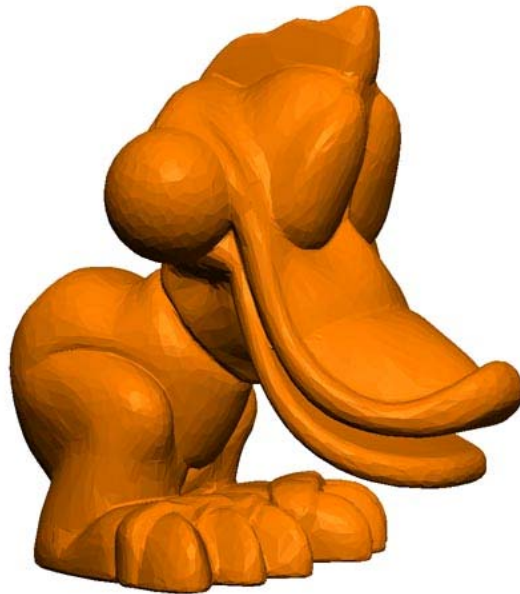
0% simplification
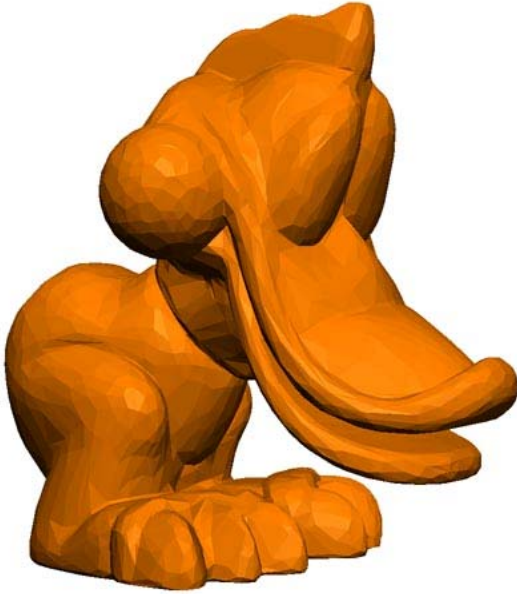Number of polys: 300,000
Time for SPTC test: >120 mins
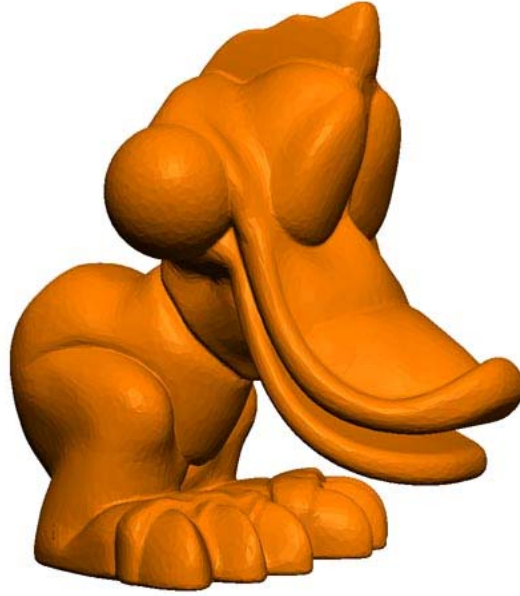
20% simplification
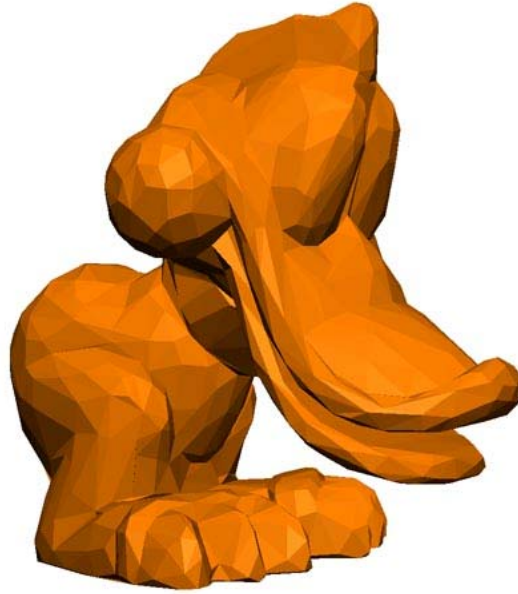Number of polys: 24,000
Time for SPTC test: >60 mins

40% simplification
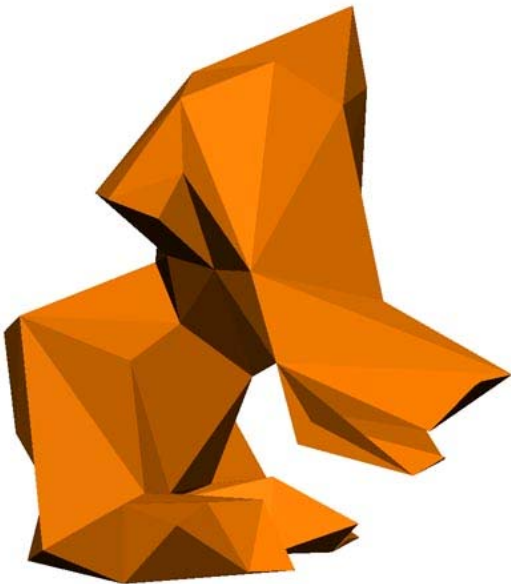Number of polys: 18,000
Time for SPTC test: 20 mins 45 secs

60% simplification
Number of polys: 12,000
Time for SPTC test: 13 mins 37 secs

80% simplification
Number of polys: 6,000
Time for SPTC test: 6 mins 34 secs

93% simplification (default)
Number of polys: 2,100
 Time for SPTC test: 2mins 39 secs

99% simplification
Number of polys:108
Time for SPTC test: 43 secs

7.3 Simplification - An Alternative Approach

The simplification that Vouch performs gives no visual feedback of what the simplified model looks like. Nor any numerical feedback of, for example, how many polygons are in the simplified result.

We have found that this is acceptable for most Users and most cases.

An alternative approach is to use your design software to do all the simplification of the model. Then in Vouch, use 0% simplification upon import.

7.4 Collision Accuracy

This controls how close the model being tested can get to the gauge surface before Vouch considers that a collision has occurred. The minimum value here is 0.008". There are some good technical math reasons, plus time trade-offs and cost implications, why 0.000" is not permitted. The default setting is 0.040". Feedback on these settings and the results the User obtains are important to the development of Vouch.

8. What is the Funnel?

When the test is initiated the model falls toward the Gauge as if under gravity. In order to guide the model into the opening of the Gauge, a funnel is used. by default, the display of the Funnel is turned off. To see the Funnel in the Main Working Window, turn on the display in the Display Options Tool Box.
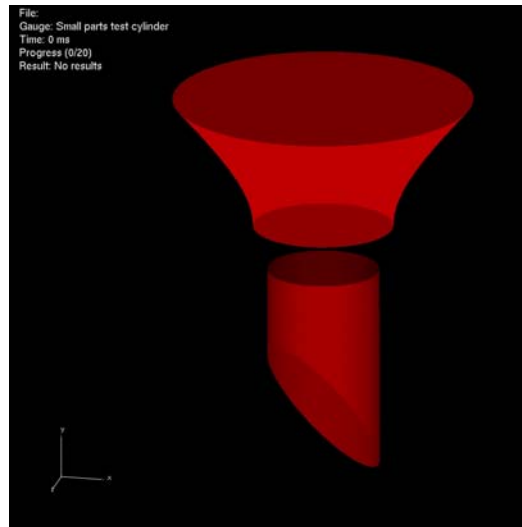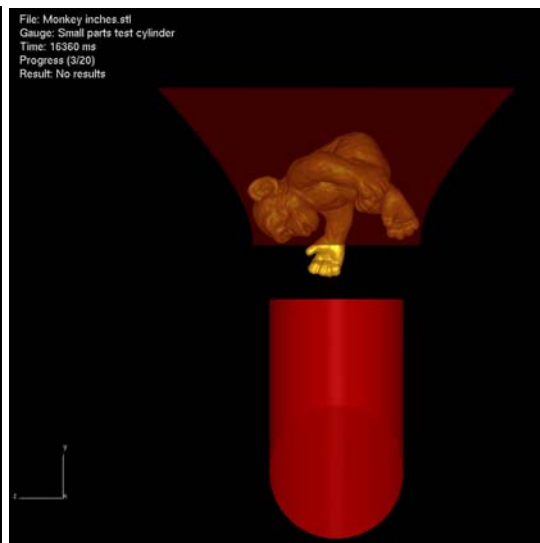

Note that in the above image, for clarity, the Funnel is shown much brighter than normal. Typically, the Funnel is much darker in order to be as visually unintrusive as possible.

During the test, it is possible for the model to get hung up on the Funnel. This may look odd as it looks like the Toy is hanging in the air. This is shown below with and without the Funnel shown next:
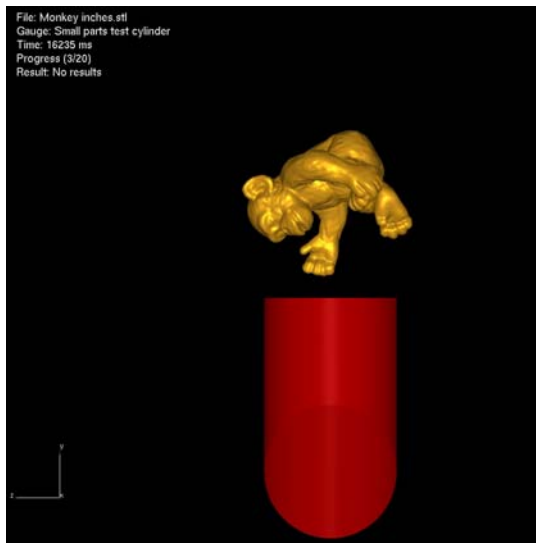
No Funnel shown   Funnel shown

9. Known Issues

9.1 Graphics Interference

We are aware that sometimes the model will interfere with the Gauge as shown in the next image. We are currently working on resolving this issue. We would also like your feedback on whether this effects the accuracy of your results.