

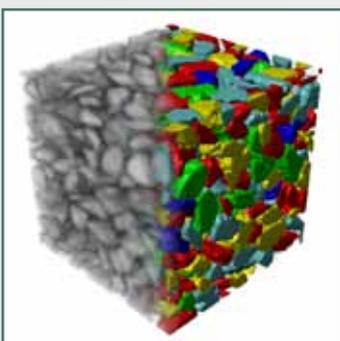
# SIMPLEWARE FOR NON-DESTRUCTIVE EVALUATION & REVERSE ENGINEERING



Simpleware provides comprehensive software solutions for reconstructing and inspecting the internal features of manufactured components. Import and process data from modalities such as CT, micro-CT, nano-CT and ultrasound to rapidly visualise manufacturing defects such as pores and cracks. Export multi-part meshes for non-destructive evaluation in Finite Element (FE) and Computational Fluid Dynamics (CFD) solvers, and reverse engineer legacy parts for qualitative analysis and 3D printing. Models can also be exported as NURBS-based CAD files for design applications.

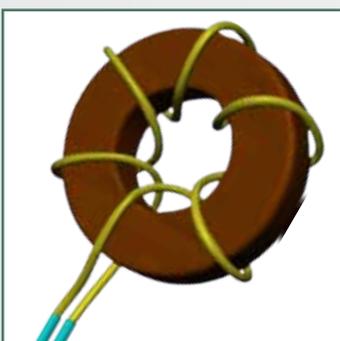
## From Image to Model in Minutes

Simpleware software offers an intuitive, easy-to-use interface for processing 3D image datasets from a wide range of scan modalities. Find tools quickly and efficiently using a ribbon design, and make use of a comprehensive set of tutorials when learning the software. Full technical assistance on image processing and meshing is also available from our team of support engineers.



## Customise your Workflow

It is possible to customise Simpleware software to meet your specific workflow needs. A scripting API allows access to all options within the software and provides support for a range of languages, including Python, C# and Java. This functionality enables you to automate repeatable operations, build wizards and integrate your own plugins. Script creation is also possible through macro recording.



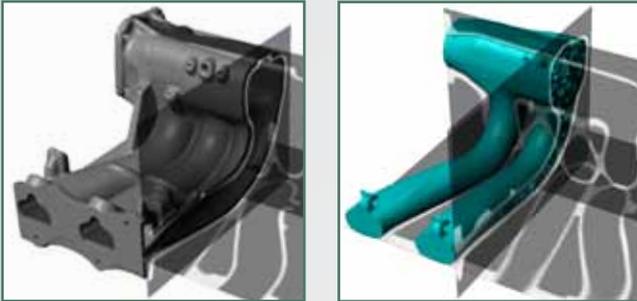
## Key Features and Benefits

- » **Intuitive user interface:** easy-to-learn and easy-to-use
- » **Range of measurements and statistics:** volume, surface area, pore sizes...
- » **Import 3D image data of any scale:** CT, micro-CT, nano-CT, SEM...
- » **Conforming multi-part meshing:** automated, robust, fast, simulation-ready
- » **Advanced 3D image processing tools:** visualisation, segmentation, analysis...
- » **Established solver compatibility:** direct export for all leading FE/CFD solvers
- » **Create animations:** multiple animation cues, fly-throughs...
- » **Customisable and extensible:** comprehensive scripting facility

## 3D GREYSCALE VISUALISATION AND IMAGE SEGMENTATION

Simpleware software provides a range of tools and filters for processing industrial image data. Render 2D images in 3D directly after import, and visualise your scans using colour and opacity mapping tools. Semi-automated and manual segmentation tools can be used to identify regions of interest (ROIs), including different material phases and pores on the nano and micro-scale.

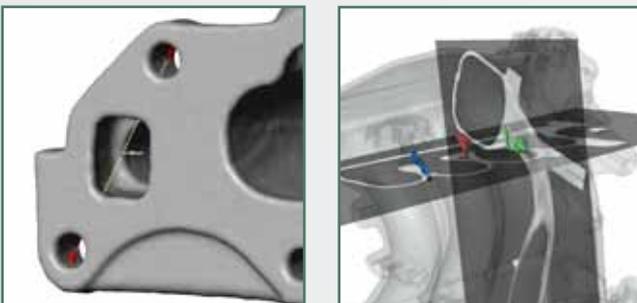
- » Use background volume rendering (presets or greyscale mapping)
- » Apply Boolean operations to 3D image data
- » Generate animations from your 3D image data
- » Smooth data whilst preserving volume/topology



## MEASUREMENTS AND STATISTICS

Industrial parts can be rapidly quantified using intuitive measurement tools and a statistics framework with built-in and user-defined options for studying image data. Analyse component features such as internal volumes, cracks, corrosion and porosity generated during manufacturing, and reverse engineer parts from scans for comprehensive characterisation.

- » Create and save points, distances and angles
- » Use quick statistics (volume, surface area, average greyscale...)
- » Compute statistics for voxel-based masks and polygon-based models
- » Generate centreline statistics



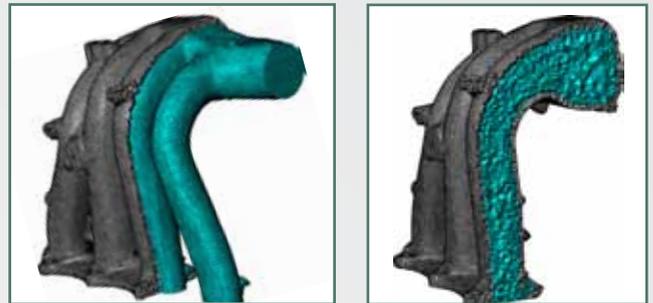
Simpleware develops industry-leading image processing software solutions and services for 3D image data visualisation, analysis and model generation.

Follow us on:      

## MULTI-PART MESHING AND EXPORT TO CAD, CAE AND 3D PRINTING

Robust multi-part surface and volume meshes of industrial components can be generated using Simpleware software's proprietary algorithms. Export volumetric meshes to FE and CFD solvers for simulation of part performance, as well as watertight STL files for 3D printing/Additive Manufacturing, and NURBS files for CAD.

- » Multi-part meshes feature conforming interfaces with shared nodes
- » Define FE contacts, nodes and shells and CFD boundary conditions
- » Assign material properties based on underlying greyscale data
- » Inspect and refine mesh quality before export



## RECENT APPLICATIONS

Simpleware software has been used to create models for a wide range of NDE and reverse engineering projects. For example:

- » Stress testing asphalt pavement samples
- » Modelling dynamic damage processes for phase composites
- » Inspecting and simulating fuel cell performance
- » Optimising array design using stress corrosion crack geometries
- » Reconstructing manifold engines for CFD analyses
- » Simulating magnetic current and flux density of a toroidal inductor
- » Inspecting turbine fans

Visit our website for a free, fully functional software trial. Trial versions are fully supported by our technical team.

simpleware 

[www.simpleware.com](http://www.simpleware.com)